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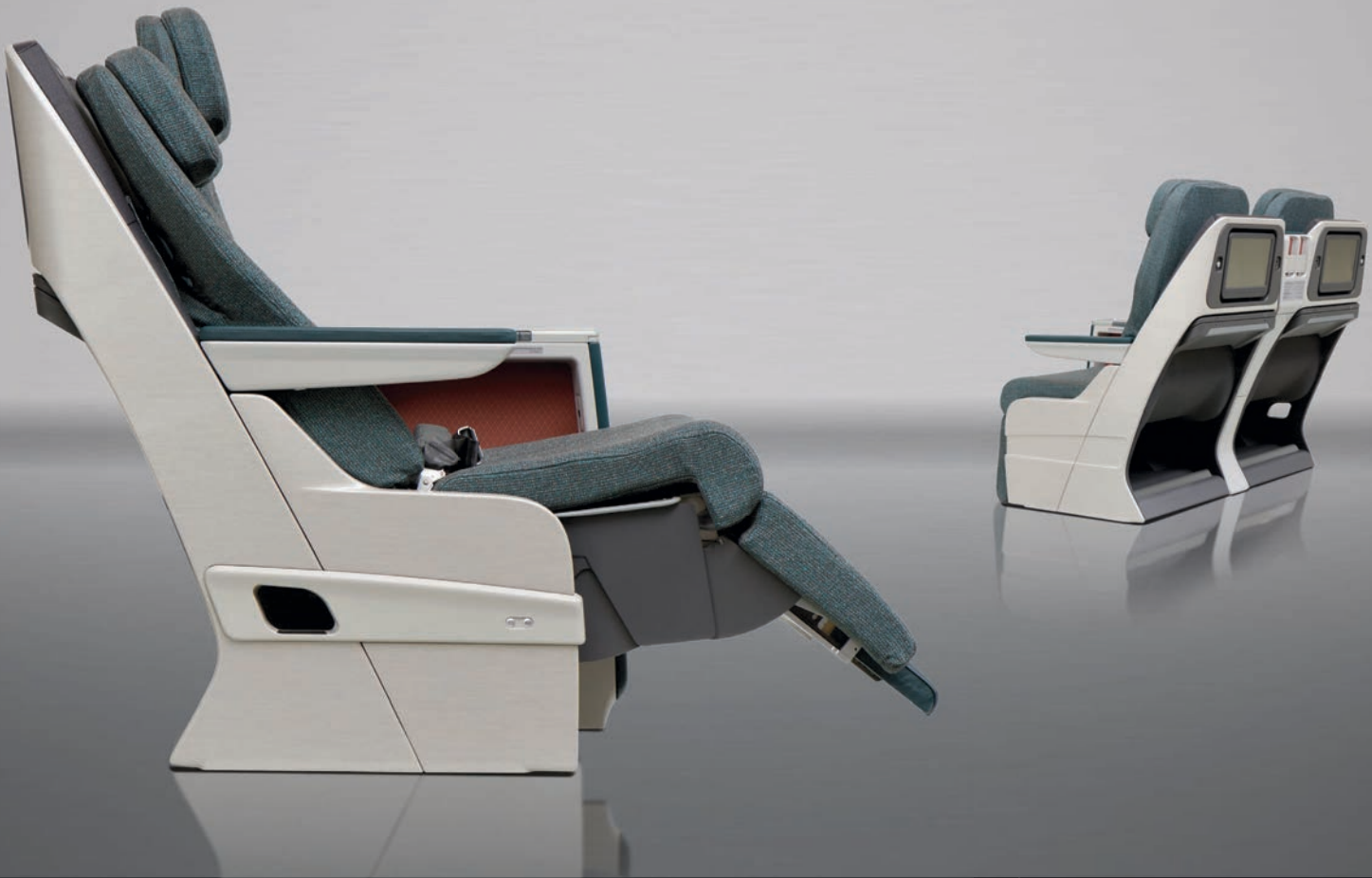
THE INTERNATIONAL REVIEW OF AIRCRAFT INTERIOR DESIGN AND COMPLETION



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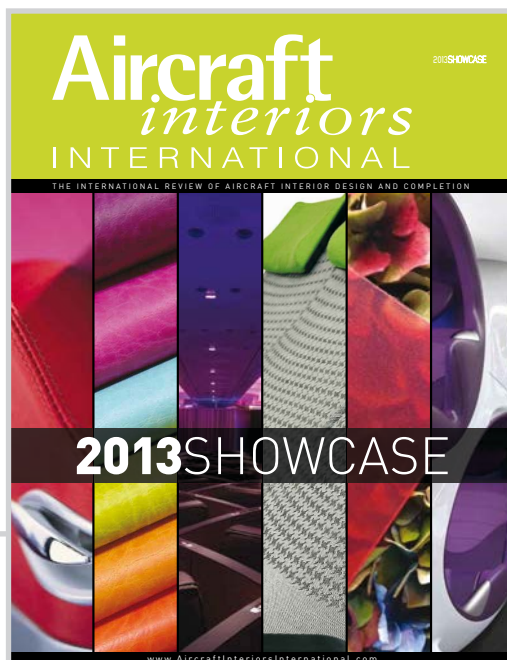
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I have to admit, putting together this year's Showcase issue has been rather more difficult than expected. Featuring the cream of the world's design companies and suppliers, the content is superb. But trying to reach those companies has been challenging, to say the least. Why? Because they are all incredibly busy – far busier than they have been for years, many said. This, for me, was so good to hear that the resultant long hours of work were almost a pleasure.

However, what was absolutely a pleasure was a meeting I attended in London back in September when John Leahy, Airbus COO for customers, stated that the company predicts worldwide demand for aircraft to exceed 27,000 over the next 20 years, totalling around US\$3.7 trillion. That's not just Airbus aircraft, but all commercial aircraft with 100 seats or more, with very large aircraft such as the A380 accounting for 1,700 units, twin-aisle aircraft 6,500, and the single-aisle market demanding over 19,500. Leahy says that emerging economic regions are the driver behind these figures, with such areas driving half of the predicted annual growth rate of 4.7% in the market. In addition, he says that in 20 years' time, China will overtake the USA to become the largest market in terms of domestic air passenger traffic. This rise will have major ramifications and opportunities for the design

community, especially as more and more low-cost carriers emerge to meet domestic demands, all with branding, livery and cabin design needs. Small wonder that design companies such as Priestmangoode, Tangerine and JPA have established satellite offices in the East.

Other big news in 2012 has been that more and more carriers are charging for checked baggage, leading to more and more passengers trying to bring larger bags into the cabin, putting greater pressure on stowage bin capacities. As ever, the design community has anticipated and responded to this trend, with great concepts such as ZEO's ISIS interior for the A320 (see page 74) and indeed stablemate Zodiac Airline Cabin Interiors' retrofit concept, which initially went under the name Project Amber (see page 136), both of which raise the bag count in the cabin, while adding other benefits in cabin space and style.

Speaking of trends, what's next for the aircraft cabin? Connectivity for all? Passenger empowerment? Knitting? You'll find out from international trends experts on page 8.

Whatever the future holds, one thing is for sure: the design houses you'll find in this Annual Showcase issue will be heavily involved in it, and will be busier than ever. I'm already looking forward to more late nights next year!

Adam Gavine, editor

features

008 future trends

Trends research experts contemplate the factors that will influence future cabin design, from connectivity to training shoes

018 IFE insight


Robert Smith from IFE analysis experts IMDC explains the view from a technology crossroads

026 look back

2012 has been a great year for cabin design. We reflect on just a few of the highlights that made 2012 so great

108 design directory

This issue's featured design firms - at a glance



"Since full-flat beds have become the industry norm in business class, airlines are looking for ways to differentiate the passenger experience"

RAYMOND KOLLAU, FOUNDER, AIRLINE TRENDS, PAGE 8

144 back page

Claire Nurcombe explains why space and light are key to the success of Airbus

144 index to advertisers

design showcase

TEAGUE: WHY BRAND DIFFERENTIATION IS NOW AN ABSOLUTE IMPERATIVE FOR AIRLINES AND SHOULD FOLLOW RETAIL'S EXAMPLE

038

PRIESTMANGOODE: THIS DESIGN FIRM HAS JUST COMPLETED AN EXCITING PROJECT, DEFINING THE BRAND EXPERIENCE FOR BUDGET STARTUP THAI SMILE

042

FACTORYDESIGN: A LITTLE FUTURE GAZING, SOME DRAMATIC SEATING CONCEPTS, AND EVEN A LITTLE COLDPLAY, FROM THE FACTORYDESIGN TEAM

046

PENGELLY DESIGN: THE LOVING ATTENTION TO DETAIL IN FURNITURE DESIGN IS JUST AS WORTHWHILE WHEN APPLIED TO AIRCRAFT CABINS

050

MBLM: ENJOY SOME LATIN LOVE IN SOUTH AMERICAN CARRIER LAN'S NEW CABIN, WHICH WAS DESIGNED BY NEW YORK-BASED BRAND AGENCY MBLM

054

ALTITUDE: A GLIMPSE INTO THE FUTURE FROM THIS NEW ZEALAND-BASED COMPANY, INCLUDING FUTURE GALLEYS, THE BOEING FAMILY'S POTENTIAL AND VIP COMPLETIONS

058

PIERREJEAN DESIGN: THE PURSUIT OF OPTIMAL USE OF EVERY LAST INCH OF CABIN SPACE CAN RESULT IN STRIKING AND SPACIOUS DESIGN

062

JPA DESIGN: THIS AGENCY IS ENJOYING WORLDWIDE SUCCESS, WITH HIGH-PROFILE PRODUCT ABOARD AIRLINES FROM SIA TO US AIRWAYS, GULF TO AMERICAN

066

DESIGN Q: THREE CONCEPTS WERE CREATED AND EXPLORED WHEN CREATING THE TRIM AND FINISH FOR BOMBARDIER'S C-SERIES CABIN DEMONSTRATOR

070

ZEO: HOW THE ZODIAC AEROSPACE DESIGN STUDIO TURNED AROUND THE AMBITIOUS ISIS A320 CABIN CONCEPT IN JUST SIX MONTHS

074

PEARSONLLOYD: A SIMPLE APPROACH TO COMPLEX PROBLEMS CAN CREATE DRAMATIC DESIGNS, SUCH AS LUFTHANSA'S NEW BUSINESS CLASS

078

FORPEOPLE: ONE OF THE DRIVING FORCES BEHIND BRITISH AIRWAYS' DESIGNS EXPLAINS ITS DESIGN PHILOSOPHY

082

LUDEKEDESIGN: THE AGENCY'S FOUNDER TAKES A LOOK AT THE HUMAN ELEMENTS THAT CAN PUT THE FUN BACK INTO DESIGN

088

TANGERINE: SOMETIMES TO MOVE FORWARD THE DESIGNER HAS TO TAKE A STEP BACKWARD IN THE QUEST FOR ORIGINALITY

092

B/E ADVANCED DESIGN: BEAD IS A NEW NAME IN CABIN DESIGN, MADE UP OF THE FAMILIAR B/E AEROSPACE R&D AND DESIGN TEAMS

096

TXS INDUSTRIAL DESIGN: SPEND A DAY IN THIS TEXAN FIRM'S DESIGN STUDIOS WITH THE FOUNDER, TIM TERLESKI

100

PACE AEROSPACE ENGINEERING: AIRCRAFT INTERIOR SPECIFICATION IS NO EASY TASK. THE LATEST PACELAB CABIN CONFIGURATION SOFTWARE MAY SIMPLIFY THE PROCESS

104

supplier showcase

RECARO: AN UPDATE FROM THE COMPANY'S CEO ON RECENT DEVELOPMENTS, INCLUDING THE SUCCESS OF THE BL3520 ECONOMY CLASS SEAT

112

ANDREW MUIRHEAD: THINK ARTIFICIAL LEATHER IS BETTER FOR WEIGHT, COMFORT AND DURABILITY? THINK AGAIN, SAYS THIS LEATHER EXPERT

116

KYDEX: A RANGE OF THERMOPLASTICS THAT CAN BE CREATED IN A WIDE VARIETY OF COLOURS TO MATCH EVEN THE BRIGHTEST CONCEPT

120

ROCKWELL COLLINS: THE EVER-POPULAR AIRSHOW MOVING MAP IS MOVING FROM JUST TWO-COLOUR 2D TO HIGH-RESOLUTION, INTERACTIVE 3D

124

SPAFAX: THINK BEYOND MERE MOVIES IN YOUR IFE CONTENT PROVISIONING; A STRONG AIRLINE BRANDING MESSAGE SHOULD ALSO BE DELIVERED TO THE CAPTIVE AUDIENCE

128

GEVEN: THIS NEW NAME IN THE AIRBUS BFE VENDOR CATALOGUES SHARES ITS IDEAS AND ITS VISION FOR THE FUTURE OF CABIN SEATING

132

TAPIS: THIS ULTRALEATHER COMPANY CLAIMS THAT IT CAN BEAT LEATHER IN TERMS OF WEIGHT, DURABILITY, AND COMFORT

134

ZODIAC AIRLINE CABIN INTERIORS: A NEW NAME FOR HEATH TECNA AND A NEW CONCEPT IN OVERHEAD BIN STOWAGE SYSTEMS

136

BOLTARON: HOW THERMOPLASTIC ALLOY SHEETS CAN GIVE AIRCRAFT WINDOW SHADES A LIFT IN APPEARANCE

138

AEROLUX: CHANGES HAVE BEEN TAKING PLACE AT THIS GALLEY EQUIPMENT COMPANY IN RECENT YEARS, BRINGING NEW MANAGEMENT AND NEW PRODUCTS

140

DIEHL AEROSYSTEMS: FOLLOWING THE COMPLETION OF ITS GROWTH STRATEGY, THE COMPANY IS LOOKING AT CONSOLIDATING AND ENHANCING OPERATIONS

142

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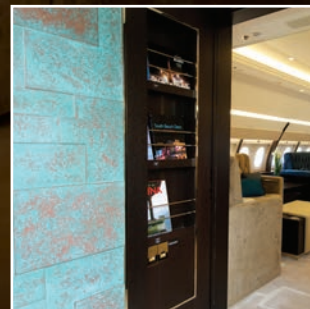
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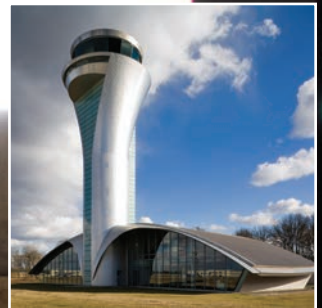
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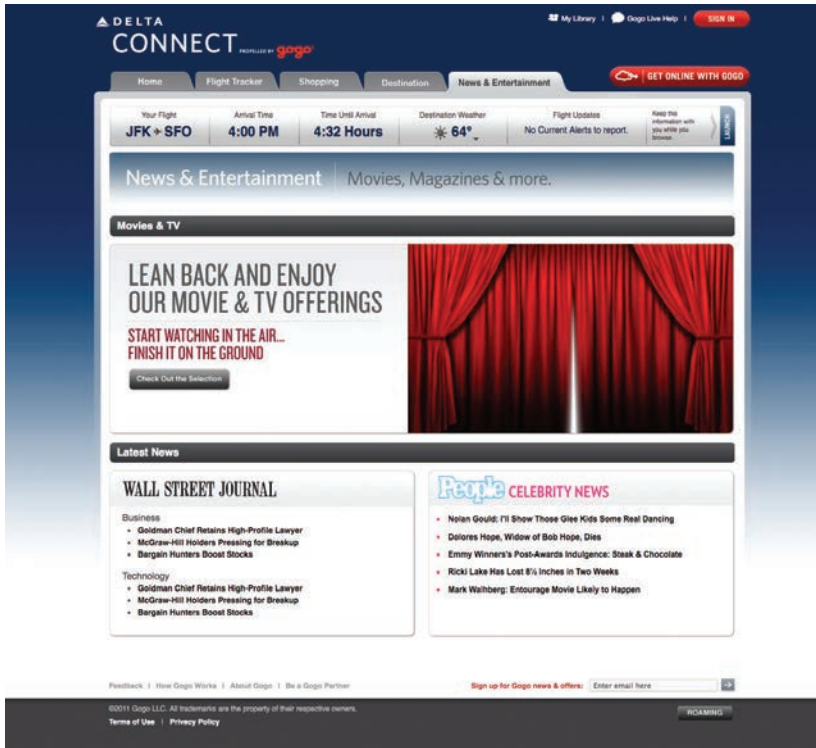
trendsetters

What factors might influence future aircraft cabin design? We consult a handpicked panel of trend research experts to reveal all

GUY BIRD, AIRCRAFT INTERIORS INTERNATIONAL



The original 1960s *Star Trek* TV series had it both right and wrong. Captain Kirk's then other-worldly handheld device that enabled him to call up the Starship Enterprise for help when stranded on a remote planet, without a wire or a socket attached, seemed wildly futuristic – even at the time of the late 1970s re-runs I saw as a kid. Today of course, mobile phones that can also tell the time, take pin-sharp photos or video, and provide mapping to navigate alien streets are a mainstream reality. But the fact that the 'Beam me up Scotty' teleportation devices also featured in the same show are still as much science fiction as they were nearly half a century ago shows how hard the job of a trend forecaster can be.



01

- 01. In addition to the usual IFE offerings, passengers can use Delta's apps to track their luggage in real time
- 02. Wireless infotainment systems such as Lufthansa Technik's BoardConnect are finding customers, including Condor

With this analogy in mind – but with a shorter timescale of the next five to 15 years' time – we've sought the insights and solid research of a handful of the sharpest minds in tune with the aircraft industry today to predict what gadgets, cultural changes and service innovations could affect the aviation sector and its customers' expectations in the coming decades.

PERSONAL TECHNOLOGY Funnily enough, one of the biggest technological trends, which all the experts we polled agreed on, is the increasing accommodation of personal devices – not unlike Captain Kirk's – within the design of aircraft cabins. With smartphone and tablet technology's short development times, design-led interfaces, increasing sales, and 24/7 connectivity potential within people's everyday lives, other industries are realising that finding a way to help customers use their devices on board and stay connected could be better, and in the long-run more cost-effective, than trying to compete with them.

Rose Yin, aerospace market analyst for IMS Research, picks up the story. "One of the hottest topics – and one that will continue to be so – is wireless streaming of content to PEDs," she begins. "Wireless IFE and/or connectivity is one of the biggest factors that could affect cabin design, mainly because of the potential to offer IFE without the need of embedded systems. Right now, one of the challenges is the relatively low proportion of passengers that actually carry a sizeable WiFi-enabled



02

device on board, such as a tablet or laptop. However, as those devices become the norm for most passengers in five to 10 years' time, airlines will likely need to consider new seatback tray designs that allow people to comfortably use their devices at the same time as they rest or eat."

In the shorter term – within the next five years – Yin does predict that more carriers will install seatback screens on long-haul flights that will feature lighter hardware and higher resolution screens, but says, "Such IFE systems on aircraft will continue to lag behind what is available on the ground. With more passengers wanting to use PEDs in-flight, airlines will have to consider ways to adapt the seating area where such devices can be easily mounted, rested or stored. Other considerations could be providing in-seat power on long-haul flights, although the importance of this feature will be related to how fast PED battery technology develops over the next five to 10 years."

Indeed IMS's recent report, *The World Market for Inflight Wi-Fi and Cellular Connectivity*, found that of those airlines planning to introduce wireless IFE, almost half are considering redesigning their seatbacks to ensure that passengers can watch video content in comfort on their own PEDs, too.

STAYING CONNECTED One of the major reasons why modern consumers are so wedded to their PEDs is not just their clever software and applications, but because they are a gateway to staying web-connected on the move. IMS



03



04

research says more than 3,000 aircraft will have in-flight WiFi by the end of 2012, a 60% growth over 2011, with Delta and American Airlines accounting for 1,000 of those WiFi-enabled aircraft between them. The Middle East and Asia are also early adopters, with Emirates, Qatar Airways and Cathay Pacific all rolling out WiFi – and cellular services – plus Lufthansa and SAS in Europe. With the same IMS report predicting more than 15,000 connected aircraft by 2021, it states that connectivity will “move from ‘nice to have’ to a ‘must have’ offering”, before concluding, “the big question is whether airlines can match the speeds that passengers demand – both in terms of the roll-out times to fleets, and also the physical speed of the connection to the aircraft. The broadband generation demands a service in the air that is similar to that which they receive on the ground – and that’s the real challenge”.

CONNECTED SERVICE The by-product of increased connectivity at 30,000ft, of course, is that consumers can



BY PUTTING DETAILED INFORMATION AT THE FINGERTIPS OF THE TRAVELLERS, THEY OFTEN KNOW MORE ABOUT THEIR FLIGHT, ACCOMMODATION AND DESTINATION THAN MANY TRAVEL, AIRLINE OR HOTEL AGENTS



not only connect to the internet, but also to their social networks, other passengers, and staff too – and vice versa. Of the various future trends that could affect aircraft cabin design, it is this ‘digital enablement’ that Peter Knapp, global creative officer for creative branding business Landor, is most excited about. He says, “Staff can be empowered with better at-hand data to use for better, more tailored service at the seat. All things from food preferences through to better retail services will improve radically. Digital will also create more in-cabin social experiences. Whereas before, people were limited in their opportunity to ‘mingle’ with other passengers during a long-haul flight, in the near future you will be able to meet people without leaving your seat. It will help the cabin become a much bigger space – at least virtually!”

Raymond Kollau, founder of Airlinetrends.com, is insightful on how connectivity can empower customers. “In today’s environment of instant information, consumers want to be in the know, and as technology evolves this is

03. Our trendy team. From left to right: Raymond Kollau of airlinetrends.com, Harriet Cox from Stylus; Peter Knapp from Landor; and Rose Yin from IMS Research

04. As more and more passengers travel with devices, WiFi will go from useful to essential



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“

STREAMLINED SEATING IS DEFINITELY SOMETHING THAT WILL COME IN OVER THE NEXT FEW YEARS TO REDUCE WEIGHT AND MAXIMISE SPACE ”



07

increasingly becoming a passenger requirement up in the air,” he reasons.

“For example, Delta passengers on US domestic flights can now track their baggage in real time as it makes its way through the Delta system and they can even check to make sure their luggage has been loaded onto the aircraft while in flight, by accessing Delta’s website for free via the otherwise paid-for Gogo inflight WiFi service.”

This level of access to information is in stark contrast to the current lost-luggage scenario, where unlucky flyers only find out by waiting in vain at the arrivals carousel. Kollau says that this digital access, “empowered by the likes of TripAdvisor, SeatGuru, InsideTrip and Zoover”, has bred a new kind of traveller who knows so much more through such websites and apps, and thus demands more.

He continues, “By putting detailed information at the fingertips of travellers, they often know more about their flight, accommodation and destination than many travel or airline agents. Furthermore, customer expectations are also fuelled by not only how well a company performs versus its competitors, but also against standards set by other industries, since innovative products and services in one industry raise the bar for all industries.”

All this leads to the feeling that greater investment in future cabins might not be so much angled to the look, feel

and physical function of the hard points of the cabin, but to how the carrier can enable better service and information to be delivered. Here’s Kollau again with a great insight: “Since full-flat beds have become the industry standard in business class, airlines are looking for ways to differentiate the passenger experience by coming up with additional services that improve the chance that passengers are having a good night’s sleep on board. Innovations in the ‘hardware’ are less significant; the evolution is more in services. For example, on its Boeing 747-400 and Airbus A340 aircraft, Virgin Atlantic has created a so-called ‘Snooze Zone’ where business class passengers can sleep uninterrupted in a secluded and quiet area of the cabin (mostly the first four to five rows of the airline’s Upper Class cabin). Virgin Atlantic’s crew has also learned to talk with passengers in a hush – but still be heard clearly – to ensure they avoid disturbing sleeping passengers during night flights.”

NEW DESIGNS, NEW MATERIALS But while cabin design may indeed see smaller jumps in the next decade compared with the big changes of the previous 15 years, in business class especially, new innovations are still predicted. Maximising space is still high up any carrier’s cost agenda, but although Factorydesign’s Air Lair concept

05. Polyester knitting technology as used on Nike’s FlyKnit shoes could influence seat fabrics

06. Likewise the Adidas adiZero Primeknit trainers, which took many to glory in the London 2012 Olympics

07. The Pitch PF2000 introduces automotive know-how from Magna



08



09

- 08. Pitch has used partial injection moulding to reduce weight and cost
- 09. WiFi services such as Cathay Pacific's are moving from a first-class offering to an every-class offering

– featuring two-deck stackable pods to cocoon passengers – is definitely more at the blue-sky end of the spectrum, new slimmer, lighter seats is one area that global research house Stylus highlights should see production a bit sooner.

As Jane Kellock, acting senior vice president of content at Stylus, says, “Streamlined seating is definitely something that will come in over the next few years to reduce weight and maximise space. Of note is Pitch’s pre-reclined, partly injection-moulded seat, designed by Design Q, and produced by automotive and aero manufacturer Magna.”

In terms of what sort of materials will cover those seats, or could be used elsewhere in the cabin to reduce weight and complexity, Landor’s Knapp is enthusiastic about new fabrics and techniques showcased in sportswear such as Nike FlyKnit and Adidas adiZero Primeknit trainers. Using new machines configured to digitally knit the shoe’s upper as one piece – including the tongue – the designs fuse breathable lightweight yarns with strengthening wire-like ones to retain structural integrity and foot support.

He says, “Polyester technology for finishes and forms using fly-wire structures that shape and fit to a greater ergonomic precision looks promising. Some of this technology is now becoming evident in sportswear development and could help in weight reduction. Meanwhile, the 2012 Paralympic Games showed us how technology and materials and human interfaces are getting more aligned to the point where user intuition can create a seamless relationship between user and equipment.”

Future cabin colour palettes look set to get a shake-up too, with Harriet Cox, assistant editor for home and industrial design at Stylus, predicting the currently predominant grey and blue being joined or replaced by more colourful hues, citing fabric manufacturers such as Rohl and Lantal, which are “creating trend-aware fabric

ranges with brighter colours including red, hot orange, mustard and subtle metallics”.

PERSONALISE, BUT LISTEN Kollau of Airlinetrends.com warns that although customers are increasingly seeking to customise their airline experience with PEDs while airline staff recall their preferences from previous flights using hand-held tablets, the customer will more likely want to do the customising themselves rather than have variety, based on too broad a demographic, imposed upon them.

He says, “Besides a more informed and demanding audience, airlines are also increasingly welcoming a more diverse audience. Airlines traditionally have been catering to the stereotype male business traveller in his forties, but the growing economic power of women, the greying of society, and the emergence of more travellers from non-Western countries, is changing this archetypical passenger. An interesting insight is that many Asian travellers don’t really appreciate Western airlines’ efforts to offer a localised experience on board – for example, Asian food and IFE. Many airlines are introducing these kind of amenities to cater to the growing number of Asian travellers; however, these passengers indicate they are more interested in learning about the culture of the countries they are visiting and want to sample elements of this culture on board.”

The depth of research to inform great new designs is there to create new cabins, then, but it seems that more customers in the near future will want a welcoming aircraft interior environment that they can easily adapt and add their personal devices to. They are also likely to want to be able to communicate with airline staff when necessary, rather than having a whole new control panel of options that designers might happen to think are great, but that offer no or limited adjustability or personalisation. ☒



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whichway?

With a multitude of new technologies now available, is IFE at a crossroads, and if so, which direction will it take?

ROBERT SMITH, IMDC



John F. Kennedy gave a helping hand to generations of motivational speakers when he delivered a speech in 1959 that proclaimed, “When written in Chinese, the word ‘crisis’ is composed of two characters. One represents danger, and the other represents opportunity.” The anecdote remains popular despite its inaccuracy being widely published, and it would be tempting to apply it to the airline and inflight technology industry today. Tempting, but, much like the anecdote itself, not necessarily accurate.

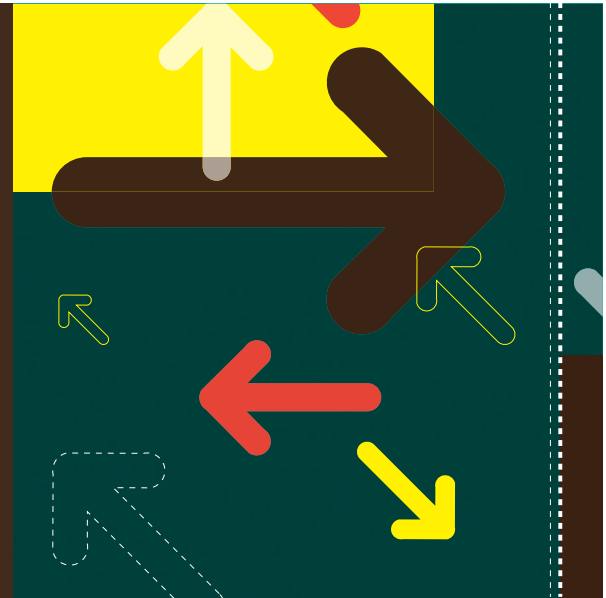
At the time of writing, the airline industry has recently suffered another period of negative adjustments to forecasts of its fortunes. Prices for airline stocks and shares had recently fallen 3% over one month as rising oil and fuel prices again raised the ‘break-even point’ for an industry struggling to maintain overall profitability.

The airline industry must feel it can’t win. As oil prices are pushed higher by supply concerns and expectations of economic growth, a simultaneous fall in business confidence undermines growth in passenger traffic. Airlines again have to deal with the worst of both worlds.

They are responding well, though. Passenger traffic has steadily increased since 2009 and although the pace of the increase has slowed, airlines have managed to keep yields going in the right direction by carefully managing supply



THE INFLIGHT TECHNOLOGIES SECTOR IS PRESENTLY AWASH WITH INNOVATIONS THAT PROMISE TO OFFER SOME RELIEF TO AIRLINE FORTUNES



to increase in line with demand, rather than flood the market with excess capacity and engage in a costly price war. This impressively logical behaviour has been somewhat forced by the increase in operational costs from fuel price rises, and while constricting capacity by reducing aircraft use is not perfectly efficient, it should be seen as making the most of a bad situation.

So although applying the word ‘crisis’ to the airline industry at present seems harsh, perhaps it is a tough habit to break when talking about a sector that has had more than its fair share of unexpected shocks. In fact, unforeseen negative events seem to occur so frequently that it becomes increasingly difficult to label such shocks as unexpected.

OPPORTUNITY But what of the ‘opportunity’? The inflight technologies sector is presently awash with innovations that promise to offer some relief to airline fortunes, many at the expense of those currently receiving a significant portion of airline expenditure. The range of these inflight technologies aimed at enhancing the passenger experience is increasingly diverse, but what does each bring that will be so valuable to airlines and passengers alike?

Airlines are under pressure, not just financially, but also to remain competitive against their rivals. The concept of ancillary revenues has moved on from obvious fees, and continues to drive interest in any new service that could be considered non-core and therefore justifiable as an additional charge to the passenger. This dynamic creates numerous opportunities for airline suppliers, but there are no easy wins – airlines are forced to evaluate any new technology more carefully than ever before, making true value-add essential.

STREAMING IFE A current hot topic and potentially highly disruptive technology is the streaming of content inflight from an onboard server to passengers’ own devices. The enabling hardware behind this ‘wireless IFE’

is relatively simple and low cost, and the experience is in line with a general trend of increasing numbers of passengers carrying compatible portable devices. As a result, there has been a rush of new and existing suppliers adding wireless IFE to their product range, or entering the market with the concept as their sole offer.

The initial, and most compelling, basis of interest in wireless IFE is the cost advantage over embedded systems. The drastic reduction in required hardware makes this as inevitable as it is insurmountable. It didn’t take long for the industry to realise that, just like with embedded systems, hardware for wireless IFE is only an enabling technology, and providing value depends on delivering content to passengers. However, studios were less comfortable with releasing early window content to systems employing passengers’ own hardware than they were to wholly airline-managed embedded systems.

This challenge has focused the attention of suppliers, who have been making so many announcements of progress in this area since the concept was born that it would be futile to try to capture the current market situation at the time of writing. One huge factor in favour of progress here is technology trends outside of the aviation industry. The secure delivery of content to personal devices is a valuable proposition for some very large companies, and developments in this area will certainly help suppliers seeking studio approval to deliver content inflight. So while content security and availability are priorities for the inflight wireless IFE sector, and may differentiate suppliers as the market evolves, it should not remain a permanent obstacle for the concept as a whole.

Does this mean wireless IFE poses a hugely disruptive threat to embedded IFE? Answering that question requires a more careful study of where airline expenditure on IFE hardware is apportioned. In the *IMDC Inflight Technologies Market Outlook Report 2012* it was forecast that total airline annual expenditure on IFE hardware would rise year-on-year from 2011 to 2015, when it would reach US\$2 billion

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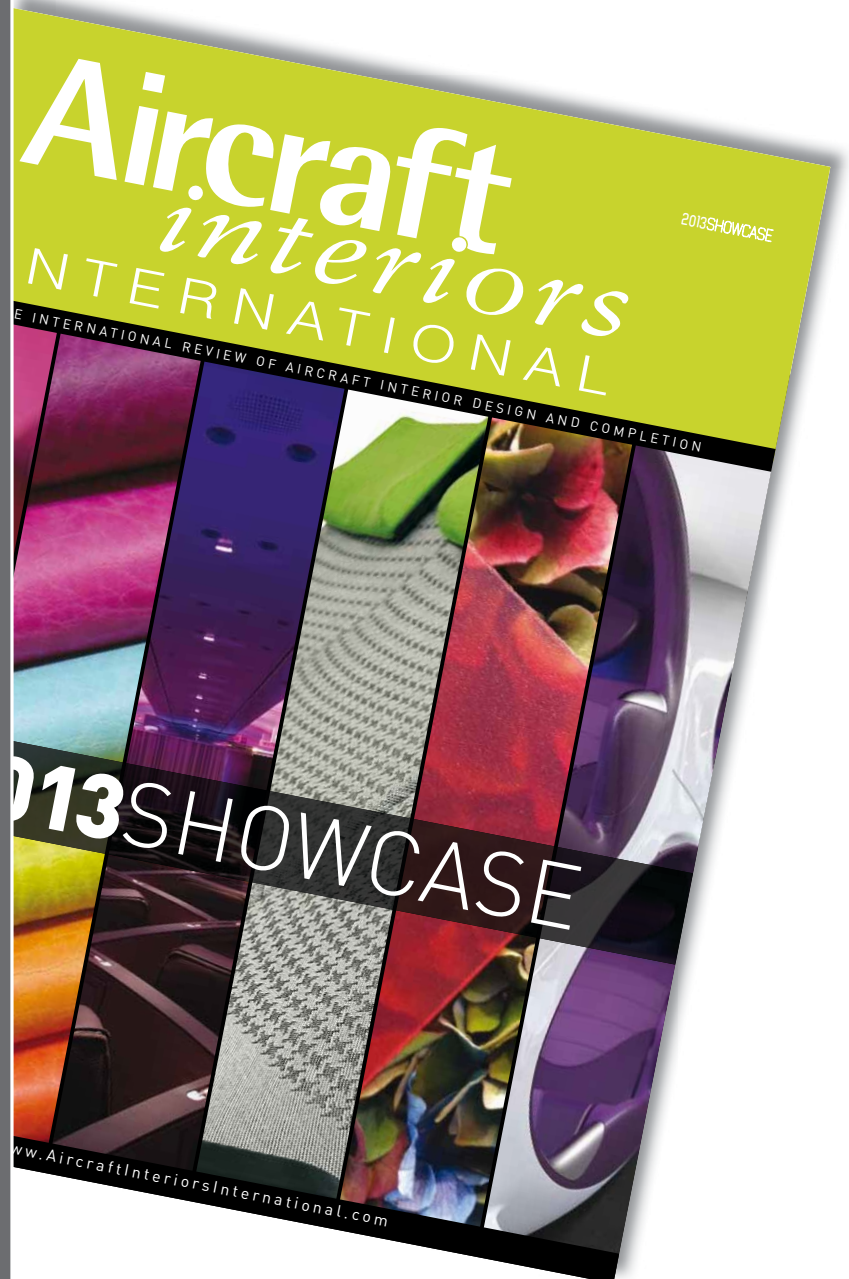


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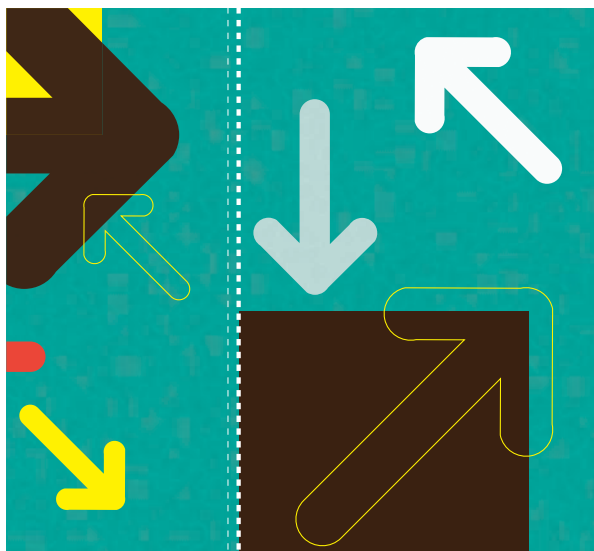
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THERE IS A STRONG CASE FOR AN EMBEDDED IFE SYSTEM THAT FOCUSES ON DELIVERING VALUE, RATHER THAN CLASS-LEADING SPECIFICATIONS



(€1.5 billion). Within the report, this figure is broken down by retrofit versus line-fit and also by different aircraft categories and types.

Despite hugely outnumbering larger models, single-aisle aircraft still receive only a small proportion of overall expenditure on IFE hardware. Additionally, the majority of this expenditure is on new aircraft rather than retrofit. Knowing this, it becomes quite a stretch to imagine wireless IFE systems having a significant negative impact on hardware expenditure as the huge backlog of new twin-aisle aircraft fuels orders for catalogue-approved embedded IFE systems.

Specialist consulting firm IMDC, though, does expect wireless IFE to remain relevant to smaller aircraft, including those where embedded (or any) IFE is much less likely to be installed, and as an addition to embedded systems on twin-aisle aircraft. It also anticipates a reduction in average hardware costs per aircraft due to a different, but equally relevant, trend within IFE.

TWIN-AISLE FORECAST From IMDC's forecast showing new twin-aisle aircraft driving IFE expenditure, it is clear there is an expectation that embedded IFE will remain at near 100% penetration on these models, and IMDC's experience with airlines suggests that they share that expectation. For some airlines, deliveries of new twin-aisle aircraft are an opportunity to showcase a new level of product improvement and raise the bar for their competitors. For others, the strategy must be more pragmatic, meeting or ideally exceeding passenger expectations while operating within the financial constraints that delineate the industry. Add to this a scenario where many airlines are forced to operate increasingly older aircraft whose extended lifecycles mean they are flying with extremely dated IFE and there is a strong case for an embedded IFE system that focuses on delivering value, rather than on boasting class-leading specifications.

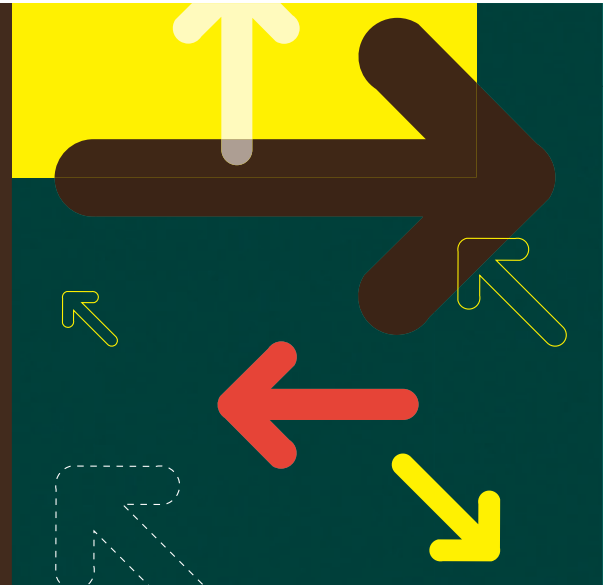
In these conditions, embedded IFE systems are likely to take two distinct paths. Some systems will compete on performance, customisation and functionality. Others will compete on price and, crucially, cost of ownership. Recent product ranges from IFE suppliers reflect this trend and new suppliers responding to it are gaining traction in what has previously been an effective duopoly. In meeting a fundamental requirement from the market, these basic or 'lite' IFE systems will have a lasting impact on the industry, perhaps most greatly determined by whether they are approved for line-fit availability and the extent to which they can address the inevitable 'itch' that airlines will have to offer an experience in some way tailored to their brand despite the cost constraints that drove interest in the product in the first place.

The potential opportunity of passenger connectivity systems has now been well tested, but the sector remains in somewhat of an early-stage growth period. Airline adoption of passenger connectivity systems has long been observed along very regional lines. Domestic US construction of an air-to-ground network put airlines in the region in a unique position where they could provide inflight connectivity without making a prohibitive level of investment. In the Middle East, early adoption of mobile phone services was matched by competitors until commitments, if not installations, became near-ubiquitous in the region.

The passenger connectivity sector has certainly grown more slowly than stakeholders would have expected and hoped, but recent trends show that airline thinking has reached a 'phase 2' for the service. Airlines in the USA have started to announce commitments that will enable them to offer international service. In the Middle East there is at least a partial trend towards Ku-band satellite connectivity and WiFi service, in addition to L-band phone service in the region. Meanwhile, airlines in the Far East have begun to make their first announcements and installations of passenger connectivity provision. Europe



THE OFFERING IN THE AIR MUST REMAIN EVEN MORE COMPELLING THAN ESTABLISHED SERVICES SUCH AS iTUNES AND THE GOOGLE PLAY STORE



was once a region of seemingly endless trials of connectivity, but airlines are now making firm commitments following the lead of Lufthansa's WiFi service on long-haul flights.

Although some of the constraints to the roll-out of connectivity systems remain, many have recently been overcome. In particular, such systems are available line-fit on many aircraft types. Add to this factor the already sizeable backlog of installations and it is clear that, although it may have taken its time, passenger connectivity service is here to stay. IMDC expects the size of the global commercial fleet equipped with passenger connectivity systems to double to more than 4,000 at the start of 2016.

THE PASSENGER VIEW Wireless IFE and passenger connectivity services both share the common characteristic of enabling passenger devices. However, the passenger proposition is much simpler for connectivity. For wireless IFE, solutions providers must deliver content to the passenger as discussed. Obtaining studio approval to do so is only one challenge in this sector. In requiring passengers to provide their own device, wireless IFE systems put themselves in near-direct competition with content providers on the ground. Even if passengers have not downloaded content before their flight, the offering in the air must remain even more compelling than established services such as iTunes and the Google Play store if it is to deliver value through providing popular video content. While this may be no easy task, it is possible, and wireless IFE providers can also leverage unique sources of data and content to provide a valuable product.

The very nature of flying puts passengers in a unique position in terms of the information and content that interests them. As a result, data from airline and aircraft systems is filled with potential as a source of entertainment, value and revenue. Additionally, the information that can be input by passengers on their own devices is valuable to airlines and their partners. Flight-

specific information becomes very useful to passengers, and in leveraging their own devices the airlines have an opportunity to extend their relationship with the passenger either side of the journey, a long-term goal for the industry. Such information is relevant on all flights, but becomes especially relevant on shorter flights when full-length video content is less desirable or even impractical. A fundamental advantage of wireless IFE is the low cost and weight of equipment; delivering content specific to shorter flight times would further encourage adoption of the technology on aircraft where the alternative could well be nothing.

Given these trends in hardware, connectivity and content, it would appear that new technologies are more complementary than they are competitive. As the sectors develop, there will be great opportunities for any airline, and suppliers, prepared to offer any carefully considered combination of embedded IFE, wireless IFE and connectivity to deliver valuable services to passengers. ☒

IMDC is a specialist consulting firm that supports businesses by developing strategies and solutions based on in-depth research, analysis of the market, practical experience and a blend of expertise. Established in 1999, it claims to have the most comprehensive in-house knowledge base on the industry and has completed more than 250 projects for a variety of clients.

ABOUT THE AUTHOR Robert Smith is the director of market intelligence services at IMDC. He has six years' experience at IMDC, and is the primary author of the IMDC Inflight Technologies Market Outlook Report, for which he produces a five-year market forecast and conducts analysis of trends in IFE hardware, content and connectivity. Smith has worked on major consulting projects for IMDC, including those for Royal Brunei, Southwest and LAN Airlines. He holds an honours degree in Business Economics from Exeter University and has lectured on airline marketing at Cranfield University, both in the UK.



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lookback

A retrospective rundown of our favourite designs from 2012

JANUARY



new year's evolution

A two-year trial of cabin products designed to be environmentally friendly preceded the unveiling of Southwest Airlines' Evolve cabin design in January.

The environmental ambitions of the design are reflected in the natural tones, combined with Southwest's signature Canyon blue and aluminium accents for a more modern appeal. The green credentials are achieved through recyclable carpet, E-leather seat covers, lighter seats featuring lightweight foam fill, and lighter life jacket pouches.

As well as benefiting the planet, the Evolve design also boosts Southwest's bottom line, with an increase in capacity from 137 to 143, as well as the retention of existing B/E Aerospace Innovator II seat frames for its retrofit programme; the frames will be refilled and re-covered, saving an estimated US\$50 million.

Overall Southwest says the design will save the airline nearly 6 lb per seat (635 lb per aircraft), and that the improved durability and reduced fuel consumption will save more than US\$10 million in ongoing annual costs.

FEBRUARY

little luxuries

February saw Cathay Pacific Airways take delivery of a B777-300ER fitted out with its new premium economy class product as well as new long-haul economy-class seats. The launch meant that premium economy now has its own separate cabin, located ahead of the economy cabin, with between 26 and 34 seats.

Upgrading an economy ticket now means a better seat and entertainment system, as well as a quieter, more spacious cabin. The seat pitch is 38in – 6in more than the economy seats – and the seat itself is wider, with a bigger recline. It has a large meal table, a cocktail table, a footrest, a 10.6in personal IFE screen, an in-seat power outlet, a multiport connector for personal devices, and extra personal stowage space.

Meanwhile, moving rearwards, the new long-haul economy-class seat features a cradle mechanism to enhance the level of comfort in the recline position, the latest touchscreen IFE, a USB outlet, and a socket that allows passengers to connect their own PEDs to view content through the IFE screen. The seat also offers improved living space and more personal storage space.



MARCH

bespoke tailoring

At ITB Berlin, Lufthansa unveiled its impressive new business-class seat, which was the result of a five-year project in conjunction with frequent flyers, design house PearsonLloyd, and ergonomics experts. The airline considered and dismissed all 'off the peg' options and instead decided a clean-sheet design was necessary to create the forward-facing seats with full-flat beds it wanted, especially as the airline also wanted greater business-class capacity, greater use of composites, and for the seat to be suitable across its entire fleet of Boeing and Airbus aircraft.

The V-shaped design, manufactured by B/E Aerospace, gives added personal space for the upper body, while at the press of a button it converts into a 1.98m-long horizontal sleeping surface featuring Lantal's Pneumatic Comfort System. A redesigned cabin palette, moving from the previous powerful blues to earthy browns and grey tones, completed this classy project.



APRIL



JAL shells out

Deliveries of 787s are always big news, so much fanfare surrounded JAL's cabin 'reveal' and first flight in April. JAL participated actively in the Boeing-led Working Together Team programme, which involved various airline customers brainstorming for enhanced passenger comfort and usability, and took full advantage of the LED lighting options to create 'seasons' on board.

JAL also took the opportunity to enhance its offering, configuring the 787 in two classes, with 42 seats in business and 144 seats in economy. The new-generation 'JAL Shell Flat NEO' seats, arranged in a 2-2-2 configuration, are based on B/E Aerospace MiniPods, and at 21.3in-wide are 2in wider than the seats fitted on JAL's B777s. The seats have a pitch of 60.2in and a 171° recline, as well as new Thales TopSeries i8000 IFE systems with 15.4in touchscreens. The seat has been well received, and is now being fitted to other aircraft in JAL's fleet. Toward the rear, the 144 Recaro CL3510 economy-class seats, arranged 2-4-2, have a 31in pitch and 18.5in width.

MAY



class action

Yes, we've all seen it now, but the launch of Virgin Atlantic's Upper Class Suite was one of 2012's major design stories. The culmination of a US\$100 million investment into product, including lounges, the new seat represents a step forward in styling, as well as performance.

Virgin Atlantic's in-house design team began working on the new Upper Class cabin in 2008 in conjunction with Pengelly Design for the seat, and VW+BS for the famous bar and the interior elements.

The seat, manufactured by Threesixty Aerospace – previously named Reynard Aviation – offers an extra 1.5in seat width over the previous design, plus up to 50% more recline, and retains its 'flip over' bed function, which now extends to 87in tip-to-tip.

Further finishing touches include a new mood lighting system from lighting expert DHA, which changes colour throughout the flight to help passengers relax and unwind, and the application of more than 1,000 Swarovski crystal accents to add sparkle to the cabin.

JUNE

upwardly mobile

June was an exciting month for Air France: not only did its eighth A380 arrive, but it was also fitted with enhancements across all four cabins, including a redesigned first-class cabin, a new 'full sleep' seat in business class, and enhanced IFE throughout.

Gone were the beige elements of old, replaced by more delicate grey shades, chosen in conjunction with Paris-based design agency Yellow Window. The first-class redesign – which came in at around €200,000 a seat – is intended to raise the airline's profile and is now being fitted to more of the long-haul fleet. Nine fixed-shell seats feature – updated versions of the previous Contour design, equipped with new, easy-to-use seat controls, and modular separation screens and higher shell sides to preserve individual space.

Meanwhile in business class, this upper-deck cabin now benefits from 80 longer and wider 'full-sleep' seats from B/E Aerospace in a 2-2-2 configuration. Air France worked with ergonomists and customers to provide more comfort and ease of use, while preserving total bed dimensions that are over 2m-long and 61cm-wide.



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JULY



world first for AA

Amid controversy surrounding a potential merger with US Airways, American Airlines made a major announcement: it intends to make interior refinements on board its transcontinental A321s that will give it a unique position in the US market.

AA intends to be the only airline to offer a domestic three-class service on flights across the USA. First class will feature lie-flat seats with direct aisle access, and business will also offer lie-flat seating to create what is intended to be an industry-leading transcontinental offer for North America.

Designed in partnership with JPA, the overall design, trim and finish of these aircraft will complement the cabin design of the airline's new B777-300ERs and redesigned 777-200ERs to provide a more consistent experience.

AUGUST

access all areas

As Paralympic fever gripped London, Priestmangoode revealed Air Access, a concept it claims will transform air travel for passengers with reduced mobility (PRMs) by easing the transition from gate to aircraft, while making the process more dignified.

Air Access consists of two elements: a detachable wheelchair by which passengers can be transported on and off the aircraft, and a fixed-frame aisle seat on the aircraft, into which the wheelchair is mated to create a regular airline seat. Once on board, the wheelchair's 360° pivoting wheels enable it to be slid sideways into the fixed-frame aisle seat without the passenger needing to get up. When the two elements are positioned, they are locked together for the duration of the flight.

On arrival, ground staff simply unlock the wheelchair seat, slide it out into the aisle and wheel the passenger to the jetway or arrival gate, whereupon the passenger returns to his or her own wheelchair or zimmer frame.

Priestmangoode's vision is for Air Access seats to be installed in every aisle seat. No revenue is lost if there are no PRMs travelling, as all travellers can use the seat.



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SEPTEMBER

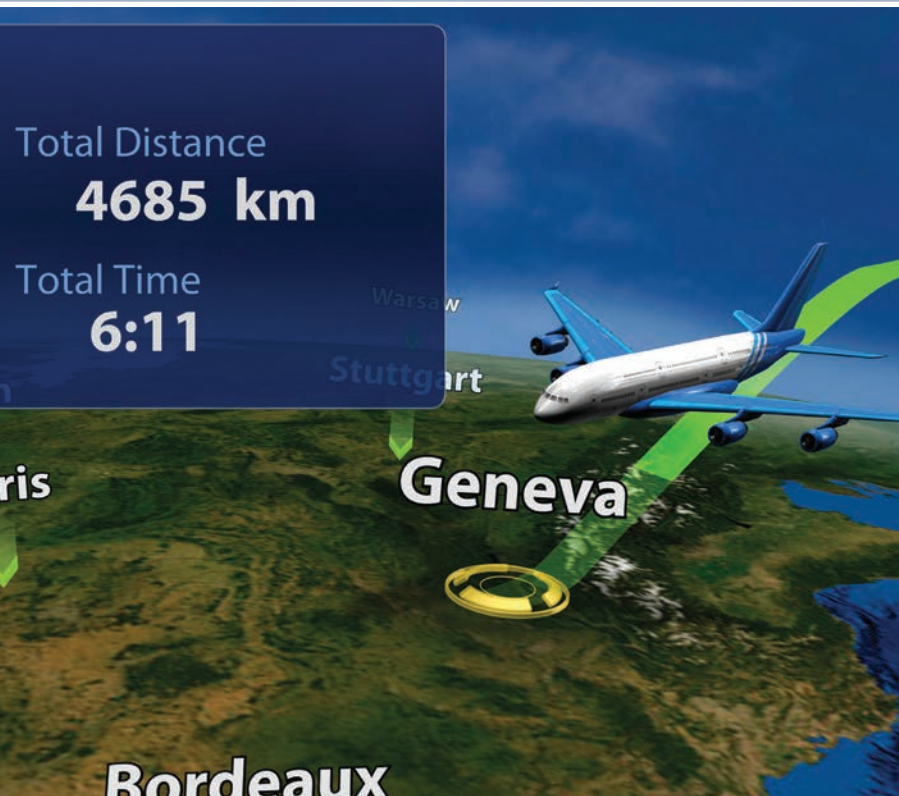


chart hit

Fans of moving maps and personal entertainment devices will love that Rockwell Collins made its Airshow 3D moving map available for download in the Apple iTunes App Store, for iPad use. The app is designed to offer an interactive way for passengers to view the world around them and stay informed during their journey. The app is initially available only to business jet passengers, but commercial aviation uses are being touted.

With a system upgrade from a Rockwell Collins authorised dealer, existing Airshow 4000 or Venue HD cabin management system users can take advantage of the new app. Highlights include a panoramic view that allows passengers to see a moving map of the outside world from any direction the iPad is pointed – as if the aircraft were transparent.

Also, passengers can enjoy intuitive, touch-enabled interaction with multiple maps and information displays, and the ability to control the Airshow ticker, which scrolls key information related to the flight, such as estimated time of arrival.

OCTOBER

alpine pass

Following major work on refreshing its medium-haul fleet, Austrian Airlines began fitting its entire long-haul fleet of 10 B767s and 777s with new, in-house designed cabins in a €90 million programme, featuring reworked cabin colour concepts, new economy-class seats, improved AVOD systems, and full-flat seats in business class.

The new business-class seats are based on the Vantage model from Thompson Aero Seating, which convert to a fully flat 2m-long bed featuring an air cushion system that allows passengers to individually adjust the degree of hardness of the seat from soft to firm. The system remembers the settings throughout the flight and an inbuilt massaging function aids relaxation.

Meanwhile, the new ergonomic economy seat with its 31in pitch is finished in a subtle shade of grey, and Austrian was keen for it to have a specific feature: when passengers recline the back (up to 6° is available), the seat automatically moves forward, providing a more comfortable relaxing position.



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NOVEMBER



dream come true?

At the time of writing it seems that Qatar Airways CEO Akbar Al Baker is finally going to take official delivery of his first 787. This aircraft will feature striking new business and economy cabin designs, featuring enhanced space, comfort and a revamped IFE system, with 254 seats in a two-class configuration of 22 in business and 232 in economy.

The 1-2-1 configuration of the B/E Aerospace seats in business class means direct aisle access for all. The 22in-wide seats convert at a touch of a button into different cradle positions before becoming an 80in-long, 30in-wide flat bed. The armrests can be fully adjusted to different heights to complement different body positions. Passengers will also be able to dine and work comfortably using the wood-trimmed large sliding table.

In economy class, configured 3-3-3, the Recaro-produced seats are designed for a high degree of comfort and personal space, with one less seat per row than competitors on other widebody aircraft. With 7in of recline, both the seat cushion and backrest adjust to 'cradle' the passenger into greater comfort. The slimline seat design set at a pitch of 32in, together with a 16.9in width, offers reasonable personal space, while the adjustable hammock-style headrest allows passengers to support their heads comfortably while resting.

DECEMBER

happy ending

Looking to December (and writing this in late October), a little hope and anticipation is involved in predicting a highlight. However, *Aircraft Interiors International* is very excited about the goings-on at Thai Airways.

The airline has just taken delivery of its first A380, which is vital to its growth plans. It is also another headline project for London-based agency Priestmangoode.

Further Thai news this year has come in the form of its regional airline, Thai Smile, another Priestmangoode project that is aiming to attract regional business passengers.



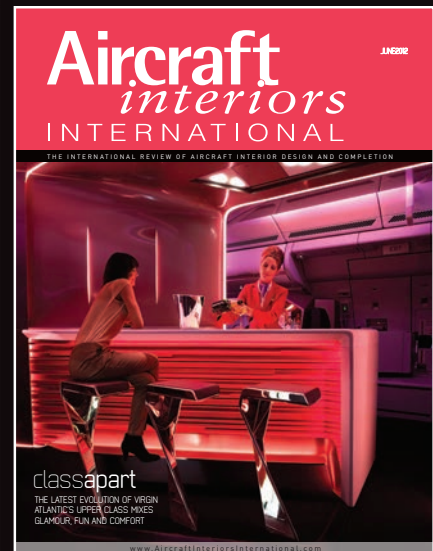
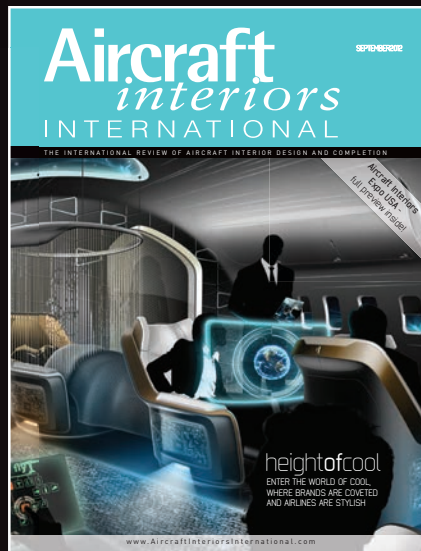
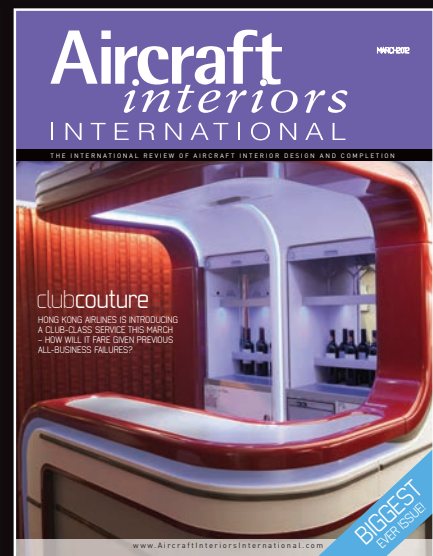
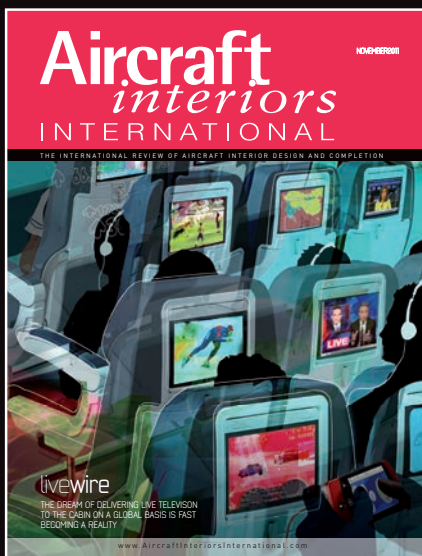
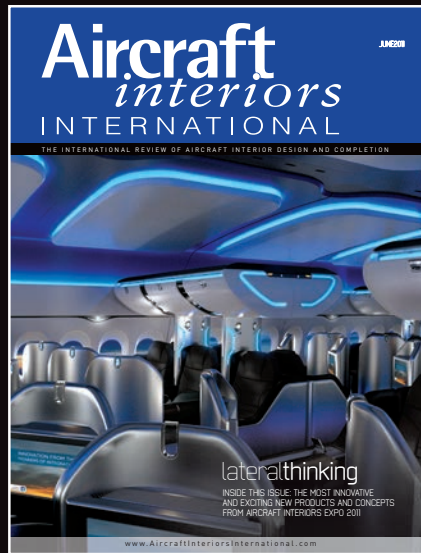
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038



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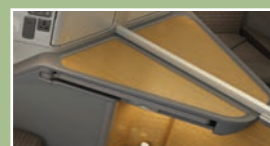
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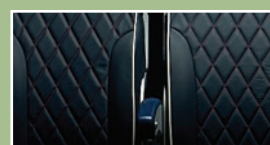
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


PACE
104

DESIGNSHOWCASE

brandingtakesoff

Devin Liddell from Teague explains why airlines should start thinking of themselves as retailers at 30,000ft

 Sometimes a seat is just a seat. Yes, it needs to be well designed and reconcile that impossible tension between passenger comfort and operator revenue that we wrestle with in this industry. Hopefully the seat is lightweight so it lowers per-seat fuel costs, while offering premium comfort at the same time.

It should also be easy to clean, durable, ergonomic, and integrated with the aircraft's cutting-edge IFE system. Basically, it should be dripping with design. But unless that seat is exclusive to a single operator, here is what it is probably not: a brand touchpoint.

In aircraft interiors right now, there's a lot of bandying about of words such as 'seamless' and 'holistic' and 'journey'. We don't have any objections to the ideas these words represent – after all, the best design does inspire cohesive experiences, considers the whole instead of just the parts, and creates meaning within the task of moving between A and B. But these are just attributes of a designed experience. They are not at the centre of a brand.

BRAND CHARACTERISTICS My chief complaint about all these holistic seamless journeys is that they are really all about details. And details are never at the centre of a successful brand. That's because the human brain actually struggles quite a bit with details.

01. Designed by Teague and Boeing, the new 747-8 Intercontinental features bold architectural details and dynamic lighting
02. Virgin has created a sense of 'clubby sexiness' in its Upper Class cabins



Brain science demonstrates that our minds are really proficient at recognising exaggerated characteristics, and practically inept at recognising details. It's why police sketches of crime suspects almost never work (see the FBI's sketch of Unabomber suspect Ted Kaczynski), while political cartoons and even boardwalk-drawn caricatures are instantly recognisable. Police sketches ask you to see a whole from a bunch of very specific details, and that doesn't work. Caricatures call attention to a single, exaggerated characteristic – like Mick Jagger's large lips or a friend's distinctive nose – so

you can recognise the whole. And that does work. Because that's the way our brains are wired.

Consider the human brain's preference for big, exaggerated characteristics within the context of one of those seamless holistic journey cabins. Yes, these cabins look fantastic – when they're empty. But how does that interior hold up when you cram nearly 200 travellers into it? Does that seamless holistic journey stand out in this chaotic, detail-heavy scene of humanity and luggage and drink carts? The answer is, of course, no. It doesn't hold up. All those details become



BRANDS ARE BORNE OF BIG, EXAGGERATED
CHARACTERISTICS – NOT DETAILS



also known as charging a premium price – and if there was ever an industry in the history of industries that needed a reason to charge a premium, it's the modern airline industry. A strong brand also communicates that the business is, at its core, different, and that that difference is immediately evident.

RETAIL THERAPY This is precisely what happens within another set of highly competitive physical spaces: retail. Visit a shopping mall almost anywhere and, minus the retailers themselves, the spaces are remarkably similar. Parking lots. Food courts. Escalators. Potted plants. Easy-to-clean floors. The mall platform is consistent and unremarkable; rectangular volumes for lease. But then the retailers make these standard spaces entirely their own, and it's definitely not through details.

LEGO's hands-on bins bursting with colour. Apple's shiny whiteness. Lush's chalkboards and handmade aesthetic. Urban Outfitters' constantly evolving hipster flea market. Brooks Brothers' throwback, preppy charm. If you were

blindfolded and led into any of these successful retailer's unique spaces, you'd know where you were within seconds of the blindfold's removal. No seamless holistic journeys here. Retailers thrive on big design presences borne of in-your-face characteristics. Retail is so intensely competitive that retailers know that they have to differentiate their physical spaces through big, exaggerated characteristics – again, what the human brain wants – or they'll fail. It's ingrained in their organisational DNA that differentiation isn't a nice-to-have, it's a must-have.

Airlines should have started thinking of themselves as retailers at 30,000ft a long time ago. Some of them, of course, have done exactly that and are more successful for it. Compare the brands of Emirates, Virgin, and airBaltic through the lens of their respective bold characteristics. Emirates' modern take on luxury, Virgin's clubby sexiness, and airBaltic's lime-on-everything playfulness. These brands couldn't be more different from one another – and that's the point! What they share in common is a brand-driven design presence that

03. Emirates' 777 first-class cabin designed by Teague, Boeing, Emirates, and Pierrejean Design with custom mini-suites and a 3m-high ceiling that replicates Dubai's night sky

practically invisible. The whole isn't anything recognisable from a brand standpoint; it's just a cabin filled with passengers. So while the empty cabin looks great in a magazine case study, the passenger never sees it like that. Sure, a fantastically designed cabin built on details is better than a not-so-well-designed cabin. But that's it. It does almost nothing for an airline's brand.

That these seamless holistic journeys are not effective brand touchpoints is a huge mistake. For airlines, a compelling and effective brand helps resist commoditisation –



04

doesn't require its customers to notice the details to 'get' the brand.

BOLD AND BEAUTIFUL So why do so many other airlines not get it? Why are just a few airlines thinking like LEGO, Lush, and Apple, while all the rest are thinking like JC Penney and Sears? The answer is so straightforward that it's painful. The real reason airline brands are so long on details and so short on bold brand presences is people. This isn't a design problem; it's a people problem.

Never mind that the typical airline will fly the same interior for more than a decade (try selling that idea to retailers). Instead, sympathise that the typical operator has to involve a kazillion different internal stakeholders –spanning marketing and operations and finance – each with a kazillion different opinions on what kind of design works for them. Unsurprisingly, they often disagree. Marketers want pop and zing, but disagree among themselves on what that means. The operations folks want stain-masking patterns. The finance guys want cheap and easy-to-replace. The result? Lots of



05



FOR AIRLINES, A COMPELLING AND EFFECTIVE BRAND HELPS RESIST COMMODITISATION



blues and greys and benign-ness. This is design that doesn't offend, but doesn't inspire either.

It's not differentiation – it's the long road to the middle flying at 600 miles per hour. That's why all these seamless holistic journeys work so well within this complicated landscape of internal stakeholders; with so many details, there's something to please everyone, and with no big, exaggerated characteristics, there's nothing to offend anyone.

This is, unsurprisingly, why the strongest airline brands in the world are run or founded by charismatic leaders including AirAsia's Tony Fernandes, Virgin' Airlines' Richard

Branson, and Southwest's Herb Kelleher. Bold thinkers architect boldness. Committees architect beige.

So what does this all mean? First, let's let go of this notion that these seamless holistic journeys do anything for airline brands. They don't, because brands are borne of big, exaggerated characteristics – not details. We have to be bolder in the aircraft interiors we design if we want them to be compelling and differentiating brand touchpoints.

Second, designing these boldly branded interiors will require more than bold brand design by itself. In fact, it will take convincing entire organisations that, just like in retail, differentiation is now an absolute imperative. Fancy talk about how all the pieces fit together (seamless, holistic), and a fancier word about travelling between A and B (journey) simply won't cut it.

Retail did it with rectangles. Just think what we can do with jets. ☒

- 04. The simplicity of Apple stores is part of their compelling design identity
- 05. Colour is a key element of LEGO store design

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brandingthejourney

When Thai Airways International made the decision to start a new budget airline with its narrow-body fleet of A320s, it enlisted the help of design consultancy Priestmangoode

01. Thai Smile's new branding was applied to everything from livery, uniforms and cabin interiors to meal delivery and graphic items, creating a coherent brand experience

02. The magenta, tangerine, purple and yellow colour palette aimed to create a feeling of friendliness, fun, vibrancy, trendiness and speed

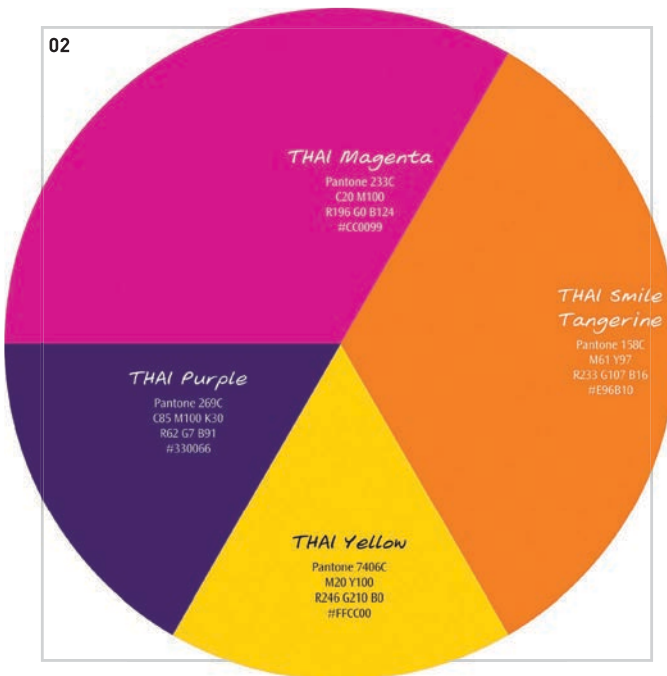
“Over the past 15 years, we have established Priestmangoode as a pioneer in aircraft interior design by working for airlines and manufacturers such as Lufthansa, Swiss, Airbus, Boeing, Embraer, and many more,” says Luke Hawes, director of the London-based design consultancy. “In that time, we have honed our skills and become experts at using intelligent design solutions to improve the passenger experience. But we also work extensively in other areas, including product design, environment design and branding, something that appealed to Thai Airways in particular. Building a new airline is a complex process, and our ability to transfer skills from one industry to another meant we were perfectly placed to drive the project from start to finish.”

Thai Smile proved to be ideal for the consultancy to explore the potential of brand application. Hawes continues, “This was a very exciting project for us. Creating the identity for a new airline is a design agency’s dream. Our

01



02



experience in different industries enabled us to lead every aspect of this identity building: from naming to designing livery, uniforms, cabin interiors, meal delivery, tickets and other graphic items. The result is a coherent brand experience along every step of the passenger journey.”

Nigel Goode, a founder and director of the agency, explains, “In today’s highly competitive market, it’s imperative that airlines distinguish

themselves from their rivals. A compelling brand with a strong identity, coupled with skilled application throughout the passenger journey, can create an emotional connection and instil a sense of loyalty in passengers.”

The potential power of branding has long been utilised to great effect in other industries, perhaps most notably in computing and mobile technology. For instance, the level of consumer



A COMPELLING BRAND WITH A STRONG IDENTITY CAN INSTIL A SENSE OF LOYALTY IN PASSENGERS



trendy. Every single aspect of the identity we created represents one or more of these traits, from the name to the onboard shopping bags or luggage tags. The airline is designed to appeal to a younger demographic – one that understands and associates with these traits, so it's a perfect match."

BRAND PRESENCE A crucial phase of Priestmangoode's design process is extensive consultation with operational staff. "By taking this approach, we know that what we have designed has service in mind," says Hawes. "This goes a long way to creating a winning brand. It means that as a company or an airline, everything you do, ultimately, is for the passenger, and this is what enables consumers to develop an affinity with a particular brand."

There are some formidable brands in the aviation industry already, especially among first-tier airlines. But there is still considerable scope for less-established airlines to explore the myriad ways that brand presence can be optimised.

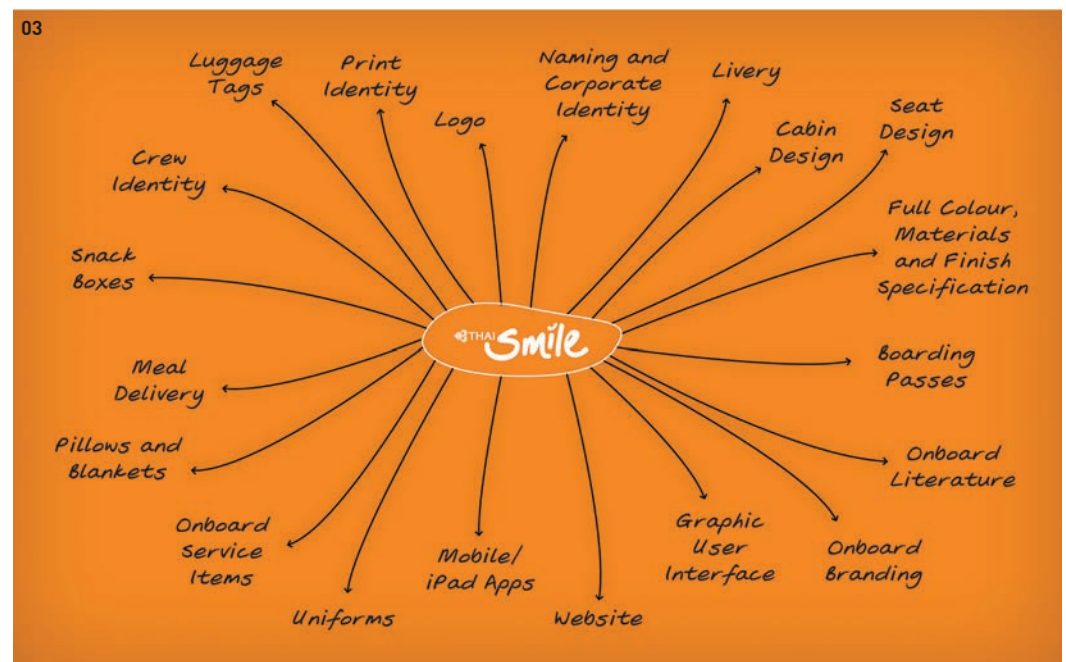
It's important to remember that every cabin redesign or retrofit is an opportunity to strengthen a brand. As Goode explains, "Back in 2004, we were commissioned to design the interiors for Lufthansa's new fleet of Airbus A380s, as well as its continental and intercontinental fleets. At nearly 400 aircraft, it was a huge undertaking. Lufthansa already had a strong brand, but we looked at new applications such as the inclusion of brand panels in galley areas and homogenising the interiors with the company's existing brand colours. For the first class cabin we took inspiration from Lufthansa's first class lounge at Frankfurt airport, with its palette of leather, suede, wood and marble-like laminate in caramel, champagne, chablis and grey-brown. This enabled us to create a warmer, more domestic feel to the cabin, as well as allowing a seamless transition between airport lounge and aircraft. It's about using key, recognisable features of a brand in as many ways as possible to engender a sense of pride and ownership in the airline's passengers."

03. There were 20 main factors to work on in establishing a new airline brand



loyalty that Apple has achieved can at times border on religious zealotry. In such cases, brands don't just sell products or develop followings. Instead they create brand evangelists, who, when taken collectively, are an extremely powerful asset to a business.

Branding is about thoughtful representation of the values of a brand, as Hawes explains, "With Thai Smile, our brief consisted of just five words: friendly, fun, vibrant, speedy and



04



Branding is a vitally important tool in improving the passenger journey. It helps create a coherent experience from home to destination. It's an opportunity to show that as a business, you understand and care about your passengers, that thought is given every step of the way to providing them with the best possible journey. Virgin Atlantic, Priestmangoode's first client in the aviation industry, is a classic example of a company that has for years used branding to positive effect. Virgin cultivates the image of the cool, young, forward-looking passenger – through both its adverts and its other activities. As a result, Virgin has been able to garner a following of passengers – brand advocates who associate with the values and culture of this progressive company.

04. Every aspect of the airline's identity, including tickets and luggage tags, was part of the new branding process



BRANDING IS A VITALLY IMPORTANT TOOL IN IMPROVING THE PASSENGER JOURNEY

WORLD MARKETS Although in certain markets – Europe and the Western world primarily – branding is arguably currently most effective in terms of strengthening existing brand presence through improved and broader applications, new markets in Asia and the Middle East in particular offer a host of other opportunities.

As Goode explains, “Last year, we opened our first overseas office, in Qingdao. We had been working in China for a few years already and the rapid economic growth the country is experiencing means there are innumerable opportunities for us as a design consultancy. One of the industries that's expanding quickest

is the aviation market. As new airlines start up and seek to compete with established airlines, a strong brand can carve out a distinct competitive advantage. Our experience enables us to drive these projects and create brands from the ground up that incorporate naming, livery design, cabin interiors, uniforms, tickets, menus, IFE systems and ground services.”

Importantly, a strong brand can be applied with equal positive effect, regardless of whether it is developed for a first-class national airline or for a small budget offering such as Thai Smile.

Woranate Laprabang, managing director of Thai Smile, comments,

“Thai Airways International has an impeccable reputation for great service and efficiency and we wanted to extend this to our new budget, short-haul fleet. Budget airlines have for too long justified poor quality and service with cheap prices.

“What we have set out to achieve with Thai Smile is to offer a cheap short-haul option with the same level of quality, service and attention to detail that is inherent in the Thai brand. We wanted to prove that it is possible for a budget airline to be elegant, efficient and comfortable, and thereby provide a great passenger experience. Priestmangoode's identity and designs for Thai Smile are the embodiment of this ethos.”


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creating airline brands
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international anthems

Factorydesign ponders if there is any future in blue-sky thinking and the line-up of the future design soundtrack

 When Chris Martin of British rock band Coldplay bounced on stage at the Glastonbury Festival 2011, he shouted to the audience, “Here’s our new one, join in, this will soon be your favourite.” A year later, a crowd of 80,000 was singing along to the same song at the closing ceremony of the London 2012 Paralympics. The point is, what at first may seem new, unfamiliar, awkward or unusual, soon becomes recognisable, appealing and normal, even expected. This is why we move forward, not because we are driven necessarily to pursue change for the sake of change, but because, over time, what was once new becomes normal so we press on, looking for the next new trend.

The pursuit of ‘new’ in the world of technology has accelerated exponentially over the past decade or two and the accelerant is the market. In this world, few boundaries exist and ambition is limited only by human endeavour, intelligence and our physical world, unlike the aviation industry, which is unsurprisingly riddled with regulations and certification requirements.

Now, no one could deny that there is a genuine need for regulations, for rules, control and safety; however, regulations by definition will regulate as they define and constrain. Combine

01. The two-deck Air Lair concept is designed to be used in a twin-aisle aircraft in a 1-2-1 configuration
02. The central opening can be closed for greater privacy



this with the airframe manufacturer’s determination to standardise their aircraft to offer reduced customisation, and there is not much room left for innovation for the next ‘new’.

Despite this, the aviation industry over the past 10 years has embraced design and innovation. Competition is strong and there is routine investment in finding and flying the next better passenger offer. But this acceleration in the cycle of new products and services serves only to make the window of opportunity smaller. The length of programmes doesn’t help. The time

required to identify a new idea, have it developed, certified, built, installed and flying means it may be quickly overtaken by another product, thereby no longer being unique or ‘new’, and shortening the timescale to recover the investment.

So what particular methods might be employed to break boundaries, to challenge convention and to look beyond the constraints without jeopardising a delivery date or needing investment in costly development programmes? Well, aviation is beginning to look towards the future-



WHAT WAS ONCE NEW BECOMES NORMAL SO WE
PRESS ON, LOOKING FOR THE NEXT NEW TREND

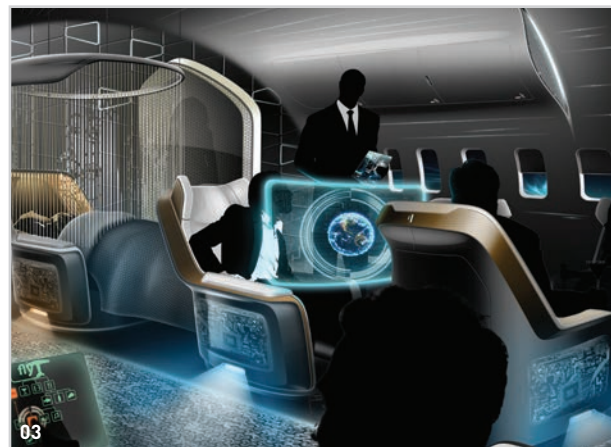


gazing and super-concept worlds of fashion and automotive.

The catwalk and the concept car are the proven origins of fashionable trends. What might seem fanciful and exotic at a fashion show or car show often makes its way onto the high street and into garages. The opportunity for the designer to experiment and explore without the usual constraints of regulations and preconceptions often provokes the wild and sometimes seemingly ridiculous from which the seed of a commercial innovation may arise.

The following three examples demonstrate future-gazing work by Factorydesign, from reconfiguring aircraft to reclassifying passenger classes.

PERSONALISED COOL “The first time I offered my iPhone to security to check the boarding pass, it felt a little incongruous, a bit awkward somehow. The gentleman who scanned it fumbled a little and we smiled. Now it’s normal. Heading to the airport I hit the app to check my flight, gate or seat, but that is just the start; a revolution is

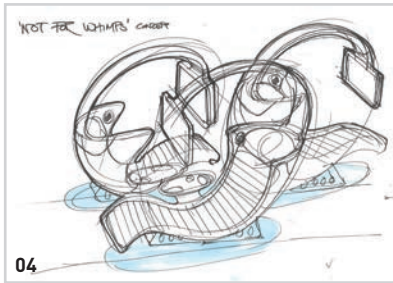


coming,” says Factorydesign director, Adam White.

In the future, premium-class passengers will be able to use their phones to view the cabin and add options to their seats – although ‘seat’ will have become the term for a piece of ‘real estate’ available for use in flight. Customised to suit their needs, the space will be able to be configured with a bed, sofa, chairs and a dining table, or whatever appears from a menu of journey add-ons with variations for light or dark, warm or cool, and quiet or loud. The passenger will have the choice between an interactive or inactive space, and the aircraft as a whole will finally offer an interior designed around the customer experience rather than a LOPA. This is the airline equivalent of a bespoke suit, in that it will be personalised in almost every sense.

The advantage for the airline is these requirements can be corralled to form a range of parameters that can be fed back to the passenger in the form of choice. Think flying à la carte. In other words, the cabin can be prepared to conform to customer needs. For instance, passengers who just want to sleep will be clustered into a quiet zone. Movie watchers will be able to order films, interval breaks, drinks and snacks for a marathon viewing session,

03. Factorydesign director Adam White’s vision of personalised cool, where your flight experience becomes whatever you want it to be



and the family will be able to dine around a table just as they might in a restaurant. Flying is just about to get personal...

NOT FOR WIMPS This groundbreaking concept in aviation seat design is intended to give passengers a unique and entertaining in-flight experience. Factorydesign was commissioned by Zodiac Seats UK (Contour Aerospace) to create a seat concept that is not only technologically advanced, but also reflects social changes in the way passengers want to spend their time on board aircraft.

The Not for Wimps concept is a seat dedicated to the cutting-edge in flight gaming entertainment and is designed to appeal to customers who would rather spend their time on long-haul flights locked in a gaming or viewing experience rather than dropping off to sleep. Crucially, the design represents a willingness to review how we classify passengers. No longer simply economy, business and first class, but interactive, inactive, family, couple and so on.

Bob Lovell of Zodiac Seats says, "Aircraft interior design changes rapidly so who knows what the next 10 years will produce for cabin



- 04. A preliminary sketch of Not for Wimps
- 05. The design immerses the passenger in in-flight gaming
- 06. The concept shown in a 1-1 configuration

configurations and passenger experience, so the creation of this seat is crucial in maintaining innovative breakthroughs in the industry. We felt that Factorydesign would be the most likely to push the boundaries the furthest – and they certainly did."

AIR LAIR Through another collaboration between Zodiac Seats UK (Contour) and Factorydesign came the Air Lair. Why should premium-class travellers who check in to expensive hotels be expected to sleep together in a dormitory-like cabin? It doesn't matter how broad the smile at check-in or how good the food or the in-room entertainment.

The heart of the Air Lair concept lies in the name. A lair is a private place in which one seeks seclusion, a

perfect way to restore equilibrium after a business trip to the other side of the world. The clue to making the idea work is the nestling of an upper pod for seating in a second tier. This means that a conventional first-class configuration in a short cabin that delivers 16 seats could be replaced by Air Lair and allow up to 28 pods in the same space.

Aimed at passengers who may prefer to be in a well-configured private jet than a commercial aircraft, this concept is all about creating the ultimate in personal space that leaves the passenger feeling embraced, comforted and secure.

So watch out, folks – the future's coming, and the strange new song you just heard for the first time will be, by then, a familiar soundtrack. ☒



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A futuristic airplane cabin interior. The scene is dimly lit with blue and white highlights. In the center, a flight attendant in a dark suit stands holding a tablet. A glowing digital interface is projected in front of the passengers, displaying a globe of the Earth. The passengers are seated in modern, wide seats with integrated screens. The cabin features large windows and a curved ceiling with recessed lighting. The overall atmosphere is sleek and high-tech.

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classaction

Pengelly Design's strong background in furniture dovetails with innovative aircraft concepts such as Virgin's Upper Class suite

- 01. Virgin Atlantic's Upper Class seats were developed by the airline's design team, in collaboration with Pengelly Design and Threesixty Aerospace
- 02. The Arper Nuur table won the Compasso d'Oro design award



Pengelly Design, a London-based studio founded in 1993 and headed up by award-winning designer Simon Pengelly, is one of the UK's most successful design studios, branching out to work with renowned brands across four continents. The studio's portfolio spans the disciplines of furniture, lighting, product, interiors and transport, and it won the coveted Compasso d'Oro in 2011, Italy's most notable design award, for Arper's Nuur Table.

Pengelly Design is recognised for products that demonstrate an affinity with their users – designs that are rigorous in their engineering detail and functionality, while maintaining a purity and a lightness of touch, providing intelligent solutions to mass production with craft sensibilities.

Trained as a furniture maker from an early age, Pengelly's understanding of the process of making across numerous technologies underscores the market awareness necessary to interpret the many and varied manufacturing brands Pengelly Design works for. The studio applies a holistic



approach to every project as a problem-solving exercise where a careful balance is adhered to, creating intelligent and practical, pure and emotional responses to each brief, with functionality and subtle detail revealing itself as the product is used and enjoyed.

UPPER CLASS SUITE 'How do we improve on the best business class seat in the sky?' was the challenge Pengelly Design was given, and after eight months of pitching its initial thoughts against four other design agencies, it was selected to work with Virgin Atlantic's in-house design team and Threesixty Aerospace to design and manufacture the new Upper Class Suite.

"In this new high-tech age of consumerism with all of the associated

pressures of enabling a healthy bottom line for our clients and ensuring their shareholders are satisfied, projects as big as this can sometimes overlook that the process of design is about addressing the functional and emotional needs of people first and foremost," asserts Pengelly.

"We are fortunate that we get to work with companies that understand the relationship of design and business," adds Ed Parkinson-Bates, a senior designer at Pengelly Design.

"We were initially tasked with developing a number of seat configurations loosely based on the herringbone configuration. We didn't want to go down the route of the slightly skewed seating configurations as these always compromise privacy, especially for those in aisle seats whose



EVERY EFFORT WENT INTO THE PROVISION OF INTUITIVE, ACCESSIBLE AND BEAUTIFUL PASSENGER ELEMENTS



In response to research conducted with Virgin frequent flyers during development, the new configuration provides an enhanced view of the cabin, with lower shields and the introduction of translucent panels to open up the cabin, providing a balance between privacy and the perception of space, both individually and within the overall cabin.

The team at Pengelly design saw the project as an opportunity to really get under the skin of the way people experience air travel. “The whole experience, and not just the part where they sit on a seat... understanding the entire ‘passenger journey’ from the point at which they select an airline to arriving at their destination, was important in identifying all of the contributory factors that should inform this extremely complex design project,” explains Pengelly.

“These factors are as far-reaching as ensuring the suite works across a fleet of Airbus and Boeing aircraft, and that the functional attributes of the suite work for the passenger as well as flight crew by making sure the suites’



03

maintenance is considerably easier for ground crew,” Pengelly adds.

Completely overhauling the way each seat is attached to the seat tracks means they can now be reconfigured quickly, and smaller components can be changed without the need for maintenance crews to remove entire seats. The intelligent use of materials such as CNC-machined aluminium and Formula 1-grade moulded carbon fibre, have resulted in a lighter and more efficient assembly.

“We’ve spent months reshaping the form of every surface and curve of the composite chair-surround to encapsulate the internal structure and

- 03. The Dim Sum for Montis is a new take on rocking chair design
- 04. Pengelly has also created a new wall light for Foscarini

sleep can be disturbed by exiting neighbours,” adds Pengelly.

The new four-abreast asymmetric herringbone 1-2-1 configuration Pengelly Design developed with Virgin Atlantic’s in-house team has enabled them to fully optimise cabin space, giving more room to each passenger and extending the bed length to more than 2m, while actually increasing the amount of seats within the cabin and providing each passenger with their own aisle access, avoiding passengers having to climb over another traveller’s seat or bed.

“We decided that while this would happen relatively infrequently, passengers still feel awkward about climbing over someone else, and in a premium product it should not have to be an issue,” states Parkinson-Bates.



04



THE SEAT NOW ENCOMPASSES A PATENTED SUSPENSION SYSTEM NEW TO AIRCRAFT SEATS



the functional features needed by travellers, while ensuring each surround is as thin as possible to maximise personal space,” adds Pengelly. “Every effort went into the provision of intuitive, easily accessible and beautiful passenger elements in seat and bed mode, in addition to providing as much individual storage as possible.”

“The Virgin team had done the research into competitive products and had looked again at every feasible way of laying out a lie-flat seat LOPA. Based on the fact that they’d already pioneered and patented the only seat on the market to flip forward so that the passenger is not laying on the surface they’ve just been sitting on for hours meant we could use a formula for folding into bed mode that we already knew was the best out there,” states Parkinson-Bates.

The seat now encompasses a patented suspension system new to aircraft seats. “This is brand new and actually comes from the furniture industry and significantly increases comfort – it is probably the comfiest bed in the sky,” adds Nik Lusardi, project manager for Virgin Atlantic’s design team.

One of the things that first attracted Virgin Atlantic to Pengelly Design was the agency’s history of designing furniture for both domestic and contract environments. “We have shifted emphasis away from the traditional aircraft feel towards a more domestic and familiar experience, providing a secure, private and calming space for each passenger,” states Pengelly.

All of the brief’s requirements, compounded by the complexities of designing and engineering a completely



new and unique product, made for an extremely challenging project, requiring an entirely holistic understanding and approach to every influencing aspect of the process.

“The only way for us to successfully work on such a project was to fully understand and be involved in every aspect. It could never be undertaken as a purely visual exercise due to the overlapping functional and ergonomic considerations, not to mention its engineering... that’s why it took four-and-a-half years,” explains Pengelly.

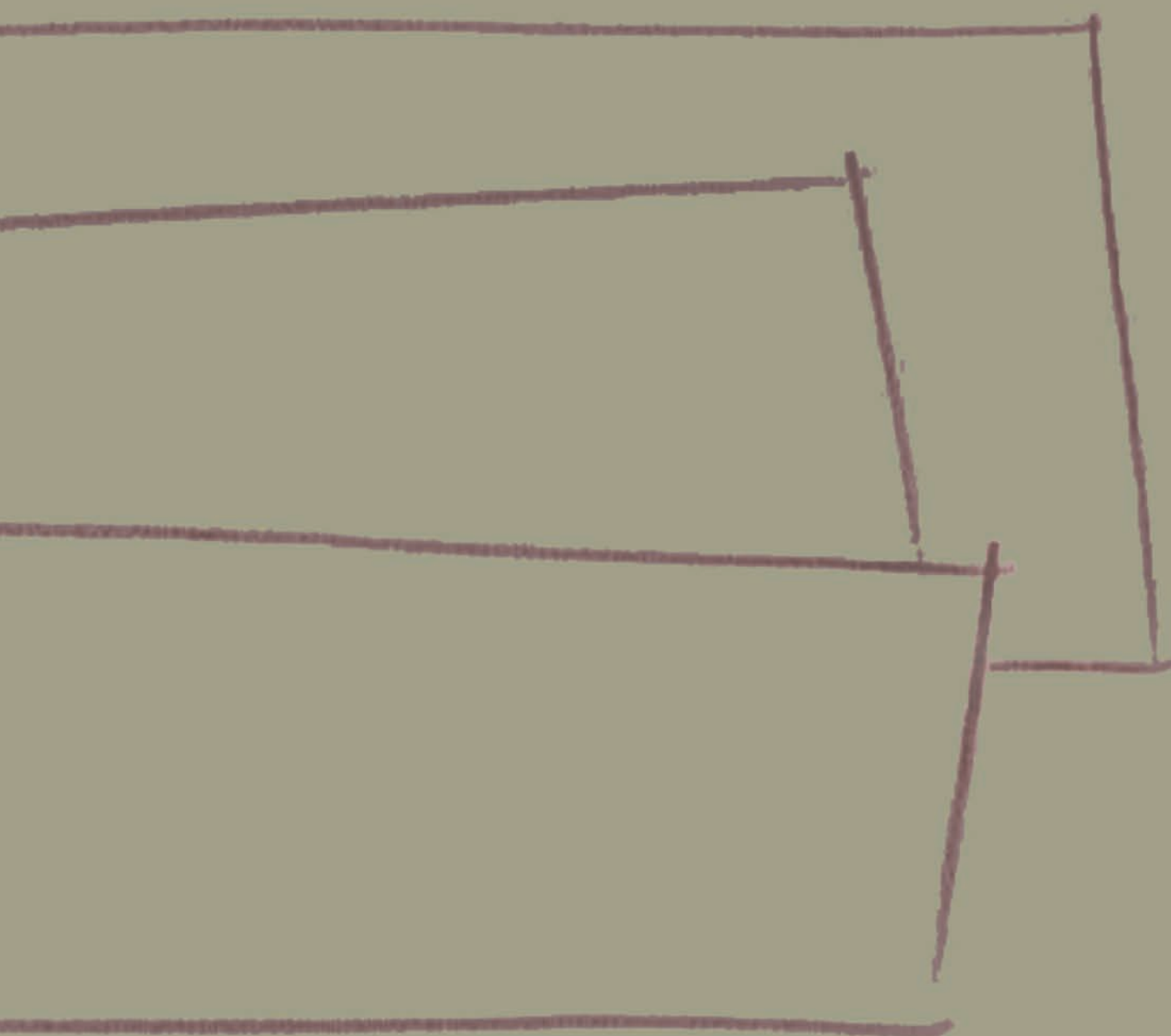
Pengelly Design hopes its continued relationship with Virgin Atlantic

- 05. The Slant handle, a collaboration with Izé, is designed to be used either way up, inviting the user to experiment with the orientation
- 06. The new Upper Class Suite is claimed to be the most comfortable bed in the sky

will produce further groundbreaking projects. The studio is also working on other areas within the transport sector because of its rich furniture background, and continues to work on a steady stream of projects for a wide range of clients, both in the UK and abroad.

With the recent launch of the Upper Class Suite for Virgin Atlantic, the uniquely conceived Dim Sum rocking chair for Dutch company Montis, and an innovative wall light for acclaimed Italian lighting brand Foscarini, 2012 is set to consolidate the studio’s international reputation for great multidisciplinary work. ☒

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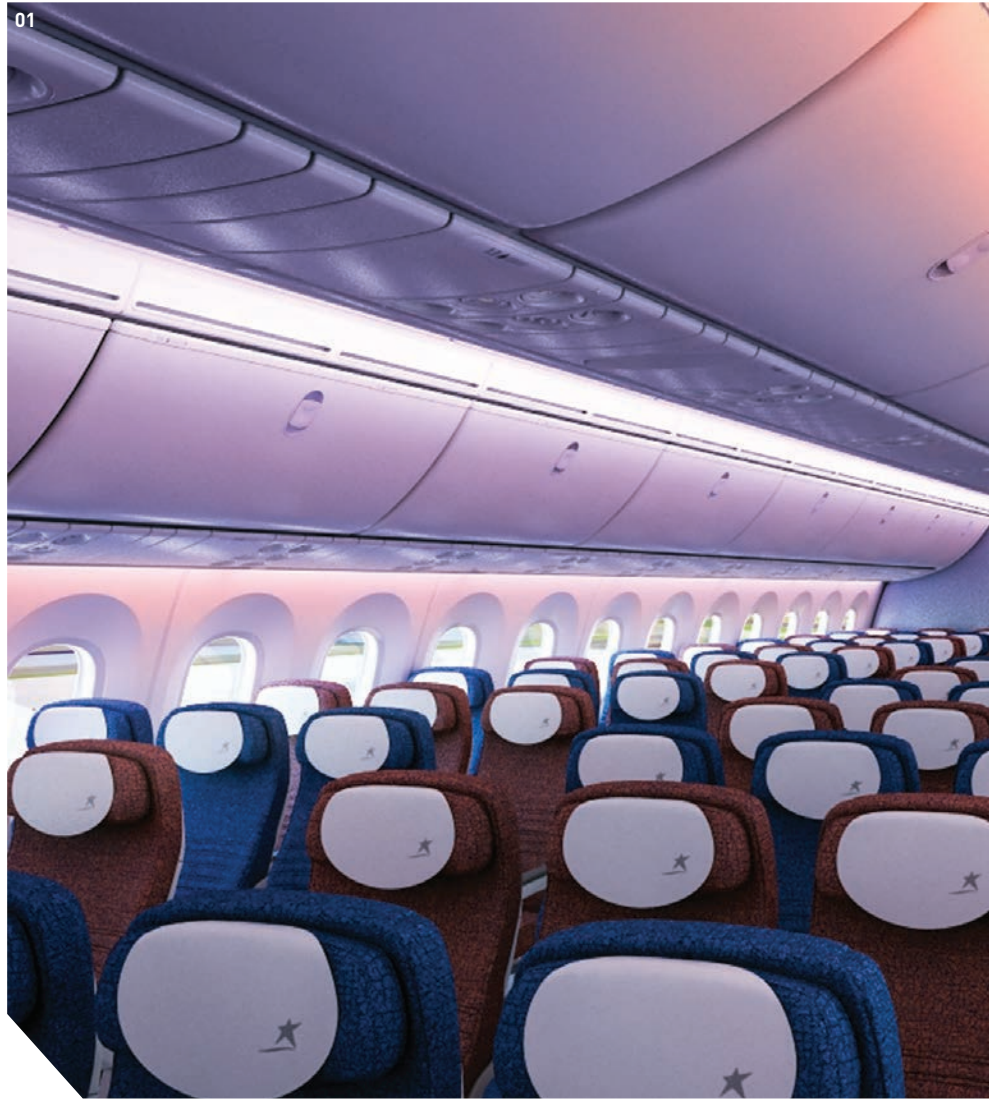
Brand agency MBLM has infused LAN's new cabins with the charm of South America and meticulous attention to every detail

 As one of the world's fastest-growing and most profitable and admired airlines, LAN has earned its place as South America's leading carrier. The airline's success is based on an aggressive business strategy and a meticulous vigilance over its brand image. The arrival of the new Boeing 787 Dreamliner in its fleet provided a unique opportunity to create a flight experience that truly delivers on LAN's brand promise of a consistently reliable passenger experience infused with the charm of South America.

"Unlike many cabin interiors projects that start with seat design and fabric selections, for us, this was a branding assignment from day one," says Claude Salzberger, president of MBLM, the New York-based agency tasked with the design. "Having been part of the team that originally helped LAN reposition itself as a South American carrier, I wanted to be sure to respect and enhance the qualities that would make the passenger experience uniquely LAN."

"We're proud of our origin and wanted that to shine through," adds Pedro Margozzini, LAN's corporate marketing and services director.

The warmth, charm and liveliness of South America were brought in through a new colour palette, soft lines and an obsessive attention to detail.



- 01. Colour and light play a critical role in creating a more interesting yet sophisticated economy cabin
- 02. The overall colour palette, patterns and textures are evocative of South America
- 03. Iridescent fabrics in economy maximise the effect of the increased natural light from the large windows



"From the regional ingredients and wines that we serve, to the custom artwork featured on our menus, we wanted every detail to be thoughtful and evoke a sense of place, not without also reminding our passengers that we are a world-class airline by keeping up with the latest trends, including elements such as our new amenity kit, designed by [fashion design house] Salvatore Ferragamo."

EVERYTHING IN ITS PLACE From the moment passengers board, a feeling of





FOR US, THIS WAS A BRANDING
ASSIGNMENT FROM DAY ONE

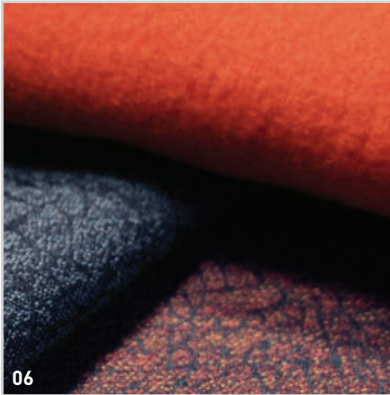


openness prevails. “We wanted to maximise the features of the Boeing 787 and create a superior passenger experience that feels at once spacious and private,” explains Rajmin Hessin, elite product manager at LAN Airlines, noting the designers worked to highlight features such as the signature dome ceiling, curvilinear interiors and innovative lighting technology. The team dramatically opened up the space at entry door two, leaving the dome ceiling uninterrupted to create a ‘wow’ moment for all passengers.

For the Premium Business cabin, LAN selected the catalogue Aura Seat from Contour. Inspired by the cabin architecture, MBLM first softened the seat’s hard lines to create undulating pods that mimic the simplicity, fluidity and elegance of the rest of the space.

Once the passenger is seated, LAN’s obsession with passenger comfort and the notion that ‘everything has a place’ becomes apparent. Little nooks and cubbyholes were designed specifically to hold passengers’ shoes, newspapers and reading glasses; there

- 04. The premium business seats combine functionality, privacy and spaciousness
- 05. The new seat design provides multiple features and functionalities as well as an increased sense of privacy



06



EVERY MOMENT WAS CONSIDERED.

EVERY DETAIL WAS TAKEN CARE OF



07

06. Colourful textiles add distinction to the economy experience

07. Contour's Aura seat was restyled to meet LAN's exacting requirements without compromising Boeing specifications

is a smartphone charger, a USB port and PC power to help passengers maximise work efficiency; there are translucent privacy screens and an adjustable LED personal reading light for each seat; and ottomans provide comfort and cap off the feeling of privacy. "Every moment was considered. Every detail was taken care of," says Salzberger.

In Economy, an adjustable headrest with four positions and a double cupholder were added to the AE's Pinnacle Seat, with passenger comfort in mind. A 9in ECO monitor, USB port, iPod eXport jack and PC power ensure an optimised in-flight entertainment experience.

Stitching and padding were added for extra lumbar support and increased passenger comfort. Fabrics in reds and oranges evoke the landscape of South

America, while an iridescent sheen reacts to light and shadow, capturing the enchantment of the region's sun-filled vistas.

THE SUN ALSO RISES As the majority of LAN's flights are overnight, special attention was paid to the lighting. MBLM studied the effects of lighting on people's biological clocks and its effects on the look of food, the fabrics and the overall cabin ambience.

After three rigorous tests at the Boeing Dreamliner Gallery in Seattle, a dynamic lighting sequence was programmed that minimises the effects of passenger travel and enhances the experience of the flight. "Gone are the

days of harsh fluorescent lights jarring passengers awake," says Salzberger, noting the wake-up sequence takes five full minutes and is designed to mimic "the beautiful silvery light colour of the morning when arriving at your destination".

A CONTINUOUS EXPERIENCE

According to Margozzini, maintaining a continuous experience across the fleet was key. "Our goal was to evolve the current cabin design in ways that were fresh and new, yet compatible and harmonious with our current design," he says. To that end, the new design has already been adapted to LAN's new Boeing 767 aircraft. ☒

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A close-up portrait of Claude Salzberger, a middle-aged man with a shaved head, a goatee, and black-rimmed glasses. He is wearing a dark blue suit jacket over a white collared shirt. The background is blurred, showing what appears to be an airport or travel setting with other people and structures.

MBLM

“ A best-in-class cabin interior goes beyond form and function. It requires the seamless integration of design, technology, functionality and all the little details that elevate the passenger experience and define a brand.”

- Claude Salzberger


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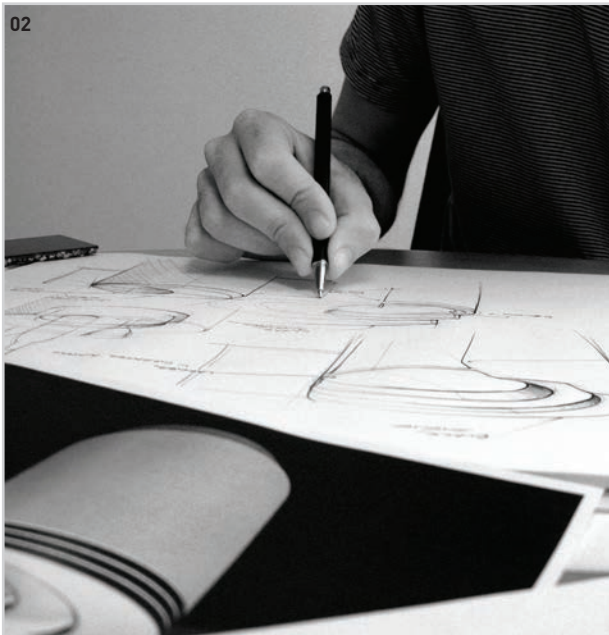
Altitude Aerospace Interiors contemplates future galleys, the potential of the Boeing family, and the VIP completions market

 The past 12 months have been exciting for Altitude, with continued growth in the market sectors it has always served, as well as seeing success with new aircraft types and products.

Altitude built its reputation in designing and supplying unique and customised interior products that help airlines differentiate themselves from others. But the past year has seen Altitude take the first steps into exciting new markets, where it hopes to make a splash by bringing its skills honed on customised product design.

WHAT'S BEEN HAPPENING? Less than a year ago, Boeing delivered its latest evolution of the venerable 747 aircraft, the high-tech 747-8 Intercontinental. Altitude was among a few selected suppliers chosen to work on this programme. The company was tasked with bringing to life the design aspirations of the launch airline in the new aircraft's First Class cabin. This included providing a range of bespoke monuments such as bar units and closets, which were designed to work

- 01. Altitude's Ellipse bar is designed to make the most of the 747-8i's ceiling architecture
- 02. The Ellipse bar in the concept stage



beautifully with the 747s incredible new ceiling architecture.

But meeting the aesthetic requirements was only one of the needs, as some specific practical requirements had to be met too. As such, the bar units house standard galley boxes and emergency equipment, all hidden behind large clam shell doors.

The customer also had high durability expectations, and to meet them, the entire bar top and drinks

well on the bar unit was milled from a single piece of aluminium and then hard anodised. A first-class solution for a first-class application.

Of course, the products were not delivered overnight. The engineering and design took more than two years, and had to accommodate several changes in direction and specification along the way. It also had numerous technical challenges that inevitably come from a first-of-type aircraft programme. But these challenges



THE ENGINEERING AND DESIGN HAD TO ACCOMMODATE
SEVERAL CHANGES IN DIRECTION AND SPECIFICATION



are par for the course for a bespoke monument programme.

With the deliveries for this programme now well under way, Altitude has been working hard on the engineering and design of products for another new generation of aircraft – Boeing's new 787.

Over the past few months, Altitude designers and engineers have been locked away secretly developing products for customers' future 787 deliveries. It will be a while yet before

these products see the light of day, but the unique challenges of this high-tech aircraft are now truly part of the Altitude knowledge base. Boeing has placed tough expectations on all suppliers to make sure that anything that they design can be installed in the aircraft within strict timelines. This would normally be a huge challenge for a set of unique and customised products, especially where branding and design take precedence over a manufacturer's installation needs.

However, Altitude has decided to take the opportunity to make this a consideration for all programmes from here on in, wrapping this thinking into all existing projects. Altitude's thinking is that there is no need to make a customised product more difficult to install than a catalogue product.

LATEST OFFERINGS While Altitude continues to work on its core business, to design and build customised products for airlines, it has also been working on developing another product stream. A year ago, Altitude decided that it wanted to apply its skills to the galley market. This was as a result of an opportunity that it saw in that space. Altitude's head of airline business, Baden Smith, says that "there has been little innovation in galleys for the last 20 years, and the market is ripe for someone focused on the needs of the customer. Surely it's time that service flows and aesthetics were included in the design process".

Since that time, Altitude has invested heavily in research and development efforts, including airline customer research, materials research and manufacturing efforts. This has paid off in recent months, with Altitude winning its first major customer programme to supply several shipsets of galleys starting midway through 2013.

It is early days for Altitude's galley business, but it has got some quick wins on the board. The next step is to become an established provider of galleys on a large-scale production aircraft. The most sensible candidate for Altitude is the 777 aircraft; the company's expertise in providing customised products for this aircraft over several years makes it a logical choice for the galleys. Altitude's view is that this would help it to consolidate the customer's supply chain, and provide benefits to other key stakeholders such as Boeing as well.



“Obviously if you can offer a customer a full suite of galleys on a 777, with a high degree of flexibility to meet their service needs, as well as delivering on their branding and differentiation requirements with the customised monuments, then you’ve got a really compelling and comprehensive offering,” says Smith.

BUSINESS SYNERGIES Altitude’s other key business line is its VIP completions business, and the Altitude team will soon be hard at work with a green completion of a BBJ aircraft in its Christchurch hangar facility.

The synergies between Altitude’s Airlines and VIP business streams continue to pay dividends for the company. An example of this is that the Altitude VIP business has recently been granted authorised completion centre status for 787s by Boeing Business Jets.

Altitude’s head of VIP completions, Matthew Woollaston, says, “This is testimony to the great work on the airline side of the business with 787s, as well as the ever-increasing relationship with Boeing Business Jets. These factors, combined with our ongoing activity on other VIP aircraft, have put us in a very strong position to meet the upcoming demand for completions on these aircraft.”

WHAT’S NEXT? Altitude is determined to continue its approach of “focused diversification” as described by general manager, Michael Pervan. What Pervan means by this is the idea that Altitude has its two business streams: VIP completions and airline interiors (the diversified part), with a common core of engineering and design (the focused part). And these two areas seem to be set to continue to feed off each other.



SURELY IT’S TIME THAT SERVICE FLOWS AND AESTHETICS WERE INCLUDED IN THE DESIGN PROCESS



- 03. Altitude’s bar design for Lufthansa First Class
- 04. A growth area for the company is in aircraft galley design

The existing business of customised interiors has got a solid stream of customers knocking on the door, no doubt due to Altitude’s unique selling feature of realising customers’ desired interiors. This has been given a boost with the new opportunities created by the 747-8 and the 787 aircraft, which customers will continue to customise.

But the new opportunity opened up in the past year with Altitude’s galleys also seems to have a rapid growth trajectory. It is early days still, but all the signs are positive of Altitude

delivering on its promise of creating innovation and end-customer focus with its galley offering.

Altitude’s VIP completions business has also got exciting prospects ahead. The 787 is an aircraft with huge potential to be a real game-changer in the VIP market. Altitude has invested heavily in this aircraft, and there is no doubt that it will be looking forward to showing the benefits of that investment to a VIP customer as the first 787 VIP aircraft rolls out of Boeing’s factory in early 2013. ☒

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Pierrejean Design Studio has specialised in the interior design of private and commercial aircraft for more than 25 years



In its early days, Pierrejean Design Studio was the design house behind the Falcon Jet. Since 1998, however, it has worked for Emirates Airlines, creating the mini-suite and the mood lighting installed on its Airbus and Boeing aircraft. Subsequently, the studio participated in the development of the first A380s, with the creation of lounges and the first aircraft shower.

Aiming to improve passengers' comfort while respecting the imperatives of its client airlines, Pierrejean Design Studio stands at the forefront of innovation, entrusted with a creative role for Etihad Airways, and more recently designing the interior of the B787 for Qatar Airways. In parallel with these overall conception projects, the design office works on creating seats with manufacturers such as EADS Sogerma and B/E Aerospace.

The conception of the first Boeing 747-8 for a head of state, and the first B787 for a private client, currently under way, are the latest examples of Pierrejean Design Studio's substantial expertise in the interior design of private aircraft and its experience with this breed of high-flying passenger. Strengthened by research undertaken in this sector, the studio continues to develop new products for first class. But reflecting the evolving market and diminishing number of first class seats in favour of business class, the studio

- 01. A cafeteria area onboard an A380 for relaxing and enjoying the view
- 02. A lounge concept between first class and business class



wanted to use this experience for the benefit of business class, working with Etihad to create what is now called the Solstys seat.

SOCIAL AREAS With the intention of never installing a seat in an aircraft without considering its surrounding environment, the Pierrejean Design Studio proposes an accompanying



THE DESIGNER PROPOSES AN OPTIMISATION OF THE FLOOR PLAN TO BEST MAKE USE OF UNUSED SPACES



ECONOMY CLASS INNOVATION In research into improving cabin layouts, economy and premium economy zones are all too often neglected because they are difficult to treat and are perhaps less prestigious for a designer than work on first or business class areas. Contacted by a potential client about its medium-haul flights, Pierrejean Design Studio sought a solution for this zone, developing the idea of a 'seating/standing' seat, thus permitting a higher-density plan and freeing-up space for relaxation or areas intended for children, which do not currently exist on commercial airlines. At the time, the idea was quickly rejected by Airbus and Boeing as it necessitated the revision of the certification plans for seat fixings, distribution of oxygen masks and reading lights, but the project is likely to reappear because the studio is convinced of the ergonomics and benefits that such a revolution would bring to this class.

03. Mid-cabin restaurant and recreation area

optimisation of the floor plan to make best use of unused spaces. Thus 'social' areas have appeared on board, such as welcome areas, lounges or bar corners, restaurants, cafés, conference spaces, smoking areas, or storage modules; these facilities make the most of any wasted space in an aircraft and give an advantage to airlines wishing to offer better service to their passengers.

The creative process was limited to rethinking a more conventional version of the seat – a lesson in how it is often much easier to work on innovation in first or business classes than in economy class, where passengers are constantly asking studios to help out. The challenge has now been set, and Pierrejean Design Studio continues to work on it, using the latest technology with the aim both of reducing the weight of the seat and of making use of



THE CREATION OF A FOUNTAIN, A SMALL WALL OF WATER FLOWING OVER THE BAR IN THE CABIN OF THE EMIRATES A380, WAS ANOTHER DIFFICULT TASK... ”

the deformation properties of new materials. In the restricted seating space, the studio must have sufficient imagination to meet the expectations of passengers in this class.

Such a challenge can only succeed if the designers can count on it being applied to a large number of seats and thus work with an airline with a substantial fleet of aircraft. This process can be initiated only right at the start of the definition process of a new cabin, to aid involvement by Airbus or Boeing, as Pierrejean has done previously with the mini-suites for Emirates in 1998. At the time, and taking into consideration regulations written long ago, no exemptions existed to meet safety requirements at landing and take-off in terms of the crew's direct view of the passengers. Convinced that the cabin layout needed to evolve, and aided by the support of the airline, Pierrejean was able to progress the regulations. The creation of a fountain, a small wall of water flowing over the bar in the cabin of the Emirates A380, was another difficult task...



PARTNERSHIP Creativity in the aeronautical industry is only possible with experience, knowledge, wisdom and a client as a partner who is as keen as the designer to move ahead in the right direction. This partnership having been formed, the inclusion of a manufacturer who also wants to invest in such innovations can only aid the evolution of criteria that have sometimes existed for too long and not necessarily evolved with the market.

This united team must then tackle the possibility of clients deciding to cut short an idea or a project over cost or schedules, which are sometimes an

easy excuse for those who wish to block a new idea or a development for which the design team cannot find an economic solution. Pierrejean regularly has to tackle these issues to maintain its reputation as a research laboratory.

Pierrejean Design Studio undertakes its projects with full awareness of all these conditions. The studio's role is to respond as best it can to the passenger's comfort and help them to travel in comfort, so they use that airline again.

04. A clean, modern concept for an onboard first class lounge

05. The welcome area, located between the aircraft entry doors, also serves as a bar

Pierrejean Design Studio is always delighted to respond to the call of airlines who want a partner who is ready to listen to their wish list and to work with their envisaged investment.

The studio's involvement in a project can take place on several levels: the creation of aeronautical products, such as seats, galleys, toilet blocks or lining; the incorporation of new lighting concepts; or the rethinking of cabin colours. ☒

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
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insidestory

For the past 30 years, JPA Design has been creating innovative designs for international airlines, from ground level to 35,000ft up

 In 1982, Architectural Association graduate James Park set up his own practice with a clear vision: to not only work on some interesting projects, but also to create products and spaces that work well for both the client and the people who use them. Thirty years later, JPA is one of the most highly regarded interior and product design agencies in the world, with offices in London and Singapore, and a string of high-profile successes across the aviation, rail and hospitality sectors.

“I have always been fascinated by that point where architectural design, engineering, product design and interiors intersect,” says James Park. “And the hospitality sector – in its broadest sense – covers all those areas. The environment has to be one in which the customer can feel safe, relax, and enjoy the service, and where the aesthetics enhance their experience and reflect the client’s cultural and corporate identity. Achieving all this, as well as ensuring that the design works in a commercial sense – that it stays on budget, attracts repeat business, and drives revenue streams – is a challenge that remains exciting three decades on from when we started.”

Those 30 years have witnessed JPA creating some of the most prestigious products and environments in the transport and hospitality sectors, from



01. Cathay Pacific opted for a reverse herringbone for business class

02. The first class seat onboard an American Airlines B777-300ER



the interiors of the Venice Simplon Orient Express, to the Taj Mahal Palace and Tower, Mumbai.

But it is the aviation sector that has really united JPA’s strengths and placed its work within every global market. High-profile projects have included Japan Airlines’ first class JAL Suite and the business class seat for Singapore Airlines’ pioneering Airbus A380, which took to the skies in 2008.

Still the widest business class seat available, SIA’s seat set new standards and received overwhelmingly positive

feedback from commentators and passengers alike. The A380 business class seat was developed from Singapore Airlines’ B777 first class seat, also designed by JPA, and such was its success in the A380 that it was subsequently fitted to the airline’s A340 and B777 aircraft.

Park comments, “We have enjoyed a long and productive relationship with SIA, from our first design for its B747 first class to the present day, and I am delighted that SIA has just commissioned us to develop the next-

“

THE ENVOY SUITE MARKED A STEP-CHANGE IN THE LEVEL OF COMFORT AND AMENITY OFFERED BY CARRIERS IN THE USA

”



generation business class seat for its B777, A350, and B787 aircraft.”

A significant amount of JPA's work for airlines has focused on premium cabins. To help clients minimise costs, the practice has come up with an innovative business class seating platform that can be adapted to meet the specific needs and reflect the identities of any number of airlines. The platform's reverse herringbone configuration and unpalletised engineering offer considerable space and weight savings, while its fully



lie-flat bed, spacious central console, and enhanced privacy deliver tangible benefits for travellers. Seat width can be varied, colour and trim applied, and a different IFE and connectivity options can be installed. Furthermore, the pitch can be varied from a high-density 43in, to a roomy 53in. These changes transform the seat from 'off-the-peg' solution to truly bespoke product.

SEAT POTENTIAL US Airways was the first to spot the seat's vast potential, launching it as the Envoy Suite in a 1-2-1 configuration aboard its A330 fleet. With a lie-flat bed length of either 76in or 80in, depending on where it is located in the cabin, and seat width of 20.5in – increasing to 25.5in when the retractable armrests are dropped – the Envoy Suite marked a step-change in the level of comfort and amenity offered by US carriers.

American Airlines recently selected the seat for its B777-300ER business class cabin. The new business class seats offer bespoke colour and trim and a range of amenities, which includes

the first US airline business class inflight bar. JPA also worked extensively with American Airlines to redesign the carrier's flagship first class cabin. In addition to the design work on American's new B777-300ER, JPA is currently working on the interior design of AA's new transcontinental Airbus A321 aircraft, which features 10 forward-facing, fully lie-flat first class seats, all of which are fitted in a 1-1 configuration and offer every passenger direct aisle access, making this another first for any US carrier. The design partnership with American Airlines also ranges from new main cabin seats throughout the fleet, to premium lavatory trim and finish on new wide-body aircraft.

Park adds, “Working with American Airlines has been immensely rewarding, and designing for all of its cabins has meant that the expression of its identity has a unity and consistency that is often difficult to achieve. JPA and American Airlines continue to work well as a team and the end result is very pleasing.”

03. Cathay's fully flat bed in business class is just over 2m long, and a bed extension increases width by 6.5in



04



05



THIS IS A HUGE UNDERTAKING, BUT THE COMPLETED LOUNGES WILL DELIGHT BOTH AIRLINE AND CUSTOMERS



COLLABORATIVE EFFORT Cathay Pacific has also opted for the reverse herringbone platform for its new business class product, and JPA has also collaborated with the airline on the design of its new economy and premium economy seats. The business class seats are being offered on the airline's A330-300 and B777-300ER aircraft, while the premium and premium economy seats have been fitted to B777-300ER, B747-400, A330-300, and A340-300 aircraft on select trans-Pacific routes.

JPA's eye for detail was to the fore during the project, as the team took responsibility for the design of the new premium economy seatback's space under the personal TV, the meal table housed under the armrest, and a separate cocktail table that emerges from the centre console. In addition, JPA developed the seat cushion ergonomics, the back cushion's stitch line, and the upholstery's colour and trim. JPA's colour and trim department, under senior designer Annette O'Toole, played a lead role in ensuring that the seats were attractive, comfortable, conveyed Cathay's brand, and were clearly differentiated both from each other and from competitors' products.

To that end, JPA worked with manufacturers to develop new textiles

and seat fabrics, as well as a range of other interior elements, including seatbelts, monitor shrouds, armrests, curtains, carpets, and even crew uniforms.

GROUND-LEVEL DESIGN A traveller's journey clearly starts long before the aircraft is boarded, and airport lounges are a key part of the passenger experience. Here, JPA's history of designing for hotels as well as aircraft has come into its own. Singapore Airlines' critically acclaimed first class lounge and check-in at Changi Airport started the ball rolling, and since then the JPA-designed premium lounges at Muscat International Airport in Oman have been unveiled, offering elegance and tranquillity, while the practice's design of Gulf Air's flagship premium class lounge at Heathrow combines refinement with Arabic styling to reflect the heritage of the brand.

Park says, "For an interior designer, airport lounges combine the challenges and opportunities presented by both hotels and aircraft cabins. The lounges we have completed previously combine the best of all aspects of the passenger

- 04. The Cathay design allows passengers to socialise, while also offering a privacy screen for those wishing to rest
- 05. SIA's business class seat for the A380 was developed from its previous 777 first class seat

experience, while retaining the carriers' own unique identities. The lounges we are currently creating for Air China in Beijing, Shanghai, Chengdu and Chongqing will again be very special, delivering an outstanding environment for travellers and distinguishing the carrier as a market leader in China and internationally."

JPA design director Alex Duncan adds, "We will be taking on a whole range of roles with the Air China project, including research, concept design, brand management and graphic design, design development and engineering, materials sourcing, testing and specification, and also integral project management. This is a huge undertaking, but one that plays directly to JPA's strengths, and the completed lounges will delight both airline and customers."

Park concludes, "Over the past 30 years, JPA has created seats, cabins and lounges that have delighted travellers, won awards and, crucially, helped to deliver commercial success for our clients.

"I look forward to seeing where JPA's own journey will take us next." ☒

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1. Singapore Airlines - A380 Business Class seat and cabin interior, 2006
2. Conceptual Pod Hotel - Norway, 2010
3. Venice Simplon Oriental Express - Luxury Train cabin interior, 1982
4. Cathay Pacific - B777-300ER/A330-300 Business Class seat and cabin interior, 2011
5. Air China - First and Business Class Lounge, Chengdu Airport, 2012
6. Gulf Air - Premium Class Lounge, London Heathrow Airport, 2011
7. Singapore Airlines - B747 First Class seat, 1998
8. American Airlines - B777-300ER Business Class Bar, 2012
9. American Airlines - B777-300ER First Class seat and cabin interior, 2012
10. Japan Airlines - B777-300ER First Class seat, 2008

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brightideas

Design Q shares its insight into the design process of the Bombardier CSeries mockup interior

- 01. The final mockup colour scheme, the 'Fresh' approach
- 02. Luxury watches, Learjets and automotive interiors informed the Corporate colour concept

 Transport design consultancy Design Q has been a player in the aircraft industry for 12 years, producing innovative interiors and constantly coming up with new ways to appoint cabin accommodation.

The company is building on its early successes such as Virgin Atlantic's Upper Class, and every class for Cathay Pacific, and continuing to develop key interiors and innovations for operators and airframe manufacturers.

The practice also has a great deal of experience with creating designs for aircraft seating manufacturers, with several of its designs flying today. Of particular interest has been the PF2000 from Pitch Aircraft Seating, an economy seat that has received a lot of press coverage and much interest in its development and production. Design Q, as an industrial design partner, excelled with this product. The design and diligence for detail becomes apparent when airlines consider the benefits of this unique economy seat.

CSERIES Design Q was tasked to review how the Bombardier CSeries cabin demonstrator should be best portrayed to potential customers of the aircraft. The company's designers considered that there are two ways in which new product differentiation can be influenced and created.

The primary route is the invention of new ways to engineer a solution



that is more efficient. Invention is the process that creates a new route to a dynamic engineering solution, which at this early stage is not focusing on looks or style, but just dealing with answering the fundamental requirements of the proposal. This task is done by both engineers and industrial designers,

both of which work closely together within Design Q, but such work was not required on this project.

The second – and less complicated and costly – route is by a branding exercise, where surface finishes and colours are changed and re-applied.

One of the ways new ideas can be found is by reading through the many lifestyle and fashion magazines. The design team pulls out anything that looks interesting, be it colour, texture, material novelty, cleverness or even humour, and asking: "What if you trim a seat or design an interior using the exact same principle or design ethic as in the manufacturing of a shoe or a piece of furniture?"

One of the goals of the CSeries demonstrator was 'to be noticed' and to look new and interesting. With the advantage that while it had to be a





THE OBJECTIVE WAS TO GRAB ATTENTION
AND SELL AIRCRAFT RATHER THAN THE SEATS



practical proposition, the interior was not bound by stringent branding requirements that would normally be imposed by an airline. Design Q decided to push design boundaries to guarantee that the interior would look unique and new and be fitting for the launch of a brand-new aircraft. Three pictures were cut out of magazines and put on the influence board: for the Swatch concept, multicoloured chairs and shoes; for the Fresh concept, a limited edition shoe; and for the Corporate concept, luxury watches, and Learjet and automotive interiors.

The objective was to visually lift the perceived newness of the CSeries interior by using carry-over Zodiac Seating in economy as well as business class. The three trim proposals did not modify the seats other than changing fabric colours and material finishes.



The Corporate trim proposal was a sophisticated look, with cues taken from Bombardier's Learjet. With a clear automotive influence, the proposal has horizontal ribs synonymous with Italian supercars and a twin-needle contrast colour stitch. This proposal emphasises the wide centre seat, which is a way of making the least attractive seat position more attractive.

The second proposal, Swatch, was a fun look, using either random colour ways or colours linked to the relevant brands and adding a wider dynamic to the cabin. The CSeries proposal is generous in colour, with an apparent random scattering of rich pigments.

This is an interior that gets noticed

- 03.** Perforated shoes were a key driver of the initial Fresh concept
- 04.** Shoes again featured on the influence board for the Swatch proposal, designed for fun and colour

and bravely uses colour in a way that is unusual for a corporate brand or airline. It is very upbeat and creates a presence with overlapping primary colours. The name Swatch was inspired by the number of colours used.

The Fresh casual proposal was taken from shoe fashion and is a simple embossed or pierced front facing, which allows contrast colours to show through. This is a new technology that can be applied to any pattern and has been developed for the fashion industry. This philosophy is about cleanness and freshness, using natural colours with subtle details. It is also contemporary and of the moment.

Colour-keyed stitching and back-coloured perforations contribute to the seat looking fresh and lightweight. The brightness of this interior is underlined by small lime-coloured accents, with the materials sitting together and contrasting in texture and finish: rough leather and smooth paint, and ivory leather against high-gloss white. Twin-needle lime stitching frames the round perforated leather facings and gloss white overhead bins contrast with the soft-feel ivory ceiling and the deep rich blackberry embossed carpet. All the overhead bins have a surprise as they open to reveal a lime green interior.

The three proposals were presented to Bombardier and the interior sales team. They liked the Fresh proposal, with its influences of 'green' and 'eco' without it looking too obvious and clichéd, and its contrast of natural colours and bold primary overlaps.

The Design Q team assumed that the objective was to grab attention and sell aircraft rather than the seats that are displayed. This prompted the use of lighter colours, stronger accent colours and more luxurious accents than are usually found in aircraft cabins. ☒

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BRAND APPLICATION



- CONCEPTUAL DESIGN
- INVENTION
- PRODUCT DEVELOPMENT
- ENGINEERING
- MOCK-UPS
- PROTOTYPES
- 3D VISUALISATION
- ANIMATIONS & MOVIES
- BRAND APPLICATION
- LIVERIES
- COLOUR SPECIFICATION

PROTOTYPES



PRODUCT DEVELOPMENT



COLOUR SPECIFICATION





INVENTION & DESIGN



LIVERIES



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


CONCEPTUAL DESIGN



quicksmart

In just six months, Zodiac Aerospace’s development team created a completely new A320 cabin with improvements for airlines, OEMs, and even passengers

 For years, Zodiac Aerospace’s design and innovation studio (ZEO) has had an itch that needed to be scratched. Anxious to take a fresh approach to design a highly integrated and innovative A320 interior, ZEO’s team believed that, although a market leader, the interior was built around a 25-year-old architecture that could be improved – not only for industrial and operational demands, but for passenger experience.

TANGIBLE BENEFITS To gauge airlines’, OEMs’ and passengers’ needs, the ZEO team in Huntington Beach, California, took a hands-on approach. The iterative design process was established to bridge traditional interior boundaries with innovative integration, challenge conventional interior architecture, and re-imagine cabin development. It was to be much more than a simple aesthetic facelift; significant improvements were a must.

SEPTEMBER 2011 - THE LAUNCH “Once we got our minds into the possibilities, we were confident



01. A rendering of the final ISIS design
02. The PSU design is passenger-orientated



a number of important and tangible improvements could be realised,” says Scott Savian, executive vice president of Zodiac Cabin and head of ZEO.

These became non-negotiables for the team: more cabin baggage space, improved passenger space and experience, lighter weight, reduced part count, simplified installation, and also complete current interior interchangeability.

“As a design and innovation studio, we also had ideas about the intangibles,” says Savian. Armed with a clear vision and a raft of conceptual ideas, Zodiac gave ZEO the go-ahead for the ISIS (Innovative Space interior System) Project to conceive, build and deliver a paradigm shift in single-aisle interior design to be launched within seven months at Aircraft Interiors Expo

2012 in Hamburg. “Then all we had to do was execute,” jokes Savian. “Seriously, we love this type of job – game-changing goals, short lead time and no boundaries. Sign us up.”

SETTING PRIORITIES Rather than starting at the drawing board with specs and incremental improvements, the development team took a more practical approach. The first team meeting was held within Cabin Prototype #1 – a full-sized wood and foamcore cabin environment where they were encouraged to voice its experiences, opinions and goals for the next-generation cabin interior.

This hands-on approach brought new levels of interaction and understanding to the formative stages, and set a precedent for the following



SERIOUSLY WE LOVE THIS TYPE OF JOB –
GAME-CHANGING GOALS, SHORT LEAD TIME
AND NO BOUNDARIES. SIGN US UP 



OCTOBER 2011 – OPTIMISING THE SPACE Cabin Prototype #2 saw the team armed with carry-on luggage of every shape and size. Instead of designing a bin around a particular bag size, a multitude of sizes were used. Since the concept realized substantial space efficiencies through the use of a pivoting bin and systems integration, bags alone weren't used to size the bin. Bin size was again determined through an iterative approach, balancing aisle space, loading height, headroom and bag size. Combined with the patent-pending clamshell design (which reduces weight and part count, improves the open bin look and increases volume), this approach yielded an additional 48 bags over the already voluminous bin.

NOVEMBER 2011 – ADDRESSING THE INDUSTRIAL NEED One of the few boundaries the team wouldn't challenge was the need for a direct retrofit replacement, which meant using identical aircraft interfaces. To ensure a complete understanding of the airframe and systems, ZEO purchased a A320 fuselage forward section.

“This was absolutely critical in our evaluation of the aircraft and in developing a mature solution,” notes Steve Kearsy, ZEO's VP of advanced concepts. The interior was removed and reinstalled several times, with accurate records maintained for installation time, number of parts and installation operations, and part weights. “This provided substantial insight to the current aircraft and highlighted many of the improvement opportunities,” adds Kearsy.

DECEMBER 2011 – A CHRISTMAS BREAKTHROUGH Respecting the current interface didn't limit ZEO's creativity. Cabin Prototype #4 produced several key concept firsts, most notably the outboard cabin wash lighting – now simply non-existent.

“Our industry has a tendency to follow convention, so when we finally had LED technology, we couldn't get past removing the old florescent tubes, when LEDs provide so much more potential,” says Savian. Gone was the traditional passenger service unit (PSU). “By placing the cabin lighting in the PSU area, we could take a

03. The LED cabin lighting is evenly shared between three seats

months. Although the mock-up was nowhere near being a final product, it enabled the team to experience the space from a user perspective and identify focus areas. For that reason, it was decided that every meeting would be held in the mock-up, which would be updated every four weeks.

“The goal of producing a new, full cabin mock-up each month helped us to iterate to a mature design very rapidly,” notes Dick McClure, ZEO's VP of mock-up and prototyping. “It also challenged our prototyping capabilities, making us better in the end. It's very easy to fall into the trap of working in 3D models, and the next thing you know, you're well into the project without experiencing anything. We find it much more effective to evaluate an interior from the inside.”



significant element and make it much more passenger oriented,” he adds.

“Now when passengers enter their seats, they’re greeted with an elegant PSU pod in each row and cabin lighting more evenly shared between three seats,” Savian notes. The pod is simple, with a smooth, glossy surface and touchless controls. And since only the pod hangs low, the rest of the PSU has been pushed up and out, creating significantly more passenger space. Repositioning the vents removed the last element of the old design, creating a virtually seamless liner from lower sidewall to bin.

JANUARY 2012 – THE FINAL PUSH

Team buy-off of Cabin Prototype #5 provided the final geometry and lighting scheme. “The multiple iterations drove notable improvements, particularly when you see the direct comparison of mock-up number one to five,” says Kearsley. “Working the prototypes in conjunction with data and feedback from the real fuselage and our engineering team enabled us to develop a remarkably mature product quite quickly,” he says. “But it was the bandwidth we dedicated from the beginning that made the most significant difference.”



WORKING THE PROTOTYPES IN CONJUNCTION WITH DATA AND FEEDBACK FROM THE REAL FUSELAGE ENABLED US TO DEVELOP A MATURE PRODUCT QUITE QUICKLY



- 04. View of the stowage bins from outside the A320 mockup
- 05. The concept was evaluated by many visitors at Aircraft Interiors Expo
- 06. The Smartbin design combines extra stowage space with extra cabin space

As the project proved increasingly more promising, the team decided to host a pre-Hamburg event, requiring a final mock-up completion four weeks early. “This one pushed the limits,” McClure admits. “We had all hands on deck – from our own people to 24-hour CNC machining. And the help from around Zodiac was critical,” he adds.

Zodiac Lighting (ZCC) supported the challenging schedule and new lighting requirements, and the new lightweight Z100 and Dragonfly seats were also featured.

FEBRUARY 2012 – MARKET REACTION

A month before Hamburg, more than 30 airlines and leasing companies attended Zodiac’s first single-aisle interior symposium.

While other products were shown, including Project Amber and Heath Tecna’s new 737 Amber interior, the symposium served as a launch for ISIS. The first full interior mock-up was

viewed by more than 60 participants at the symposium, giving valuable feedback – from formal surveys to one-on-one conversations that helped to shape subsequent improvements, including the addition of a bin lift assist for easier closing.

MARCH 2012 – AIX

“The reaction was really something,” says Ian Scoley, ZEO’s VP of industrial design. “I joined the team relatively late in the project, but to see what they had achieved by challenging industry preconceptions and the traditional boundaries governing cabin interior design was fantastic and very refreshing,” adding that ZEO has now stepped up its development of the A320 interior due to solid encouragement from all parties.” Scoley states, adding that ZEO has stepped up its development of the A320 interior due to solid encouragement from all parties.

The ISIS interior delivers dramatic improvements in space, baggage capacity, weight reduction and passenger experience. Zodiac says the response has been overwhelmingly favourable and that the product is now available in two packages: the ISIS Economic, featuring spacious new bins and LED lighting; and the ISIS Full Interior, which adds the company’s Ecoform sidewalls and game-changing PSU pod.

Throughout, there has been a common theme from the airlines: it’s about time. And as one influential single-aisle operator stated, “This interior is the most innovative product we’ve seen in more than 10 years.” ☒

Web: www.cdzodiac.com

THE REVOLUTIONARY ISIS A320 INTERIOR*



DRASTICALLY INCREASED BAGGAGE CAPACITY, A MORE SPACIOUS CABIN, REDUCED WEIGHT, and so much more. With ISIS,* form and function become one. LED mood lighting further enhances the experience, while the innovative PAX Pod* defies convention in just the right ways.

ISIS is now available in full cabin retrofit packages from C&D Zodiac. Please contact us at isis@zodiac aerospace.com for more information.

** Patents pending*



ISIS PAX Pod



THE DESIGN & INNOVATION STUDIO OF ZODIAC CABIN INTERIORS



keepitsimple

The ethos of PearsonLloyd's design approach is to make complex things simple



Partnership lies at the heart of PearsonLloyd's relationships. Founded by Luke Pearson and Tom Lloyd in 1997, PearsonLloyd differentiates itself through innovation and design finesse. The company's designs have consistently won awards over the past 15 years in a broad range of product categories. Most recently, it was nominated by *Fast Company* magazine as one of 50 of the most influential designers shaping the future. PearsonLloyd's history and long-standing relationships with clients demonstrate an ability to deliver quality work and make an impact.

Since designing Virgin Atlantic's Upper Class seat in 2003, PearsonLloyd has worked for a number of airlines, such as Star Alliance and, most notably, Lufthansa. The practice recently designed Lufthansa's new Business Class seat and cabin, which launched earlier this year to an impressive reception. PearsonLloyd's portfolio of work in furniture, interiors and public spaces design complements its airline work, informing the design process.

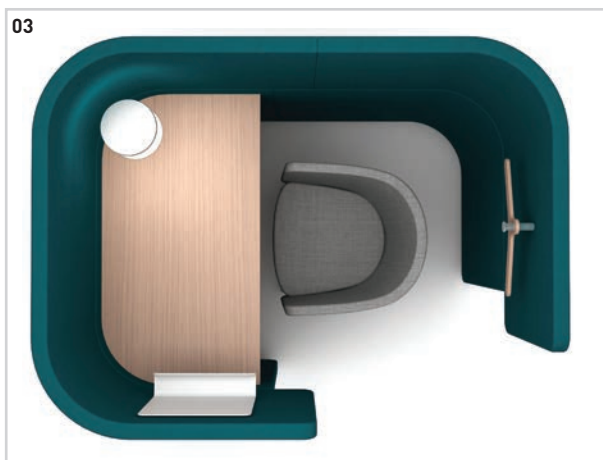
A look through the company's portfolio would present seemingly disparate projects, but a common strand links its work: its thinking. Always bringing a new perspective to

- 01. Lufthansa's new Business Class was designed to optimise service, privacy, interaction and movement, and to provide emotional comfort
- 02. The new design improved the cabin dynamic as a whole; it has been commercially successful and has won critical acclaim
- 03. Docklands, a concept created for Bene, is a temporary place for focused concentration and privacy in the workplace





OBSERVING PEOPLE IN THEIR DIFFERENT HABITATS
HELPS TO INFORM THE DESIGN PROCESS



old problems, the company's approach continually explores the way that people interact with each other and the products in shared spaces.

BRIEF, BRAND, COLLABORATION

PearsonLloyd works closely with its clients to understand the essence of their brand, as it is fundamental to how the studio works. PearsonLloyd is constantly looking to capture exactly what is required for each project by challenging and developing the design brief to ensure that it is appropriate and will lead to the right results.

"We always find things go best when we draw things up jointly with our client," says Tom Lloyd, the practice's director and co-founder.

The company's ability to challenge the norm was particularly evident in its Upper Class seat for Virgin Atlantic. The design broke new ground in the creation of an entirely new passenger experience. By raising passenger expectations of design, comfort and privacy levels, it changed the way the industry operated, while also being critically acclaimed as a superior piece of design.

This work brought the company to the attention of Lufthansa, an airline with heritage in design. PearsonLloyd was tasked with creating a completely new business class seat and cabin,

starting from an entirely clean slate. The work focused on meeting the needs and expectations of customers while also developing the brand vision. In the end, the resulting cabin and seat was not only finely honed, but also superior in its functionality.

"Many airlines simply buy a seat off the rack and, at most, change the colour and put it in a cabin. The Lufthansa Business Class seat is of quite a different calibre. It was developed from scratch and each issue from LOPA to small detail was intricately considered", says Luke Pearson, director and co-founder.

SHARED SPACES The way people interact in shared spaces continues to occupy much of PearsonLloyd's work, whether it's in a hospital ward, a town centre or an airline. Observing people in their different habitats, appreciating how people act together, understanding what their expectations are, all help to inform the design process and lead to refined or new solutions.

An example of this is its recent work for the UK Department of Health. With the 'Design Bugs Out' commode, PearsonLloyd produced both a creative and practical solution that will reduce the risk of infection, simply by solving the cleaning issues currently associated with contemporary products on the

market. Secondly, PearsonLloyd was asked to use design to reduce violence and aggression in emergency hospital departments, so the studio created a communication package to educate and inform patients about department protocols and what to expect next. Building on its experience in the public realm, PearsonLloyd realised that providing pertinent information was key to managing patients' expectations and thus modifying behaviour. Of course the physical characteristics of the patient experience are also important, thus guidelines were also issued regarding items such as lighting and seating. This understanding of the physical environment, the levels of comfort and the impact it has on people, is what is known as ergonomics.

THE ERGONOMICS OF BEHAVIOUR

Environments must provide comfort at both a physical and emotional level. Aircraft seating must respond to the need for service, privacy, interaction and movement, as well as providing emotional comfort. At worst, flying is stressful; at best, it is relaxing and uplifting. As such, the objective with Lufthansa, was to produce an elegant and practical solution for everyone.

"As a designer, you have to be very humble because at the end of the day, it's the passenger who decides; if he or she can't intuitively use these things, if he or she doesn't feel the things that we felt, then we've failed," says Pearson.

Even when various factors are considered and examined, in the end, successful concepts will be judged by the market. With Lufthansa's Business Class seat, great care was taken to ensure that privacy, real estate and communication were maintained for passenger and crew alike. The resulting design improved the cabin dynamic as a whole and has garnered commercial success and critical accolades.

Conundrums exist in workplace design where the need for privacy and focus must be balanced with the desire to maintain openness and dialogue within teams. In both cases, the design focus should be on providing efficiency. PearsonLloyd's work for Bene in Austria focused on this conundrum and that led to the formation of a much-applauded product, PARCS,

“

AS A DESIGNER, YOU HAVE TO BE VERY HUMBLE;

IT'S THE PASSENGER WHO DECIDES”

04. A smartphone app developed as part of the project 'Reducing Violence and Aggression in A&E through a better experience', created for the UK's Design Council and Department of Health



04

which has had – and continues to have – a huge influence on the market.

Be it aircraft seat design, wayfinding or office design, efficiency can only be achieved by understanding natural human behaviour, believes Pearson.

BEAUTY AND EFFICIENCY Beauty and Efficiency is a complex equation. PearsonLloyd strongly believes that simplicity must be the aim, and managing complexity to produce harmonious and refined design is always a primary ambition. It is this deep consideration of every element that helps to maximise efficiency. PearsonLloyd's experience of working in different industries, on very focused projects, has enabled the studio to accumulate extensive knowledge about manufacturing processes and techniques. It is essential to 'value engineer' the process and to this end, each design is continuously challenged and monitored, from macro to micro. It is this process that the studio calls 'the craft of industry'.

"A flexible platform allows us to work across many different body types and maintain a sense of continuity in terms of design function and a strong, clear and simple, design language," says Pearson.

The Cobi chair, designed for Steelcase, exemplifies this attention to detail. Designed to enhance interaction in meetings, it actively promotes movement, thereby invigorating the sitter and improving concentration. This was possible only by applying a combination of design and engineering skills. The ergonomic, economic, fluted fingers flex with the user, creating a soft and pliable yet supportive surface so comfortable it needs no padding. The chair adjusts itself to ensure that maximum comfort is always achieved, whichever the sitter's position.

The end result is not only improved functionality and comfort, but also improved beauty and efficiency.

NEW PARADIGMS PearsonLloyd always strives to innovate and consistently break new ground while delivering appropriate solutions. It is this ability to think laterally that has led to many of its successes and to the continued financial success of its clients. Original thinking combined with a depth of experience, highly refined aesthetics and intelligent engineering: these are the essential elements for its design work and what separates it from the crowd – it's not enough to be simply professional. ☒

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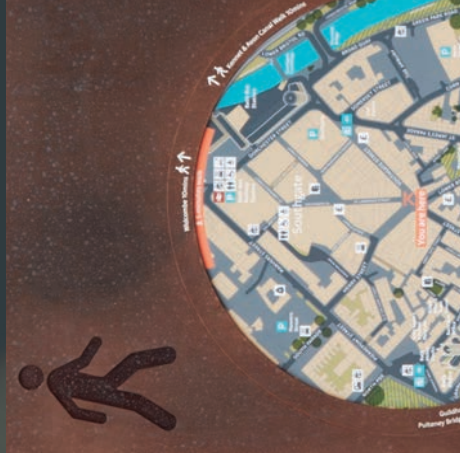
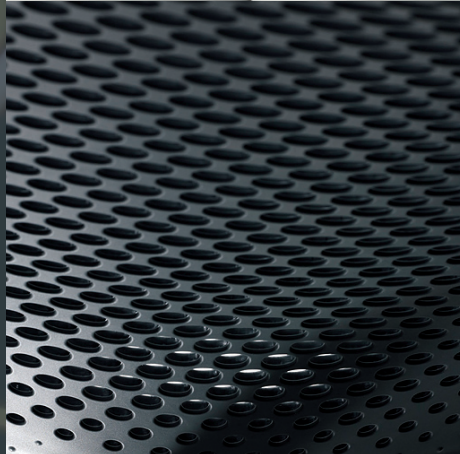


innovation |,inə'vā SH ən| *noun*

> change, metamorphosis, alteration, revolution, upheaval, transformation, breakthrough; new measures, novelty, new methods, modernisation, newness; creativity, originality, ingenuity, inspiration, inventiveness; (*informal*) a shake up.


pearsonlloyd.com

research made real



greatbritish

Forpeople is more than just a leading design company – it is a design philosophy. Founder Richard Stevens explains what makes the organisation tick

 You may be forgiven for not having heard of Forpeople. Because the company's expertise is in creating the next generation of products, services and experiences for some of the world's best-known companies in some of the world's most competitive markets, its clients tend to favour discretion. But there's a very good chance that you've flown in, driven in, spoken on, watched, sat on, or even eaten, some of the company's work.

British Airways is one of Forpeople's longest-standing clients, and the team has been working with the airline for more than seven years. The company's work extends from the total new First experience (product, service and brand), through to developing Blueprint, the airline's strategic design tool, with BA's design management team. According to Richard Stevens, founder of Forpeople, "What we like most about the relationship is not being put in a box marked 'design'; we are able to build on our in-depth understanding of what's right for British Airways customers and the business itself, then apply it to creating more value and better experiences for both."

The key to Forpeople's design philosophy is contained in the company's name; a firm belief that

- 01. Understated elegance is part of the BA First experience
- 02. The updated World Traveller Plus cabin
- 03. Olympification look and feel extended to athletes' ID





FORPEOPLE BELIEVES DESIGN HAS TO BE
FOR THE BENEFIT OF THOSE WHO USE IT



design is not an abstract, theoretical exercise, but has to be for the benefit of the people who use it. And of course, to be of real value as a response to business challenges, design has to work in the context of both user and provider; it has to be right for people on both sides of the check-in desk. Stevens believes that sharing the emotional objectives of the people who will interact with the product or service fuels his team with energy and insight, because they then know what a good outcome will feel like.

So the first step in any project is to fully understand the market and journey context, and the behaviours and motivations of the people within it. That has taken Forpeople into workspace and seating design with Herman Miller; out on the road with Ford Motor Company; into the high street with Coca-Cola and Procter & Gamble; to high technology with

Panasonic, Nokia and LG; and into high-end luxury with Alfred Dunhill and Rolex.

There are many parallels and overlaps between these diverse consumers and airline customers – Stevens believes that by not limiting Forpeople to any one sector, the company is able to bring diverse experience and consumer perspectives/insight into its work with British Airways.

That convergence is another step in growing Forpeople. A belief that nothing is ever designed in isolation; every aspect of any project has to be approached holistically from the user's perspective, as part of total experience, whether it is a luxury retail environment, a mobile digital device, or the interior of the next mass-produced global car. That, of course, demands real commitment and engagement on the part of the client

04. BA's brand-new 'old' coat of arms being applied



05. Art direction of all brand asset photography (product, service and people)

06. The blueprint design strategy for new BA product

(explaining why Forpeople is so careful about whom it works with) as well as a very special set of integrated skills within the team.

The way Forpeople is structured will be evident from the overall philosophy – a single team, working collectively from a number of different viewpoints. Experts in various fields who share open minds and an absolute commitment to craftsmanship tempered with a healthy dose of commercial understanding. Forpeople does not employ anyone who sees themselves as a “guru, a design theorist, or a wannabe superstar”, preferring instead to “grow people” from within the organisation.

It is an approach that has led to strong and continued growth, from four people in 2004 to more than 50 people today based in London’s less than fashionable Kennington (although that may change soon as the firm outgrows its two cool but cramped warehouse spaces). British Airways has been a big part of that growth, and Stevens is proud of the longevity and depth of that relationship – he believes the airline is one of the world’s truly great brands, and with a renewed sense

of direction is well placed to define the next phase of development in commercial air travel.

THE BA EXPERIENCE Forpeople has been asked to look at pretty much every aspect of the British Airways experience. The First project, for example, involved everything from new seats (using a single motor rather than several as most competitors use, which makes First lighter), through lighting design, cabin decor to service design, menus, and ground experience. Then there is the work on brand campaigns,

including the re-crafting of the British Airways coat of arms, ‘Olympification’ (British Airways’ look and feel for London 2012), art direction of brand assets, and rethinking the future airport experience, aircraft experience, and catering proposition. And that is all on top of designing/redesigning products used on every aircraft.

What makes this eclectic mix possible is Forpeople’s single, unifying design philosophy. Using the story behind the design to create emotionally charged, robust and engaging business cases, backed up by solid rationale and



DELIVERING BETTER JOURNEYS
IN THE MOST RESPONSIBLE WAY
IS SIMPLY GOOD DESIGN



07. The new-generation BA First seats use a single motor to save weight

new solutions; creating more with less; and always designing with people in mind.

Each of those principles is described in a clear language that enables users to draw on references that bring each area to life and offer inspiration as well as information. It is very clear what sets British Airways apart, and how design has always been at the heart of that difference. Not many airlines, of course, can claim to have been flying for almost 100 years – a level of continuity that ought to provide insights beyond those which newer rivals can draw upon. Britishness for British Airways, too, is brought out in the toolkit – especially the way the airline champions Great British talent and creativity.

Being bold, innovative, and striving to find a better answer could be seen as what every designer should be doing – but Blueprint emphasises that following through with these principles will lead to something original, distinctive and ownable. Evolution of what already works is good; but when evolution reaches an end point, the toolkit advises looking for revolutionary thinking. Good advice, and creating more with less, is a given. Delivering better journeys in the most responsible way is, as Stevens says, simply good design.

Which brings us back neatly to the Forpeople design philosophy, of designing – as the name suggests – for people. The British Airways Blueprint talks about how people love great design – a certain technology brand is ample proof of that – and how great design makes people feel special; someone has cared and thought about them. It is not a complicated idea, and it feels like an emotional truth; time will tell if the Forpeople philosophy will help drive British Airways forward in its determination to remain one of the world's truly great airlines. If typical reaction to Forpeople's work is anything to go by, they can be quietly confident that it will. ☒

Author Ian Henderson is a business and travel writer, as well as a brand consultant

execution. Perhaps the most critical of these has been the three-year development of the British Airways Blueprint, a “strategic design tool” that provides a flexible, adaptable, yet clear and coherent toolkit, aimed at giving people inside and outside the airline inspiration and guidance on how to create truly great design.

Blueprint places the airline firmly in the context of its 100-year history and of the fast-changing demands of today's customers and markets. It reminds users of the enduring design principles that have led to British

Airways' greatest achievements, from pre-war glamour to Concorde and beyond – innovations and ideas that have kept British Airways at the leading edge of air travel.

Blueprint is based around five core design principles, which in outline are about using the airline's heritage as a springboard to progress; using design to find better answers, not as mere decoration; having the courage to try

Web: www.forpeople.co.uk





**Abigail Comber,
Global Head of Marketing**

Great airlines don't just happen. They're designed that way. Which is why we have always put great design at the heart of British Airways.

Flying nearly a century of journeys means we just know more about getting things right. For our business, as well as our customers.

It means we can design what people really want, before they know they want it. Which puts British Airways in a stronger position than most to shape the future of flying.


Great airlines are all about people. And that includes the people we work with.

We design for people.

forpeople

seriousplay

Christine Ludeke of ludokedesign ponders how human curiosity can lead to the creation of better, more fun design


 Stretch. Taut. Tensions. Transparent. Shape shifting. Shape adaptation. Support. Thin. Almost nothing. Strong. Soft. Tight. Flexible. Form giving. Knit. Cocooning. Enveloped. Free. Floating. A bit familiar. Not really, but still... A seat? For the office? For an aircraft? Try it. Build it. Experience it. Tweak it. This could be something. Goofing off. Daydreaming. Playing. Imagining what if? What if we could float while flying?

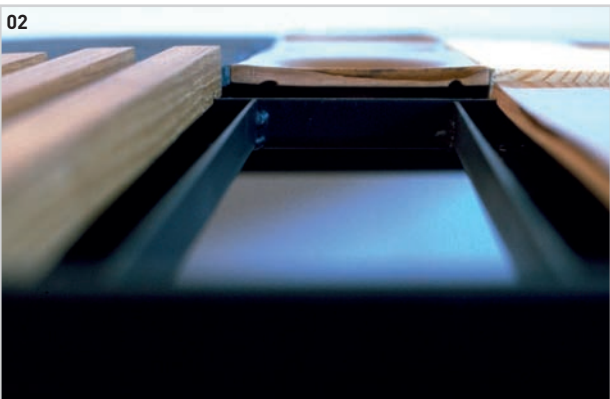
Regularly working outside the scope of a brief or a client's mandate sustains us at Ludokedesign – taking the time to explore materials and processes that don't have to immediately lead to a successful product. Perhaps the exploration just makes us feel good for a while. Or to make things that elicit a reaction, casting the day in a new light. Some say design is purposeful creation, driven by wanting to make life better in a practical sense for other people. In terms of human complexity, a 'better life' encompasses more than the practical. Hand on heart, when you think of product experiences that have touched you, haven't they been more than merely practical? Enjoyment, delight and surprise are essential for our well-being. Sure, we like intuitive functionality as well, but these attributes are not mutually exclusive. For all the streamlined processes, design-thinking philosophies, project management guidelines and admirable goal-setting,

- 01. The Aeras economy seat project aims to improve comfort by reducing pressure points, stimulating the back and trunk muscles, and allowing the passenger to adopt any sitting position intuitively
- 02. Detail of the Mesa Bailante dining table

01



02





IT IS IMMENSELY SATISFYING TO WORK OUTSIDE THE CONFINES OF EXPECTATIONS OR OBJECTIVES



sometimes doing for the sake of doing, scratching that itch, wanting to know why, takes us that much further.

My parents recently made a big hole in one of the walls of their home. They live facing a lake. In lieu of a garage you go through a gate and park in a type of half-covered carport. Beyond it is a covered open area where said wall closes off the area, including also what is an open laundry room (this is central Mexico, so having a half-open laundry room is quite logical and I must say quite a luxury – if you have to do laundry, this is definitely the way). They've lived there for 20 years, each time driving in and parking in front of a wall that is a first impression of 'home' and basically cuts off the view of the lake. One day they decided to make a hole. So at the moment there is this grand, 'picture window' opening making Lake Chapala the first view you see when passing through their gate. There are, of course, problems (draughts, whistling wind through the laundry area), but these can and will be solved. The opening is so great, and adds so much to the enjoyment and perception of their living space, making it work will happen. And tackling other projects, such as renewing the floor or resealing the windows, is imbued with the new energy that this simple, spontaneous act unleashed.

SHIFTING PERCEPTIONS What is, what isn't. Interaction. Definitions. Table. Not a table. Dishware. Non-dishes. Eating with. Eating from. Combining. Individual. Cohesive. Seductive. Material combination. Reflected rituals. Adaptation. Change. New awareness. Focus. Key experience. Slate jockeying for position with wood. Ceramic tiles. What would it be like to reach down through the table surface to serve soup? Piercing the surface.

When we work with clients, cross-pollination – one of our favourite words – often crops up. We use it in



respect to enriching our design process by exploring potentially fruitful areas outside the immediate project context and parameters. Cross-pollination is nature playing, peeking over its own borders, and giving in to its own curiosity. What if? What if this becomes that or does this? What if it could do that while becoming this? What if it does exactly the opposite? While role-playing has become a much-vaunted strategy for more effective design and management processes, its roots are less sinister. I would maintain they lie in the inherent curiosity humans have about things that are not inherently in themselves. Unbridled curiosity, while similar to sugar in that it can attract the danger of over-indulgence with subsequent consequences, is by definition unattached to requirements, goals or parameters. You can't ask, 'What if?', if you're already thinking, 'It can't' or 'It shouldn't'.

It's a strange and much documented phenomenon that as we get older we lose the implicit natural acceptance of coexisting rational and fantasy mindsets, the serious on par with the non-serious, that we took for granted as kids.

As responsibilities and perceptions of professionalism add up, we forget how liberating following one's own curiosity can be. How immensely

03. The Mesa Bailante table features inserts of all different materials and surface details that change the topography and character of the table every time it is set





“

WE HAD TO BE PHYSICALLY EXPERIENCING THE CONCEPT
IN ORDER TO TALK AND DREAM ABOUT IT ”



satisfying it is to work outside the confines of expectations or objectives. The cool and also at times forgotten effect is that these experiences, and sometimes tangible results, do inform and enrich us consciously, as well as subconsciously when we work within conventional project mandates.

One day I was sitting in an early mock-up of what would become the Aeras knit seat, just minding my own business (well okay, a designer rarely minds their own business, but that's beside the point). We had just built a second frame, attaching to it the latest knit prototype with various elastic zones in order to physically test the principle.

A friend who is a physical therapist stopped by and joined me, experiencing for the first time this type of seating. A discussion ensued, peppered with constructive criticism and feedback, new perspectives, and a list of other applications for this type of knit seating technology. We had to be physically experiencing the concept in order to talk and dream about it, and it changed both our respective perspectives in this case on what 'comfort' and 'seat' is.

Similarly, eating literally from a table where the surface is made of 'plates' of

varying materials that can be put together according to menu and mood creates new insights into this most elementary of relationships between us and the everyday; insights that may or may not have made their way into the design of the dishware for a leading airline's business class. Whether it has or not is less critical; what is important is giving oneself the opportunity to find out. At this stage, it is completely irrelevant whether the table tiles fit into

a dishwasher or the cone-shaped glasses could be presumed impractical in that they don't stand alone but nestle into openings on the table. What is important and, let's face it, fun, is experiencing entrenched rituals in a new way, considering the raised associations, and where they can and do lead.

Hmm, there is this bio-resin made of sugar that is calling for my attention. ☒

- 04. The Fit office chair's construction is born of aircraft seating development
- 05. Knit and micro-climate properties are used to support the body
- 06. The design is a curving plane striking through space

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curiosity, exploration, implementation
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deepthinking

For tangerine, the quest for true comfort in the skies means going back to the building blocks of the customer experience to fashion something original



“The philosophy of designing an aircraft interior should be the exact opposite of the space itself,” according to Martin Darbyshire, managing director of design house tangerine. “Too often, the restricted and pressurised environment of the cabin is reflected in how people think about shaping the passenger experience. Creativity is constrained when it should be let free to soar.”

When it comes to designing for the aviation industry, tangerine has won itself an international reputation for thinking outside the fuselage. The company, with bases in the UK, Korea and Brazil, employs an approach that has delivered several improvements in all-round customer experience and financial return for the client.

For tangerine, innovation is the opposite of incremental improvements; it’s about revolution rather than evolution. Instead of narrow thinking about how to make an existing solution a little better, designers are liberated to exploit all their ingenuity, imagination and inspiration.

AN ASTONISHING BRIEF This revolutionary approach works, as shown by tangerine’s long-established relationship with British Airways.

01



- 01. tangerine sought to create understated elegance in the BA First cabin
- 02. Design highlights of the first-generation Club World seat

02

separate footstool

lower seat





WE STILL LOOK TO REDEFINE AND RETHINK BY
DIGGING DEEP INTO THE CUSTOMER PERCEPTION



When tangerine worked with BA on the Club World project 12 years ago, the designers were given the independence to create a completely different product. “The brief the BA chairman Bob Ayling gave us could be distilled down to ‘astound me!’,” says Matt Round, tangerine’s creative director.

Critical to achieving the trust that must come with creative freedom is the involvement of the client at every stage of the project. “We wanted to do something that many regarded as impossible,” Round says. “We saw the challenge as delivering first class



freedom to business class passengers without reducing seating capacity, introducing a flat-bed seat that would transform the day/night experience for BA customers.”

What tangerine developed for BA was the patented and groundbreaking yin-yang format and the ‘Lounge in the Sky’ concept – giving business passengers privacy and the freedom to have more control of their space and behave in the way they wanted to. Round says, “The cabin we created was groundbreaking because no one had ever previously considered arranging cabin space in this way. We separated the footstool from the seat to give the passengers more freedom of movement and consequently greater comfort. We introduced a lower, more reclined and more comfortable seat geometry to create a more welcoming environment for passengers immediately upon boarding the aircraft.”

This generation of Club World set BA apart from all its competitors and redefined the business class experience for the industry. It also generated a return on the client’s investment in less than 12 months from launch.

The revolution did not stop at that point. “In the second generation of BA Club World in 2006, tangerine was once again granted the freedom and opportunity to create a better product,” says Round. “We looked at every aspect of the structure to see where we could increase the comfort and quality of experience for the passenger at every opportunity. We worked closely with B/E Aerospace to deliver the best possible solution.”

Amazingly, the design team came up with a bed that was 25% wider than its predecessor, without any loss of seats in the cabin. By changing the angling of the seat by just 2°, the designers were able to increase the distance between passengers by 8in within the existing 73in pitch.

This liberating approach enabled tangerine to transform and then re-invent the business class experience across two generations of business class. “Our relationship with BA allowed us to ‘astound’ its customers and the industry, and deliver lasting profitability for BA,” says Round. “The next challenge was to take our design philosophy into the first class cabin.”

03. tangerine worked closely with B/E Aerospace on the second-generation Club World seat



GREAT DESIGN FOR AVIATION COMES FROM BEING GIVEN THE FREEDOM AND SUPPORT TO INNOVATE



Working alongside the design agency, Forpeople, in 2010 tangerine delivered the next generation of luxury travel for BA First, incorporating BA's unique heritage and brand values into the new look. The guiding principle for the project became 'understated elegance', aiming for a cabin design that avoided ostentatious gadgets and gimmicks, while delivering on quality and elegance.

Once again for tangerine, the real breakthrough came from using the space differently to create a 60% wider seat and a more comfortable longer bed, while still keeping 14 seats in the cabin. Understated elegance and honesty throughout the design supported BA's brand values.

"Our experience with BA shows that by investigating every aspect of the passengers' needs and experiences, and

understanding in minute detail the technology, we can deliver profound differences that really work for the company and its customers," says Darbyshire.

"Now we are in partnership with other clients to explore opportunities for innovation, delivering the best customer experience in the sky and a commercial return for the airline industry."

Asiana Airlines, one of South Korea's two foremost carriers, has come to tangerine looking for a new design direction for its A380 fleet that is due to be introduced in 2015. On this project, the team must work within existing formats and constraints, but

- 04. A 2° change in angle on the second-generation Club World led to 8in more space between passengers
- 05. In addition, the bed became 25% wider without any loss in cabin density

that doesn't constrain the commitment to innovation.

"It's about finding points of difference," Round explains. "The philosophy doesn't change – we still look to redefine and rethink by digging deep into customer perception. Every project has practical limitations, but our ambition is always to create an outstanding passenger experience."

At the same time, tangerine is renewing a partnership with B/E Aerospace, created in 2006 when they collaborated for BA on the second generation of the Club World product. The tangerine team is currently working with B/E Aerospace in both the USA and Europe; the challenge is to unlock innovation that will deliver unsurpassed levels of comfort and satisfaction.

"This is a very exciting project area because it effectively offers us a blank canvas to show how we can transform the passenger experience all over again," says Darbyshire. "We are being encouraged to be radical – to reach for the skies."

DEEP INNOVATION tangerine encourages clients to move from 'design' to 'deep innovation', from incremental improvement to creating a fundamentally different passenger experience.

"Great design for the aviation industry comes from being given the freedom and support to innovate," says Round. "B/E Aerospace has given us just that. In return, we are committed to finding the creative sparks that will re-ignite the magic of air travel." ☒

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an icon of innovation



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Image showing British Airways Club World 2nd Generation 2006

same difference

B/E Aerospace's design and R&D departments have a new home and a new name, but offer the same high standards as before

- 01. The entrance and bar area design for JAL's 787 Dreamliner
- 02. JAL's Shell Flat NEO seats are based on B/E MiniPods



B/E Aerospace understands the important and intricate relationship between design and engineering. When these complementary functions are aligned properly the results are unsurpassed. That is why B/E chose to join its R&D and Design Studio teams to form the B/E Aerospace Advanced Design Group (BEAD).

This team already has an impressive track record of introducing many well-known designs for airlines, and has partnered with most of the world's top design studios. The group has collaborated with many of the world's premier airlines, such as Emirates, Air France, United/Continental, Northwest/Delta, Cathay Pacific, Air China, Qantas, Air Canada, Japan Airlines, LAN, Korean Airlines, AirAsia X, and the recently announced Qatar 787 business class.

BEAD has also designed large complex projects, such as the Superjet cabin, to smaller product designs, such as the industry's best-selling, award winning Endura beverage maker, and the game-changing Pinnacle economy-class aircraft seat.

Moving forward this united team will offer customers the innovative designs they come to expect from B/E, along with the experience to deploy these creative cabin interior solutions with ease and without compromise.

01



02





CABIN INTERIORS ARE A PRIME OPPORTUNITY FOR AIRLINES TO COMMUNICATE AND REINFORCE BRAND



PARTNERSHIP BEAD also acts as a consultant to airlines, developing consumer-focused, brand-aligned products and experiences. BEAD specialises in product solutions that have a high level of input from the end user.

The process begins by analysing the targeted customer habits in other product categories, such as automotive, retail and interior design; this helps to understand what product qualities customers seek. This process also leads to the discovery of the aspirations, motivations, and desires of the customer – all of which enable BEAD to create elegant, contextually relevant products that possess the correct balance of technology, aesthetics, and function.

Since passenger comfort is always paramount for seating products, BEAD pays close attention to ergonomics when designing interior products and graphic interfaces, and their interactions – for example capacitive touchscreen seat controls used on the latest premium-class seats.

BEAD has thus expanded its core competencies to include design strategy, branding, research, user interface design, product interface, mechanical/mechanism design, surface/textile design, lighting, LOPA analysis, living space studies, IFE integration, interior design, product development and prototyping.

THE CATALYST Today's flying customer is fickle and well informed. Their skills in negotiating day-to-day travel problems, such as security and weather delays, the selection of aircraft products, and real-time access to information means that the airline customer cannot easily be convinced with marketing speak.

The drive to maintain brand, as it relates to the passenger, is daunting for even the most seasoned airline management team. Cabin interiors are



a prime opportunity for airlines to communicate and reinforce their brand to customers.

The quality and consistency of cabin interior products are fundamental for airlines to differentiate themselves. BEAD translates the airlines' ambitions into a certifiable, delivered, and quality product – on time. For example, BEAD has the experience to fully understand what material and design is needed to pass a head impact test on a seat back; or if specific materials will pass flammability and structural requirements. This knowledge makes the difference in keeping or losing a design feature in the cabin.

BRAND CONSISTENCY BEAD knows how to keep product design consistent across a complex fleet of aircraft. For example, with United Airlines' new first class product, it was not possible to maintain the exact spatial envelope across aircraft types such as the 767, 777 and 747. Tapping into its creativity and experience, BEAD established a common design environment across the fleet.

Also, BEAD used the same seat mechanism from the First Class Suite as the foundation for the radically different business class seat. While the seat environment in each cabin class is different, they use almost identical seat structure and IFE systems.

The United Airlines First Class Suite product has won the Condé Nast Luxury Travel Award, amongst various other international design awards.

RECOGNISABLE IDENTITY The management of an airline stipulated to the BEAD team: 'Our aircraft cabin interior has to be immediately recognisable as ours.' Many airlines miss the opportunity to take full advantage of reinforcing their brand in the cabin. BEAD works with brand stakeholders to include specific areas and touch points that speak directly to the brand messaging. For example, the new Qatar 787 environment look and feel is testament to the success in embodying Qatar's design language. Qatar's business class seating has a distinct appearance based on elongated and graceful lines, giving it a look that

03. B/E has worked with most international design houses, such as Marc Newson for the Qantas A380 business-class seats



04

conveys self-assured elegance. The characteristic design features of the seat include uninterrupted lines on the privacy shells, a broadly shaped two-tiered console, inspired lighting design, and seamlessly joined armrests and console details.

Aligning product cycles, new aircraft types, both new and old IFE, service provisioning, routes, and maintaining a coherent brand strategy creates a cross-discipline development with multiple pitfalls, roadblocks and bottlenecks when launching a new cabin product. In trying to satisfy each requirement, the execution of the product intent often suffers and often-times something gets compromised. For example, parting lines that flowed in the mockup can be destroyed by gaps and changes in dimensions. It is these finer points of product design and brand language that typically become the first to suffer.

Navigating this complex process requires experience, talent, and skills to translate the intended design into the cabin with ease. This underscores why airlines seek a trusted partner with the experience and know-how, in getting the job done, and getting it done well.

The most astute airlines understand the complex mix of product renewals and upgrade requirements and rely on a supply partner, like B/E Aerospace, that knows how to deliver flawlessly on a complicated production schedule.

TIME TO MARKET The difficulties in aligning product cycles can be acute; and the increase in certification, technological and OEM data can stall time to market. This results in pressure on the front end of a programme to have most things defined, which often leads to rushed design definitions that can create challenges further along in the programme.



ANY AIRLINE SHOULD BE ABLE TO BRING ITS VISION TO LIFE AND GET A WELL-REASONED, DISCIPLINED, PROFESSIONAL PROCESS OF DEVELOPMENT



05

For example, a few years ago, critical design reviews (CDR) allowed airlines to have design changes before progression to manufacture. Today the preliminary design review (PDR) has become the critical point in the decision making which reduces the time for design exploration.

To solve this dilemma, BEAD is on a mission to become a world leader in cabin interior products and advance new methods in compressing cycle times of design, while incorporating the continued development of the engineering and certification work.

The grey failure area, the valley between developmental tail-off and production ramp-up, is where disconnected teams let the design intent fall victim to inadequate execution. Often it is the disconnected design team that causes this situation by late features creeping into the schedule with little thought of impact. To help avoid this within BEAD, such ideas are twin- and triple-teamed

04. The Extra Wide Seat concept, developed with Airbus, has been one of 2012's big talking points
05. Qatar wanted bespoke seating for the all-new business class on its 787s

within the engineering groups to provide additional breathing space for these ideas to flourish and come to the table. In other words – such late features can and do make it. Digital and physical modelling has been taken to new levels of collaboration; with the ability to create functioning aesthetic engineering internally, externally and across distances

CONCLUSION Any airline should be able to bring its vision to life and get a well-reasoned, disciplined, professional process of development, with associated costs, certification path and a specific time to market.

It is possible to create the ideal product that supports the brand language, builds identity and – most crucially – supports time to market, with or without a concept or an external design agency. The B/E Advanced Design Group is one of the most experienced and talented teams in the industry. ☒

Web: www.beaerospace.com

PASSION + POWER

B/E Aerospace's Advanced Design Group

Passion drives us to be a world leader in cabin interior products. Power propels us to keep delivering a new best.



Passion to Innovate. Power to Deliver.

onefineday

Tim Terleski, president of TXS Industrial Design, shares an insight into what constitutes a typical day in the life of a design firm

- 01. A lightweight economy seat concept
- 02. The Buzzwerk model shop, where design ideas become prototype reality



At 07:00am, 08:00am or sometime thereafter, the designers, engineers, model-makers, and support staff filter in. The early risers are already in, coffee is made, and the office manager has brought in breakfast burritos. The sun is already peeking over the east parking lot and promises to scorch as usual; the heat chases people from their air-conditioned houses, into their air-conditioned cars, and into their air-conditioned workplaces... you get the idea: welcome to Texas.

The morning meeting kicks off with a discussion about the latest movie, morning news, or new trends online. The topics then move on to kids, babies, soon-to-have babies, but never politics or religion (except maybe in an election year). As the caffeine takes hold, the banter focuses more towards the creative: a few details about a project, a better way to manage a server problem, a question about a sales lead, or perhaps an anecdote about a client meeting.

The meeting then becomes a bit more formal. Attention is turned to our project management database, and we segue into a rapid discussion about individual active projects, client by client, with each designer and engineer taking ownership for their particular 'project du jour'. Further discussion

01



02



SUCCESSFUL DESIGN AGENCIES STRIVE TO CREATE AN ENVIRONMENT WITH CREATIVE PEOPLE INTERACTING AND DOING SPECIAL THINGS



03



touches on accomplishments, bouncing ideas off each other, solving mini problems regarding materials or detail, followed by scheduling a time to meet in depth. Finally, projects are covered, schedules are put in sync, and new office-related items are discussed: maybe the new cleaning crew, an interesting piece of rendering software, a new sales lead or a vacation date. One designer is fidgeting, stressed to get to work, and then everybody jumps up and gets moving.

The Big Desk is our studio. With designers and engineers on both sides of the table, it's a linear statement with little division. It's a big departure from our office a few years ago: no more cubes, no separate office, just a great space to encourage interaction between all. There are individual areas for computers and laptops, sketchpads and tools. Places to move around and low dividers to sit on and look over each others' shoulders, have discussions, pile the latest parts on. Plus, a big wall to go with the big desk to post ideas, sketches, photos, notes, or even just inspirational items to get the creative juices flowing.

Dim lighting augments screens aglow with highly detailed assemblies, mechanisms, sketches, 3D interactive renderings, or the latest auto website.

We speak in a visual as well as verbal shorthand. We discuss the nuance of a projected radius, a strategy for drafting a plastic part, a user's perception of a knob, a fit detail, a failed detail, a way to fasten something, displays, brand graphics, power cords, cushions, two-shot moulding, hue and saturation. Conversations flow between designers, who move in and out of a discussion without breaking stride. Sometimes a designer just talks out loud. And 'whoever' will chime in. The background is filled with the latest techno mix or ambient, lo-fi, or jazz.

Someone surfs up the latest concept car, or seat design, electronic widget, or shoelace style, and announces how "cool" it is ("cool" never goes out of style). Of course, the designers only surf the web when they are "waiting for a rendering to finish". Somebody light-heartedly makes fun of someone's latest shirt or haircut or food choice.

Throughout the course of the day, the fluid environment and cross-pollination of ideas and concepts results in engaged team members and remarkable results. When they need more focus, they can don their headphones or move to a private design space on the periphery. But most of the time they stay at The Big Desk and interact.

03. The Big Desk encourages interaction between designers and engineers





03

My business partner and I are constantly making rounds of the office, like doctors, or maybe ringmasters. Call it a multitasking circus. We wear different hats, sometimes minute by minute. While walking down the hall I have a discussion about the latest Apple connector, containers arriving from China, a trade show, dishes in the sink, a past-due invoice, what graphic to put on the wall over the coffee bar and an almost forgotten appointment. Then, I remind a designer to call the client about fabric samples for the latest airline presentation, have a discussion about someone's server permissions, schedule a sales meeting and break into a funny discussion about a recipe for a model-maker's Spam dish for the Texas State Fair competition. I walk in on a discussion about whether the user will understand the semantics of an off/on button, and peek into the rapid prototype machine to see what's cookin'.

The back half of the office is our model shop, aptly named Buzzwerk, featuring expert model-makers and machines for prototyping our designs. They are an entirely different crew. A bit less smartly dressed, they are painting or sanding something almost every day. Part designer, part machinist, part problem solver and part artist, they are a one-stop shop for visualising what the designers and engineers dream up. From a foam model to a finished production prototype, the model-makers craft what's next. We evaluate and present and refine and critique, and they do it all over again.

Machining centres are whirring and cutting the latest plastic or aluminium parts, the paint booth growls at intervals throughout the day, and the compressors and dryers whine at



WE ENCOURAGE CLIENT PARTICIPATION AND INTERACTION
IN EVERY PHASE OF THE DEVELOPMENT PROCESS



04

03. The PRG Cyclone winch
04. A concept economy-class cabin created by the TXS team

precisely the time you walk by and are on the phone.

You can walk in a 150ft circle through the many stages of design, from project sales, to preliminary concept, through detail verification, design engineering, and detail finishing, prototyping and verification. The engineers are having a video chat in the small conference room about the processor cooling in a tablet computer; the model shop is working on a new MRI device; the designers are testing the latest airline seat prototype; and my partner is on a vendor call discussing touchscreen glass thickness. The place is abuzz with creative energy and innovation every day.

Our formula for innovation is not just about schedules or budgets. Successful design agencies strive to create an environment with creative people interacting and doing special

things. We overlap disciplines and projects from many industries, giving the designers many points of view in which to gather inspiration, fostering good design. And we practice this philosophy outside of our walls by encouraging client participation and interaction in every phase of the development process. Tapping in to the client's expertise, we work hard to understand their technology, markets and users, and we engage stakeholders involved in the many phases of a product's life. We encourage and embrace failure as the course of doing good design. We take chances, trying and failing, and trying again. This is a prescription for innovation. Design is about ideas, and at TXS our designers accomplish great things.

At the end of the day, I reflect, try to shake off the stress, and realise how much I love this job. ☒

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cabinfever

The latest version of the Pacelab Cabin configuration software aims to simplify aircraft interior specification

“Let’s face it, they all want the same thing: a fast and efficient production that cuts lead times and avoids unnecessary delays,” says Frank Ehlermann, vice president of sales at PACE, a Berlin-based provider of aerospace engineering software solutions. He is busy touring aircraft manufacturers, suppliers and airlines all over the world to promote Pacelab Cabin 7, the upcoming version of the company’s cabin configuration software, which is due to enter the market in early 2013.

Working behind the scenes for more than a decade, the Pacelab Cabin software has acquired a proven track record and is widely used throughout the industry, from Airbus commercial marketing to the engineering and fleet planning departments of airlines such as Etihad and Cathay Pacific. The software has also brought a number of bespoke spin-offs for special areas of application, including emergency equipment layout and also cabin refurbishment.

“When it was first released in 2000, Pacelab Cabin caused a small sensation, because it cut the time needed to set up validated cabin layouts from days to under an hour,” recalls Ehlermann, who joined PACE at about that time. “It really changed the whole process – suddenly you could bring your cabin layouts on a notebook, kick ideas around with the customer and get instant feedback on whether they’re feasible or not.”

RULE-BASED APPROACH The driving force behind this productivity boost was the software’s rule-based approach, which provides a large degree of automation and allows embedding engineering knowledge, certification requirements and corporate design policies right into the system.

With drag-and-drop cabin items and placement algorithms capable of applying complex, class-specific



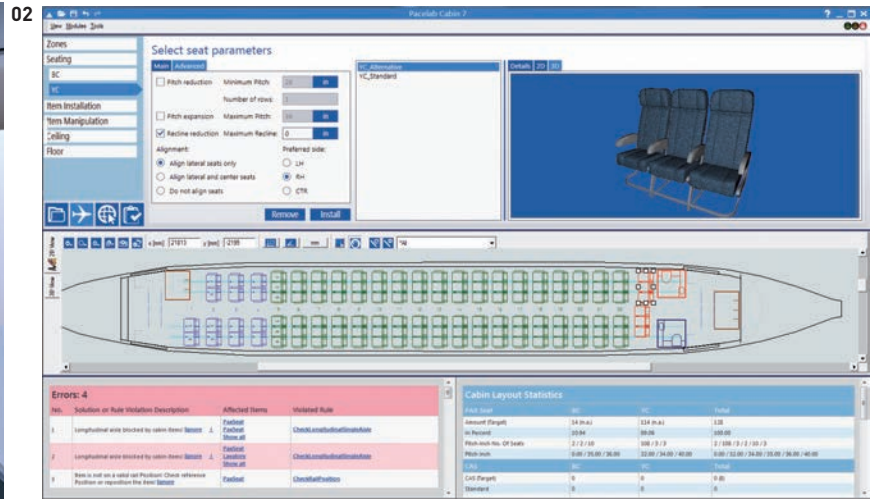
optimisation strategies, Pacelab Cabin was a far cry from the heavyweight, geometry-centric CAD systems that were typically used then, but generated a more diversified output including reports, bills of material and also contractual drawings.

But what really set Pacelab Cabin apart was the real-time compliance checks, which not only ensure that the cabin layout meets FAR and JAR

certification requirements, but also keep it in line with airline-specific configuration policies. This constant monitoring significantly improves the initial layout quality and results in fewer revisions.

Twelve years on, the customisation process continues to evolve, creating new challenges for all parties involved. “Working very closely with airlines, manufacturers and suppliers, we are

“ SO HOW DO YOU ORGANISE AND DISPLAY THE CATALOGUE CONTENTS TO CUSTOMERS? ”



While discussions on the pros and cons of catalogue-based configuration are still being played out between airframers and operators, PACE has adopted a more pragmatic attitude and started looking at the ‘how’ rather than the ‘if’ or ‘why’. “Something had to change, and even when the ‘anything goes’ maxim is abandoned, your typical catalogue will still provide an incredible number of options to sort through, not to mention complex concurrences and incompatibilities,” says Ehlermann.

- 01. High-quality rendering of a Boeing 737 cabin configuration
- 02. Instant highlighting of layout errors

painfully aware of how the complexity and excess number of customisation options have turned spec'ing interiors into a daunting task,” says Ehlermann. The major large commercial airframe manufacturers, Airbus and Boeing, have drawn their conclusions from past delays and cost overruns and have overhauled the cabin customisation process for their latest products, the A350 XWB and the 787 Dreamliner.

Both are now opting for a catalogue-based approach, which streamlines the number of available customisation options and has airlines select from supplier-furnished or at least supplier-managed equipment. With this new policy, aircraft manufacturers hope to significantly reduce lead time, ensure better integration of cabin systems, and tighten their control over the overall supply chain.

CATALOGUE SHOPPING So how do you organise and display the contents of the catalogue to customers and ensure they end up with the most effective layout configuration for their specific case? At present, catalogue information can be fairly scattered – there may be paper and digital documents, physical mock-ups and showrooms, with off-catalogue buyer-furnished equipment marketed completely separately from the rest.

“Our vision was to develop a tool that would consolidate the available options and their interdependencies and present them in an attractive, contextualised manner: looking less like an engineering tool and more like a car configurator, intuitive to use and



KEY CUSTOMERS HAVE LIBERALLY SHARED THEIR EXPERIENCE AND EXPERTISE WITH PACE DURING THE CONCEPT PHASE



highly visual,” explains Ehlermann. “It seemed the natural progression to add this new dimension to the next version of Pacelab Cabin.”

To enable effective communication between manufacturers, suppliers and airline customers, the development of Pacelab Cabin 7 has focused on creating a flexible infrastructure for managing product options, introducing high-end 3D visualisation capabilities and ensuring a seamless integration into project and data management (PDM) environments. Vital inputs have been provided by the cabin community, and Ehlermann feels privileged that key customers such as Airbus have liberally shared their experience and expertise with PACE during the concept phase.

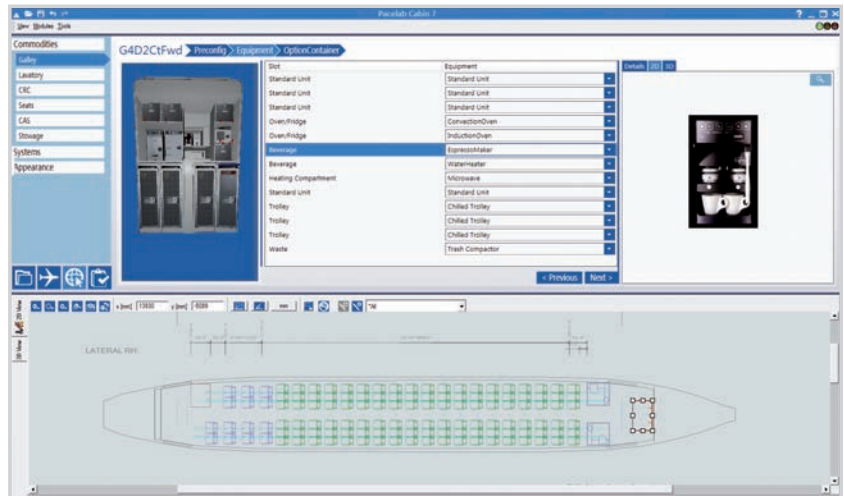
The catalogue has become a basic functional paradigm of Pacelab Cabin 7, which can be applied to everything from powerplant configurations to galley inserts. “With the new version, Pacelab Cabin has in a way outgrown its name. It’s not just about the cabin anymore; it’s an aircraft configurator, really. I sincerely hope we don’t have to rebrand,” jokes Ehlermann.

Pacelab Cabin 7 makes use of 3D imaging to give customers a clear idea of available options and the appearance of the finished product. The software supports different rendering qualities from real-time rendering during the actual layout configuration to advanced ray tracing. “The look of the cabin interior is one of the key differentiators, so naturally airlines want to get as close as possible to what they can expect at the end of the day.”

- 03. A contextualised display of customisation options
- 04. Configuration of forward galley



03



04

Supporting customer-facing and back-office engineering applications, the software can be used throughout the entire customisation cycle by all involved, from marketing analysts, cabin and cargo definition managers, to contract engineering managers and reconfiguration managers. To implement centralised management of 2D and 3D models, project and customer data, certification and option compatibility rules as well as other configuration data, the software comes with an integrated PDM functionality. Additionally, it can be integrated with customers’ PDM systems.

Ehlermann looks forward to the product release in 2013: “The feedback has been encouraging,” he says. After giving sneak previews of Pacelab Cabin 7 to selected customers and then also to a wider audience at Aircraft Interiors Expo 2012, he is convinced the new version will make an impact like its early predecessor: “The people I have spoken to are genuinely excited by the idea of having a single tool for advising airline clients, optimising layouts and generating contractual documentation. There’s definitely a need for the cross-department software support we will be able to offer.” ☒

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PIERREJEAN DESIGN STUDIO

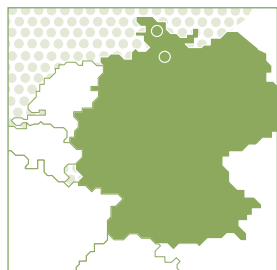
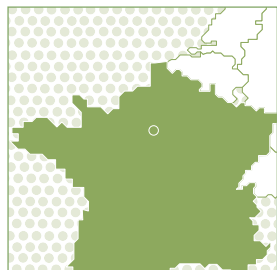
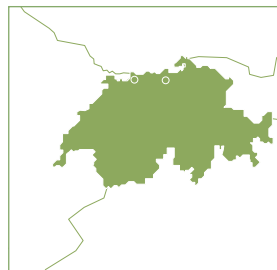
PRIESTMANGOODE

TANGERINE

TEAGUE

TXS INDUSTRIAL DESIGN

ZEO



ACUMEN DESIGN ASSOCIATES

LOCATION: LONDON, UK

FOUNDED: 1981

EMPLOYEES:

UNDISCLOSED

EXPERIENCE: Following the invention of British Airways' 'bed in the sky' in 1996, Acumen has become one of the most experienced consultancies in aircraft interiors, delivering the 'wow' factor to more than 20 leading airlines, including American Airlines (first-class swivel seat); Air France (first class); Air Canada (business class); Cathay Pacific (first class); Korean Airlines (first class Kosmo suite); Etihad Airways (A380 – all classes); and Delta Airlines (business class).

ALTITUDE AEROSPACE INTERIORS

LOCATION: AUCKLAND & CHRISTCHURCH, NEW ZEALAND

FOUNDED: 2008

EMPLOYEES:

UNDISCLOSED

EXPERIENCE: Design, manufacture and supply of premium customised monuments for airlines and Boeing, as well as BBJ and VIP787 completions, maintenance and refurbishment.

B/E AEROSPACE

ADVANCED DESIGN

LOCATION: WINSTON-SALEM, NC, USA

FOUNDED: 1987

EMPLOYEES: 8,800+

EXPERIENCE: B/E

Aerospace is a world-leading manufacturer of aircraft cabin interior products, and a world-leading distributor of aerospace fasteners and consumables. The B/E Aerospace Advanced Design group (BEAD) is an award-winning leader in the design and development of cabin interior products.

DESIGN Q

LOCATION: REDDITCH, UK

FOUNDED: 1997

EMPLOYEES:

UNDISCLOSED

EXPERIENCE: Design Q is a premium design consultancy creating unique solutions for the luxury transport sector. The company's team of designers are dedicated individuals with a proven capability in making a difference, with expertise spanning many disciplines, including automotive, aerospace and marine.

FACTORYDESIGN

LOCATION: LONDON, UK

FOUNDED: 1997

EMPLOYEES: 16

EXPERIENCE:

Factorydesign's portfolio of airline clients includes British Airways (Concorde, Club World Kitchen, World Traveller Plus); Etihad Airways (A380 and B787); Jet2.com; Singapore Airlines; and Virgin Atlantic. The studio has also helped design seats direct with suppliers.

FORPEOPLE

LOCATION: LONDON, UK

FOUNDED: 2004

EMPLOYEES: 50

EXPERIENCE: This multidisciplinary creative agency is active globally for clients in the transport, automotive, consumer electronics, FMCG, furniture, built environment and luxury sectors. It is also British Airways' lead design agency, acting as creative director, responsible for total cabin design and customer experience. Forpeople is involved in industrial design, colour material and finish development, forecasting, strategy and user experience design, as well as innovative new product development

and refresh programmes, specialising in collaboration with seating and aircraft OEMs.

JPA

LOCATIONS: LONDON, UK; SINGAPORE

FOUNDED: 1982

EMPLOYEES: 30

EXPERIENCE: JPA's airline customers include Singapore Airlines (first class, business class and first-class lounge); Japan Airlines (JAL Suite); US Airways (Envoy Suite); American Airlines (first class, business class, economy class); Air China (airport lounges); Oman Air (airport lounges); and interiors and branding for Gulf Air.

LUDEKEDESIGN

LOCATION: ZURICH, SWITZERLAND

FOUNDED: 1994

EMPLOYEES: 2 PRIMARY

EXPERIENCE: Seat and product design for various leading airlines and suppliers. The studio was the co-initiator and developer of the Aeras knit principle – the innovative, lightweight and uniquely comfortable alternative to conventional aircraft seat cushioning.

MBLM

LOCATION: NEW YORK, USA

FOUNDED: 2004

EMPLOYEES: 80

EXPERIENCE: Integrated branding services including strategy, identity, interiors and digital, for clients such as American Airlines, LAN, Air Canada and Avianca.

**PACE AEROSPACE
ENGINEERING & IT**

LOCATION: BERLIN, GERMANY & SEATTLE, USA

FOUNDED: 1995

EMPLOYEES: 50+

EXPERIENCE: Pace is a leading provider of cabin configuration software.

PEARSONLLOYD

LOCATION: LONDON, UK

FOUNDED: 1997

EMPLOYEES: 12

EXPERIENCE: Furniture and product design R&D in workplace, transport, healthcare and urban environments. Virgin Atlantic Airways 2001-2006 (Upper Class Suite, premium economy, economy); Lufthansa 2007-2012 (business class); and consultant to Transport for London 2006-2012.

PENGELLY DESIGN

LOCATION: LONDON, UK

FOUNDED: 1993

EMPLOYEES: 5

EXPERIENCE: Virgin Atlantic Upper Class Suite – design of seat and passenger environment.

PIERREJEAN DESIGN STUDIO

LOCATION: PARIS, FRANCE

FOUNDED: 1980

EMPLOYEES: 15

EXPERIENCE: Emirates (first class mini-suites and showers); Qatar Airways; Etihad (business class); and numerous VIP/head-of-state wide-body projects and mega-yacht interiors.

PRIESTMANGOODE

LOCATION: LONDON, UK & QINGDAO, CHINA

FOUNDED: 1986

EMPLOYEES: 37

EXPERIENCE: Clients include Airbus, Embraer, Lufthansa, Swiss, Malaysia Airlines, TAM Airlines, Turkish Airlines, Thai Airways International and Qatar Airways.

TANGERINE

LOCATION: UK, KOREA & BRAZIL

FOUNDED: 1989

EMPLOYEES: 21

EXPERIENCE: Cabin interior design for clients including Asiana, B/E Aerospace, British Airways, Korean Aerospace Industries (KC-100), plus strategic design direction on Heathrow Express First Class carriage.

TEAGUE

LOCATION: SEATTLE, USA & MUNICH, GERMANY

FOUNDED: 1926

EMPLOYEES: 250

EXPERIENCE: Teague's project list is extensive, including 787 Dreamliner, 747/747-8 and 737/Next Generation interiors; Emirates 777 door 1 entry & first-class cabin; V-Australia 777 premium bar areas; Stratocruiser and 707 interiors; Southwest Airlines (carpet); and the design of Panasonic's integrated smart monitor.

TXS INDUSTRIAL DESIGN

LOCATION: TEXAS, USA

FOUNDED: 1986

EMPLOYEES: 17

EXPERIENCE: Seating, R&D, brand, user experience, interiors and prototyping for airlines worldwide. Product design and development for transportation, consumer products, medical, lighting and telecomms.

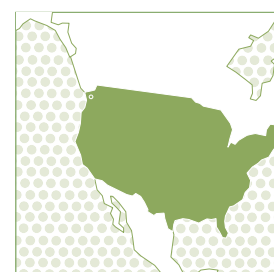
ZEO

LOCATION: HUNTINGTON BEACH, CA, USA

FOUNDED: 2011

EMPLOYEES: 57

EXPERIENCE: As the design and innovation studio of Zodiac Aerospace, ZEO offers design, integration, and prototyping of the full range of aircraft interior products.



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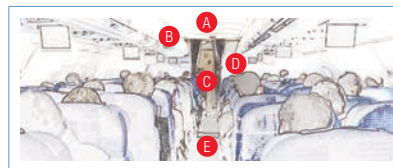
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- D** Network Control Panel (in galley)
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RECARO
112



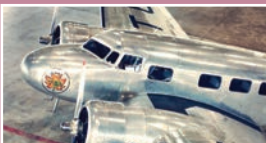
ANDREW MUIRHEAD
116



KYDEX
120



ROCKWELL COLLINS
124



SPAFAX
128



GEVEN
132



TAPIS
134



ZODIAC
136



BOLTARON
138



AEROLUX
140



DIEHL
142

SUPPLIERSHOWCASE

strongeconomy

Recaro's chief executive officer, Dr Mark Hiller, explains the current developments with the BL3520 economy-class seat, and where he plans to lead the company in the coming years

 Dr Mark Hiller is happy to see rapidly growing customer interest in the latest Recaro innovation: the BL3520 economy-class seat. "After the initial deliveries to the Lufthansa Group, several other European airlines opted for the seat," says the Recaro CEO. "SAS in Sweden ordered 4,115 units of the BL3520 for its short-haul fleet, and the Thomas Cook Group chose our comfort package with audio integration for flights up to six hours long for its Airbus A320/321 fleet. Since the launch of our BL3520 in late 2010, we have received orders for about 120,000 pax."

At Aircraft Interiors Expo 2012 in Hamburg, the company presented the BL3520 with new options designed to enhance passenger comfort on medium-range flights: the foam thickness in the backrest and seat cushion is reinforced; the padding contour and seat cover materials are designed for added comfort; and the seat covers are available in fabric or leather combinations.

Furthermore, the headrest can be integrated into the contour of the

- 01. Recaro opened an extension to its Germany HQ this year, creating extra space for customer services and new test labs
- 02. In less than two years, orders have been placed for around 120,000 BL3520 seats

01



02



“

INTEREST IN THE NEWEST ECONOMY-CLASS SEAT IS
REMARKABLY HIGH, EVEN IN THE AMERICAN MARKET

”



backrest or attached to the surface, and the six-way adjustable headrest features height and angle adjustment and V-shaped side wings. In addition, the seat can be ordered with a touchscreen video monitor integrated into the backrest. An audio/video control unit with PC and headphone access, along with channel selector and volume control, is located in the new armrest.

GOING EAST, GOING WEST Interest in the newest economy-class seat is remarkably high, even in the American market. “The airlines, even in the USA are flying up to seven-hour segments with their A320/B737 aircraft. Our customers have told us that the BL3520 including the modular comfort kit turns out to be ideal solution in terms of living space, weight and comfort,” reflects Hiller.

Alaska Airlines is the North American launch customer for the Recaro BL3520 seat, with the seat being installed on all of its new Boeing 737-900ERs. Joe Sprague, Alaska Airlines’ vice president of marketing, explains, “Recaro’s clever design includes a comfortable yet slimmer seatback and bottom, and a literature pocket located above the tray table. That means our main cabin customers will enjoy more than an inch of extra legroom with our existing spacing between each row.”

Feedback on the BL3520 has also been positive from Asian air carriers. All Nippon Airways, the launch customer in Asia, ordered the seat for its B767 domestic fleet aircraft. The airline has had good experience with the Recaro BL3510 in more than 30 of the aircraft fleet. Hideki Kunugi, ANA’s director of aircraft purchasing and sales, explains the decision to order the BL3520 seat: “ANA is proud to be the launch customer in Asia for the BL3520. We selected this seat because of its compelling weight, design and comfort. In combination with Recaro’s quality and performance, it is

absolutely the right product for Japan's important domestic market."

AWARD-WINNING DESIGN At the 2012 'red dot: best of the best' awards, the BL3520 aircraft seat won one of the 'best of the best' prizes.

"We are very proud that we have won such an important design award for our aircraft seat," says Hiller. "The 'red dot' is now the third prize we have won for the BL3520 alone. These awards reflect the successful path that our company has followed with determination in the past few years. Establishing the design department 15 years ago was the starting point, from which Recaro Aircraft Seating established itself as a company where design plays an important role in product development."

In a process lasting several years, Recaro Aircraft Seating has consistently built up its design, ergonomics, prototyping and engineering departments. "Whereas our priority used to be fulfilling customers' wishes, today our customers choose our products because they associate the Recaro brand with design and ergonomic comfort, in addition to quality and light weight," says Hiller.

He views successful product design as the result of a team effort: "Our interdisciplinary teamwork means that employees from the most diverse fields contribute their expertise to the process. The results are well-designed, well-engineered seats, which offer the best both to passengers and airlines."

MARKET ORIENTATION What is Recaro's formula for success? "The key word is product and process innovation – 40% of our products are less than three years old. This has clearly had a positive impact: every third economy-class seat sold in 2011 was made by Recaro Aircraft Seating. This serves as the foundation of our



THE 'RED DOT' IS NOW THE THIRD PRIZE
WE HAVE WON FOR THE BL3520 ALONE





success – together with high quality, adherence to delivery deadlines, an international customer base, and a balanced mix of premium and low-cost carriers,” Hiller explains.

“Another key element in our success is the implementation of our excellence philosophy. This brings us forward in terms of motivating people, increasing efficiency, expanding capacity, and achieving a more consistent market orientation.”

Since 2005, Recaro Aircraft Seating has completely reorganised the company and pointed it in a new direction. “Our sales increased by more than 30% within four years. We managed to optimise our processes from the ground up and focus on our core competencies. Recaro Aircraft Seating is on track for sustainable growth. And we are all very proud of these achievements,” Hiller remarks. “I have made it our goal to follow a more aggressive course for future growth. We plan to put a stronger focus on market and customer orientation, as well as on our international scope. At the same time, we are working on new product developments to expand our business and economy class portfolios.”

EXPANDING CAPACITIES Hiller expects to see high growth rates across all markets over the next few decades. The number of passengers worldwide has increased by nearly 50% since the beginning of the new millennium – and this is an ongoing trend. Current forecasts indicate that aircraft fleets worldwide will practically double in size by 2030. At the same time, high commodity prices and increasing environmental awareness are triggering changes and driving the demand for lightweight seat innovations. This will affect Recaro’s international operations: the company is expanding capacities to meet growing market demand.

- 03. Recaro’s Fort Worth site in the USA is going to double in size
- 04. The new plant in Qingdao will expand Recaro’s capacities in the Chinese market
- 05. The BL3520 is also available in a leather finish



Hiller says, “Recaro is growing – in production numbers, workforce and plant sites. We are coordinating the expansion of our operations based on growth forecasts for the three key aircraft markets in Europe, America and Asia. We opened an extension to our headquarters in Schwaebisch Hall, Germany, this year: we created space for our staff in customer service and made room for new test labs.”

In September 2012, less than 10 months after laying the cornerstone, the company opened a new plant in Poland to double its capacity for the future. A 10,000m² modern production facility was built in Swiebodzin, with a focus on final assembly of economy-class seats. As a direct-delivery supplier, the plant produces seats for Airbus ‘just in sequence’. From Boeing, Recaro Aircraft Seating achieved delegated source inspection. This site will also be expanding its purchasing activities in Eastern Europe.

Hiller adds, “We are doubling the space at our plant in Fort Worth, Texas. Recaro Aircraft Seating Americas

handles market and purchasing responsibilities for North and South America. The company also customises products. The new buildings will provide space for production operations as well as customisation.”


Furthermore, Recaro is building a production facility in Qingdao, China. As of 2013, the company will be the first international aircraft seat supplier in China to manufacture seats for the local market.

“Asia will develop into the biggest market for aircraft seats in the near future. Recent studies indicate that the demand for line-fit and retrofit programmes for new and upgraded aircraft is enormous. We are increasing our capacity specifically for this market,” Hiller says. “The new property will cover 25,000m² and include a complete production facility with on-site sales, customising and purchasing departments. The new plant in Qingdao will expand our capacities in the Chinese market – and enable us to serve our customers in the Far East as efficiently as possible.” ☒

Contact: info@recaro-as.com
Web: www.recaro-as.com

skindeep

There are a number of benefits to using traditional leather rather than man-made materials in the aviation industry

 With a significant increase in the options available for aviation seat coverings, and with manufacturers and traders variously claiming their product is the lightest, best-performing and most eco-friendly, the question comes to mind: which really is best? Traditional leather or man-made materials?

Traditionally throughout economy class, most airlines opted for fabric seat coverings; however due to issues such as hygiene, increasing maintenance costs and the environmental impact of the dry cleaning process, many airlines are now moving away from fabric coverings.

This trend is also evident in the highly influential automotive industry, where leather is increasingly being used as an additional benefit or selling point. Although initially higher in price, genuine leather has a lower cost of ownership due to lower maintenance and longevity.

A significant negative aspect to fabric seat covering is the need for re-firetreating and re-firetesting that is required each time a dry cleaning

- 01. Leather offers durability, weight and environmental benefits
- 02. Vivid colours can be added during the tanning process





COMFORT, SUSTAINABILITY AND DURABILITY ARE KEY AREAS THAT AIRLINES ARE LOOKING INTO ACROSS THEIR CABIN SEATING



is undertaken. Airlines are known to stock up to 50% more seat covers than they actually require in order to accommodate the logistics of dry cleaning and re-firetesting. In contrast, fire retardants are impregnated into genuine leather very early in the production process, and with no dry cleaning required, those retardants remain there until the leather needs replacing, which can take upwards of 12 years.

In the 1980s, United Airlines was the first airline to supply leather throughout the cabin, with many other airlines following suit. Twelve years ago, British Airways also upgraded its cabin interiors to leather across all its short-haul fleet, which is still flying.

Airlines are obviously increasingly aware of the benefits of offering leather throughout the entire cabin as opposed to the traditional option of only the first and business classes, which has made the distinction of using leather for practical benefits rather than just the luxury image associated with leather.

THE REAL DEAL The market's most recent seat covering addition is synthetic, which is often made with leather fibres and water to create a 'leather-like' finish. Many, however, disagree with the suggestions that the smell, feel and overall aesthetic of artificial leather competes with that of genuine leather and in contrast compares with more of a vinyl finish. The automotive industry invests tens of millions of dollars annually into ensuring that within their cars, the customer will receive the utmost level of comfort, and since the 1970s, few manufacturers across Western Europe or North America have used synthetic within contact areas. The reason for this centres on the fact that when using synthetic on seats, the temperature of the material can increase or decrease dramatically, causing discomfort to the customer. With the aviation industry following automotive interior and environmental trends, comfort, sustainability and durability are key areas that airlines are looking into across their cabin seating.

03. Muirhead products feature in prestigious products such as Malaysia's new flagship Airbus A380



“

WITH A THICKNESS OF 1MM, VOYAGER WEIGHS JUST 600G/M², WHICH IS 30% LIGHTER THAN STANDARD AVIATION LEATHER ”

Synthetic is promoted as being lightweight and environmentally friendly; how lightweight and environmentally friendly, however, is dependent on the alternative it is being compared with.

To prove the lightweight benefit of a man-made material, the tendency would be to use traditional full-thickness leather as a comparison, which of course would show the latter being the heavier material. When compared, however, with an innovative aviation leather such as Andrew Muirhead's Voyager, the comparison is then invalid.

With a thickness of 1mm, Voyager weighs just 600g/m², which is 30% lighter than standard aviation leather and can therefore be categorised as both a premium full-thickness leather, as well as a lightweight aviation seating material.

The sustainability of synthetic is again a factor that is promoted heavily, and when comparing this to companies

that undertake very little, or even no environmental initiatives, can create an incorrect depiction.

SUSTAINABLE PRODUCTION

Substantial investment in the most modern and efficient leather manufacture gives Andrew Muirhead the lowest carbon footprint of any leather maker in the world and the only one to carry the Low Carbon Leather logo.

The Low Carbon Leather production process is underpinned by the Scottish Leather Group's innovative thermal energy plant. Opened in 2010, the thermal energy plant is the only one of its kind in the world leather industry, and takes what was previously waste sent to landfill and converts it directly to energy to create steam used in the manufacturing process (for heating the huge volumes of water required in the manufacturing process). Oil is extracted from the tannery waste, which can then be used

in the thermal energy plant or sold for use in the production of biodiesel.

The process starts with hides weighing an average 40kg and finishes with a leather product that weighs just 10% of the original hide. From the remaining 90%, both oil and solid waste is extracted. The oil is used as a biofuel, and the solid waste is converted into steam, supplying the factory with the heat for up to 200 million litres of water per year – reducing dependency on fossil fuels and producing a low-carbon leather that does not cost the earth.

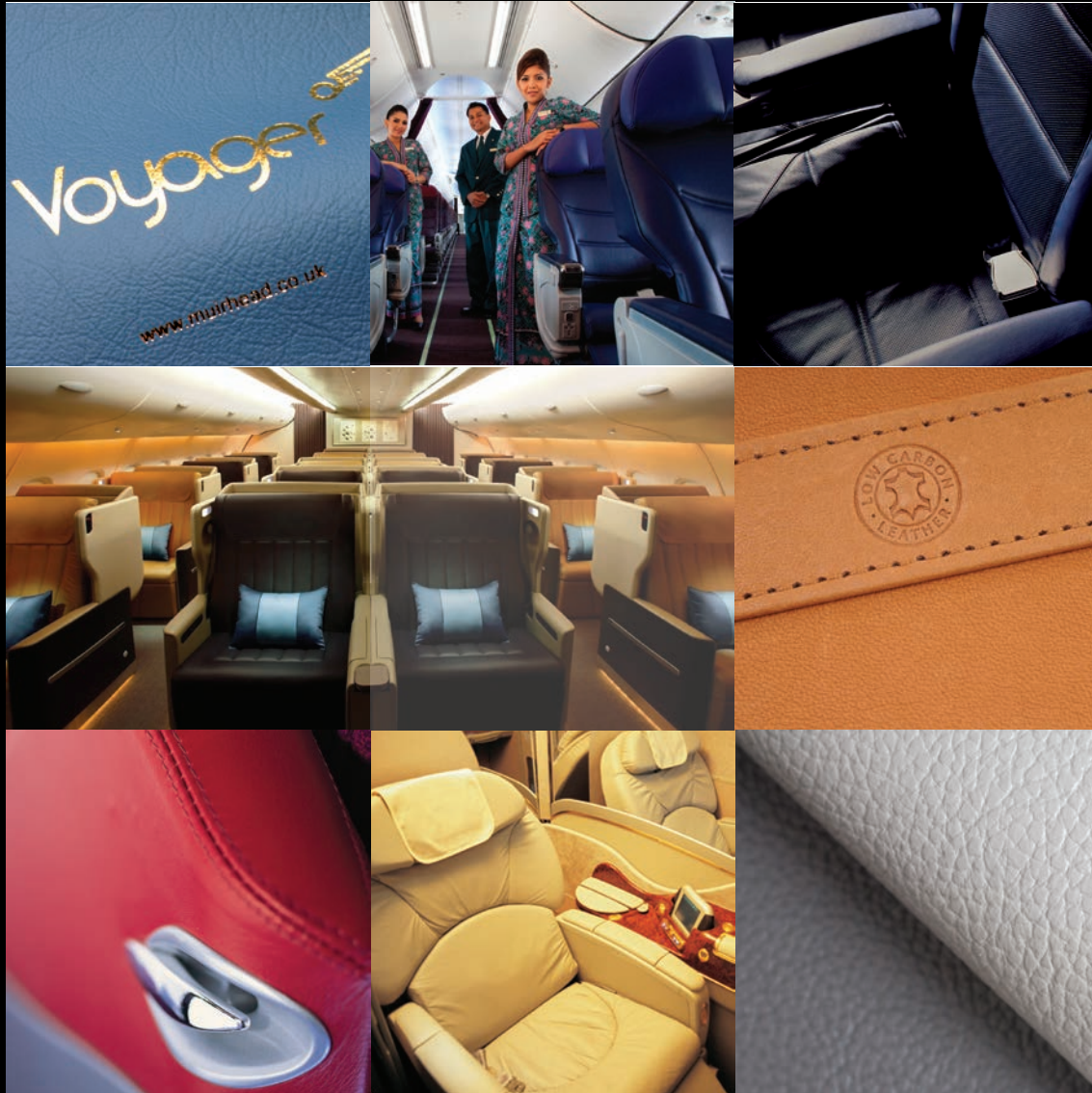
When the comparison between traditional leather and man-made materials comes into question, many aspects can hinder or facilitate the decision. With the existence nowadays, however, of lightweight, full thickness, sustainable, low-cost genuine leather in existence, it can make the decision process that bit simpler. It seems the industry needs to dig a bit deeper to get the facts. ☒

- 04. The Muirhead leather fitted to BA's short-haul fleet 12 years ago is still flying today
- 05. Muirhead hide also features in Virgin Atlantic's Upper Class



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Kydex Thermoplastics can make cabin designers' most vivid dreams come true



Kydex, LLC collaborates with clients to solve design challenges that once seemed impossible. As a world leader in thermoplastic sheet solutions, the company's ethic is transforming inspiration into full realisation by expanding the design vocabulary and creating virtually infinite possibilities for designers, with colour, texture and effects that transform designs.

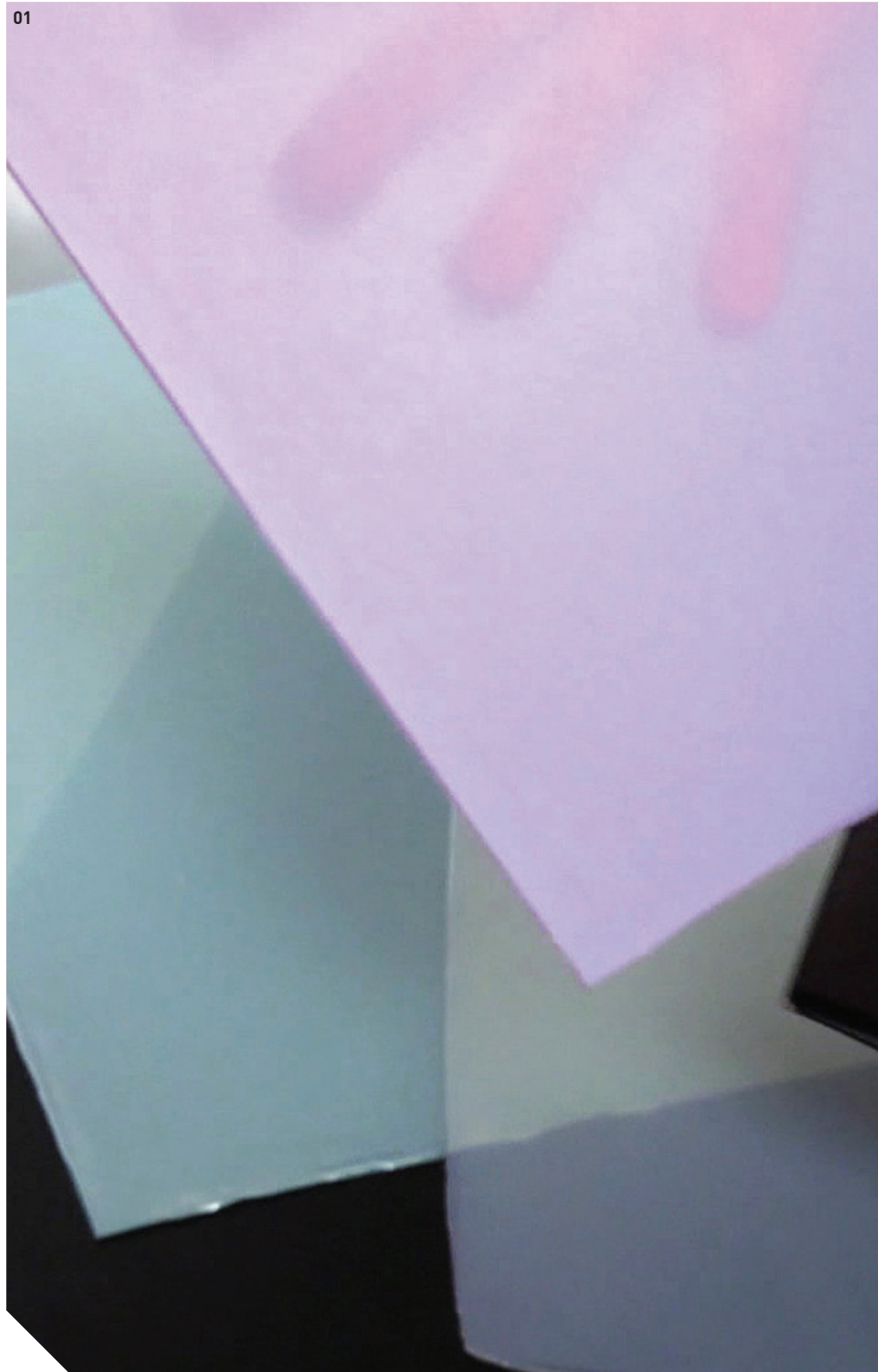
Colour is a form of communication. It can make bold statements or speak in a hushed whisper. It can affect our emotions as quickly as our eyes perceive it, often without our conscious knowledge. That's why Kydex offers designers options from the tried and true to the utterly surprising.

The Kydex® 6503 colour palette for aviation expands the vocabulary of design with colours that provide inspiration, and subtle gradations for neutral tones that differentiate designs. Infinite custom variations from the Kydex designLab™ are as limitless as your imagination, yet fully compliant with the most stringent standards of the FAA and carriers alike.

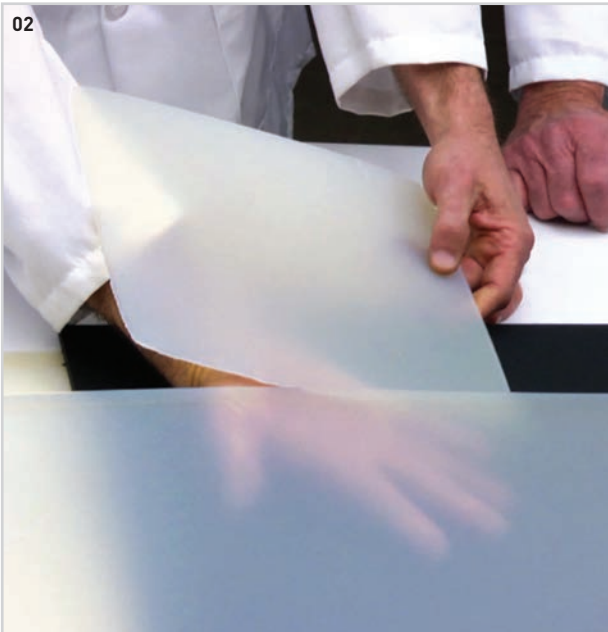
01. Eight coloured translucent are available...

02. ...in fully-compliant aviation-grade Kydex thermoplastic sheet

01

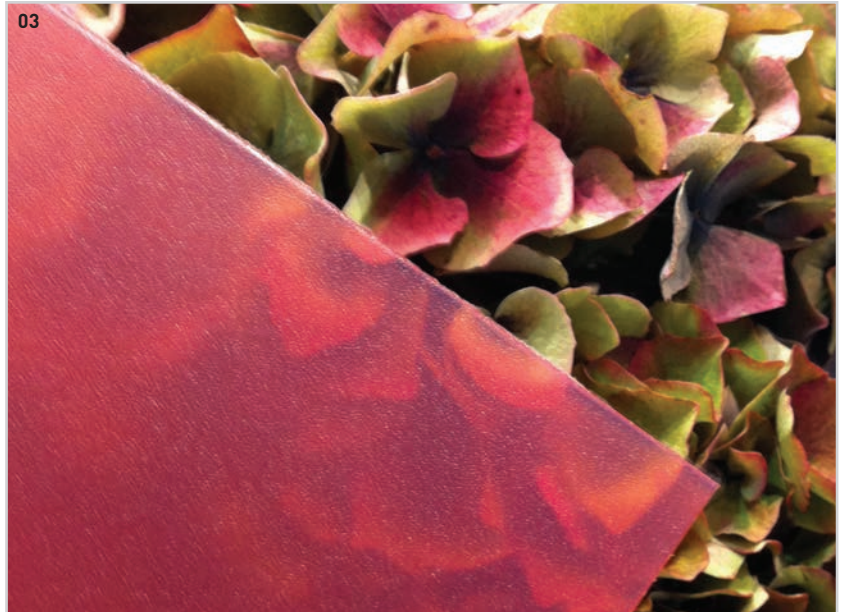
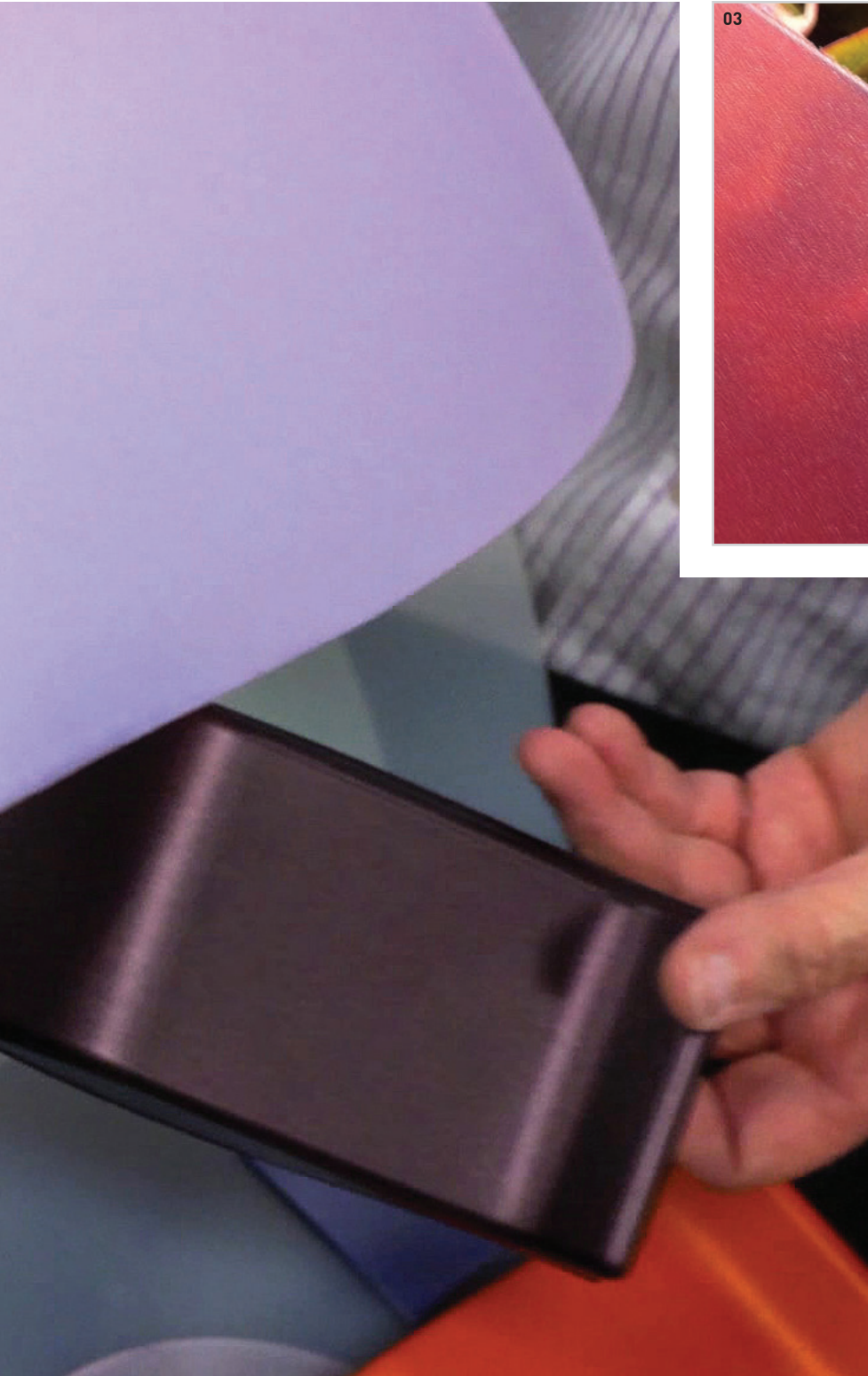


02





COLOUR CAN AFFECT OUR EMOTIONS, VERY OFTEN WITHOUT OUR CONSCIOUS KNOWLEDGE



Texture is the new colour. Yes, we think first of texture in terms of touch, but our eyes recognise it before our hands reach out to it. Through advances in pressure forming, thermoplastic sheet can now hold textures that offer infinite variety, with consistency throughout each variation. The cup-holder that once was monotone and utilitarian can now embrace varied textures, hold intriguing shapes and shadows, and even present logo impressions that quietly reinforce a brand.

Special effects that once seemed like surface window dressing are now rich and resonant. For example, Pearlescents that are integral to the shimmer in the material can be provided. Text, logos and pattern can be incorporated into the sheet seamlessly. And fully compliant frosted colour translucents that only Kydex can offer are changing everything that an airline interior can be and that a designer can hope to achieve.

“It’s our responsibility to work closely with the design end of the industry to continually push boundaries so that they can, too,” says David Scott, Kydex global creative.

03. Inspired by the pink in a hydrangea? Eight colours are currently available in Kydex FST CTL



THE AIRLINE'S BRAND CAN BE EXPRESSED AS A LIVING EXPERIENCE OF LIGHT, MOTION AND HUMAN EMOTION



- 04. The coloured plastics can be thermoformed into many shapes
- 05. Thermoplastics can bring not just colour, but also light, into the cabin

COLOURFUL TRANSLUCENTS David Scott has designed many stunning aircraft interiors for the most prestigious long-haul, luxury airlines. But one elusive element was missing that could instantly change everything, and that could transform a cabin into a continuous statement of light, motion and spatial differentiation.

That game-changing element of coloured translucence has been achieved by Kydex. The path was not easy, but through continuous formulation, reformulation and testing, colourful, compliant and durable translucent Kydex FST went from the drawing board to the designer's palette, as Kydex FST CTL.

Dividers that once blocked light can now refract and reflect it. Passengers can enjoy privacy without feeling walled in or isolated. Cabin classes can have different lighting motifs within a unified whole. LED lighting can be used to its maximum advantage to create different moods for different segments of the flight, from boarding to meal service, to sleep time. And the



airline's brand can be expressed as a living experience of light, motion and human emotion, from exhilarating to comforting.

Airline interiors will never be the same again.

"With translucency, light does not just shine. It travels, plays, and bounces. And the effect can be just as delightful as the words themselves," adds Scott.

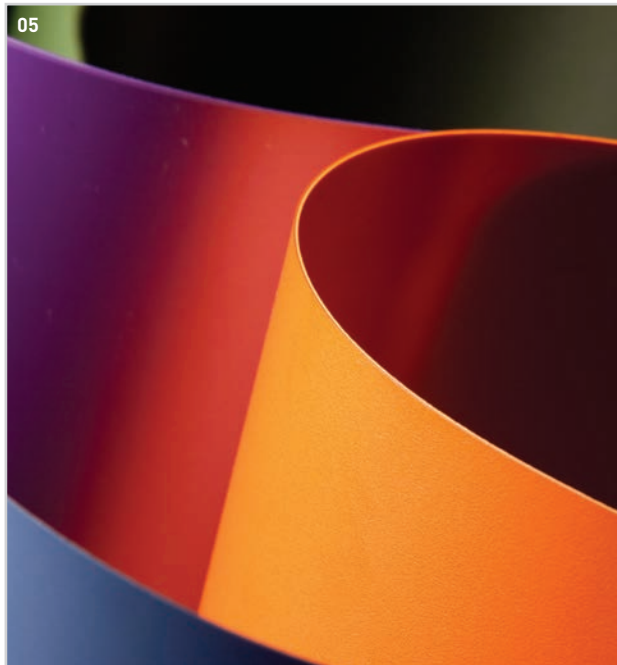
COLOUR COLLABORATION Stepping up to unique challenges facing customers is what the Kydex designLab is all about. It's where the colours, shapes and textures that designers dream of become real. Customers can go beyond chips and colour samples, and have custom colours created that make the perfect match. Then they can see formed pieces that are true to the final product and their vision.

It starts with close collaboration between the designer and the Kydex team. The conversation can begin with something as simple as a fabric swatch, a household object or a picture from a magazine. And it extends from that initial inspiration to final implementation in a fully realised cabin environment.

First, colour- and texture-matching are perfected in the designLab. Next, the specifications are entered into the production schedule and manufactured on the factory floor. Then, the colour submitted is available in the product specified on the drawings – mirroring the wishes of the designer and making a statement that is both unique and uncompromising.

But the designLab is much more than a place, process or product generation source. It's a virtual idea factory that cannot be contained by four walls. At Kydex.com, customers can begin their journey by viewing informative and inspiring videos that speak to them in their language, presented by David Scott. They can see that Kydex is much more than a manufacturer: it is also a design resource and partner in helping them achieve success, whatever it takes.

"Everyone has a way of expressing themselves when it comes to colour. Communication is really important in determining the direction a customer wants to go with the colour. That creative collaboration really gives us the edge over our competition," concludes John English, Kydex's colour specialist and designLab supervisor. ☒



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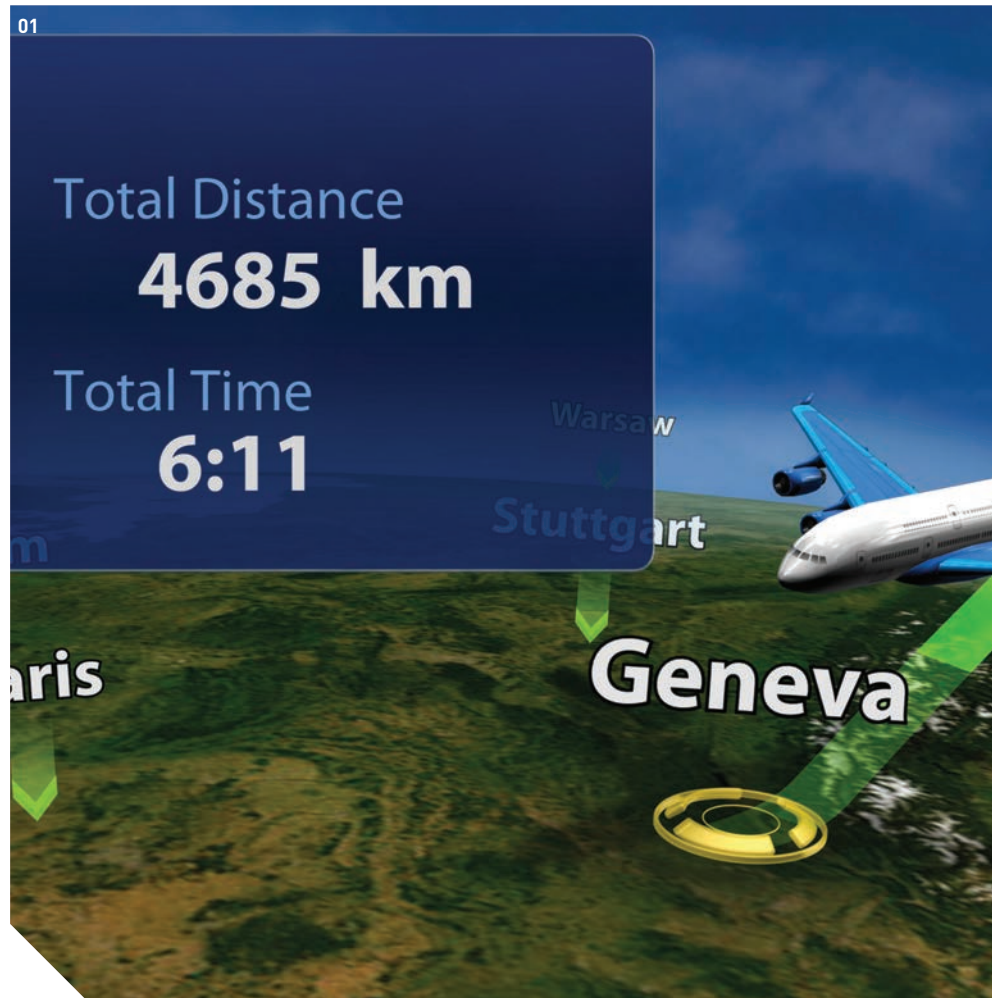
treasuredmap

From two-colour 2D maps to a high-resolution 3D interactive application that can be downloaded in iTunes, the Airshow moving map continues to evolve for all 'hauls'

Imagine cruising along at 30,000ft in the early years of commercial aviation. Besides sitting in a haze of cigarette smoke, imagine having no idea just where in the world you were during flight, or how much longer it would be to your destination. It is unimaginable today, especially on long, transoceanic flights, to be uninformed during your journey. It is companies such as Rockwell Collins that have eliminated such guesswork.

Back in 1982, a group of bright innovators merged minds at a small company and created the first moving map system for commercial aircraft. The intent was to deliver clear, relevant, real-time information to aircraft passengers using the latest delivery methods. That goal was met, and today Airshow continues to be the dominant product and brand in the air transport market. Not only does the brand heavily command the air transport market, its name is a common adjective to describe any moving map aircraft display.

Rockwell Collins, with a history of delivering reliable avionics and electronics communications equipment for essentially all aircraft flying – including those that made it to the



- 01. Airshow has been critical in keeping passengers informed about their flight
- 02. Airshow is now available as an iPad app

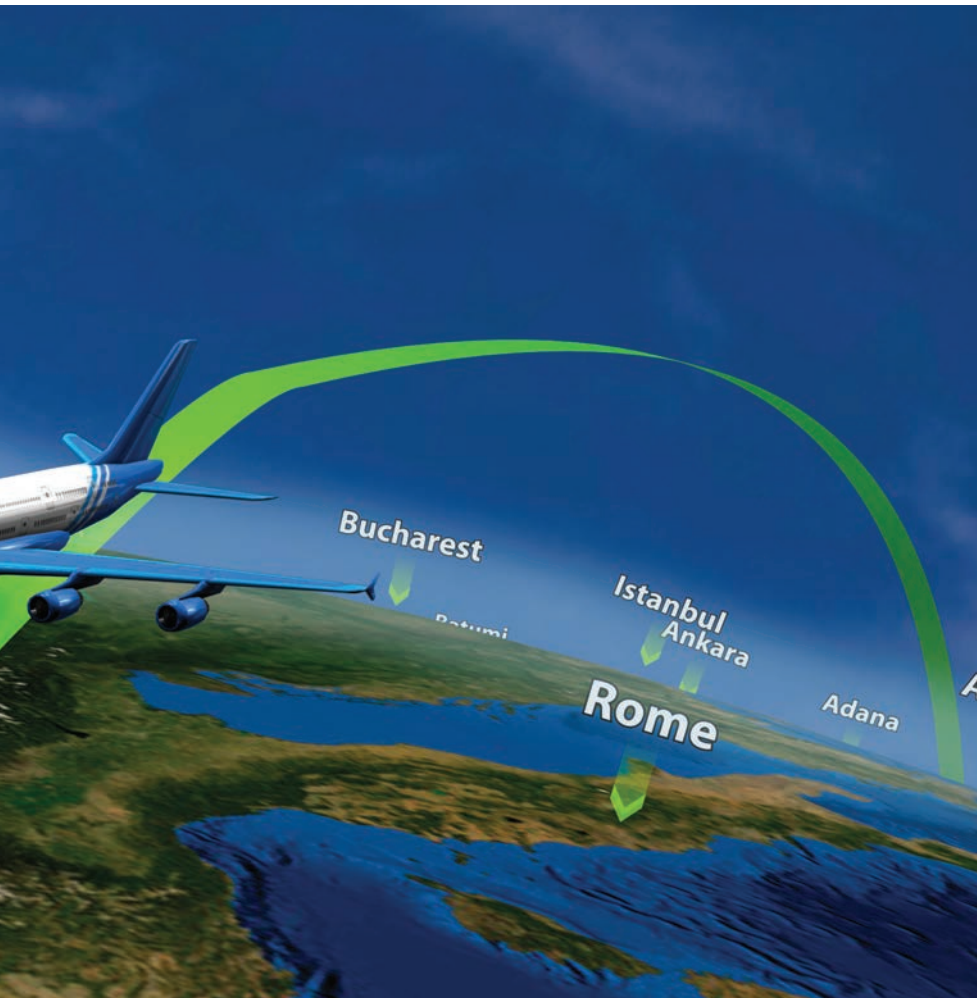


moon – acquired Airshow in 2000. To this day, the moving map system is stronger than ever, with more than 12,500 flying on aircraft today – that is more than any other moving map system on the market.

“Recognising and building upon your past is critical for succeeding in the future,” states Duc Huy Tran, director of cabin systems marketing for IFE maker Rockwell Collins. “We are proud to celebrate 30 years of Airshow and what the system has done for millions of airline passengers throughout the years. Now we have to leverage our success to create new success for the future.”

MAP APP In 2012, Rockwell Collins unveiled an Airshow iPad app solution for the business jet cabin market, which has left many wondering what this could mean for the air transport cabin. Among many of its touch-enabled interactive functions, the app features an industry-first panoramic view that enables passengers to see a moving map of the outside world from any direction the iPad is pointed, as if the aircraft were transparent.

“Keeping in line with Airshow’s original promise of delivering relevant real-time information using the latest delivery methods, we developed an iPad app for Airshow that leverages the



device's technology," explains Tran. "As tablets conquer the consumer market, we realised that Airshow has to be available for this platform to meet passenger expectations."

When asked if the new Airshow app would be available for commercial flights, Tran responded with a smile, saying that it is definitely a possibility.

"We certainly feel there is a business case for this technology on commercial aircraft, especially low-fare carriers that may not necessarily have overhead monitors," adds Tran. "This app would be an innovative way for those on board to stay in the loop about where they are during their journey."

Tran continues, "We're still exploring how to implement the Airshow app in the air transport arena, but for now, it is successfully being adopted in corporate aircraft. The response has been very positive."

Does this mean that Rockwell Collins is abandoning its storied and popular Airshow system that we see on IFE monitors? Tran says absolutely not.

"This new Airshow app is only an extension of Airshow's market-leading capabilities," Tran goes on to say. "We strongly believe that overhead and in-seat IFE for air transport is not going away and Airshow will stand its ground as a vital application for these systems."

“

WE STRONGLY BELIEVE THAT OVERHEAD AND IN-SEAT IFE FOR AIR TRANSPORT IS NOT GOING AWAY”

”

ALL-ROUND ENTERTAINMENT Aside from producing its Airshow moving map, Rockwell Collins is also a major player in the IFE market. Last year, the company revealed its latest offerings for its PAVES family of IFE, which includes a versatile and reliable in-seat solution that is easy to maintain.

"Having our finger on the pulse of IFE system trends and forecasts is extremely useful as we improve the value of Airshow for airlines," states Tran.

That Airshow 'value' really boils down to three things: stunning graphics, advanced customisation, and automation. The passenger experience is enhanced with Rockwell Collins'

“AS TABLETS CONTINUE TO CONQUER THE CONSUMER MARKET, WE REALISED THAT AIRSHOW HAS TO BE AVAILABLE FOR THIS PLATFORM”



03

Airshow, as real-time information is delivered through visually interesting displays and map views using high-definition NASA Blue Marble map data, which is based on actual satellite imagery.

Also, airlines can extend visibility of their brand into the cabin by customising Airshow. Once a suitable ‘show’ is customised, it is essentially hands-off from there. The highly reliable system requires very little attention from flight attendants, meaning they can focus on other priorities within the cabin.

“The level of detail available and the way in which it is presented by Airshow is incredible,” Tran says with confidence. “Those that remember the first Airshow system, including some who helped create the system and continue to work at Rockwell Collins, are bursting with pride in seeing how far Airshow has come.”

Tran adds, “In my mind, there are many more chapters to come for the Airshow system and its possibilities. Knowing that computing technology will continue to increase in speed, processing power and reliability, and aircraft will become increasingly ‘connected’, many doors open for new possibilities and more creative ways to keep passengers informed and entertained during flight.”

Tran feels it is important to mention that Rockwell Collins’ team of top-notch designers and engineers will



03. A compass feature is also available on the iPad app

04. Rockwell Collins is also working on HUD technologies, linked to its Airshow system

lead the development of these new ways of relaying information, while continuing to receive design ideas and feedback from both airlines and passengers.

“Our company is intensely focused on our customers, whether it is Airshow, our avionics, or any of our innovative communication products, and we listen closely to and greatly value their input,” says Tran. “That focus has kept us successful for 80 years and will keep us successful for at least another 80.”

So, the next time you’re flying high above and want to know when you’re going to arrive at your destination, and for you speed junkies, how fast you’re going, be grateful you don’t have to play the guessing game of the past. And better still, as more aircraft obtain internet capability, imagine the possibilities for a system like Airshow. Perhaps it’s letting you know the status of other flights, what live music shows are happening in your destination city, or how long the cab line is at the airport. The possibilities are endless. ☒

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
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Building trust every day

content everywhere

Effective IFE content provisioning is about more than showing movies: it should deliver strong airline branding to everyone the world over

 We live in a world where almost everything is considered content. From the simplest online texts to complex multimedia campaigns, content surrounds us every day.

Content marketing is a new term, but the concept isn't really new. Previously it was called 'custom media' and before that it was 'custom publishing'. Whatever the name, inflight entertainment is, in many ways, the precursor of content marketing. Whether producing line-ups of movies and TV, publishing magazines or creating music channels, the earliest and best form of custom content was created for the traveller. (Indeed, just think of one of the absolute truest forms of content marketing – the *Michelin Guide*.)

Thanks to mobile and social media, products and services are now available for customers to purchase or engage across every environment and mode, including those that were previously considered offline.

Every smartphone-equipped customer is a potential point of sale or point of influence, wherever they are. Customers expect everything from content. They'll read it, watch it, listen to it, play with it and, perhaps most importantly for brands, share it. And they'll do it on the bus, at the gym and at the mall. 24/7.

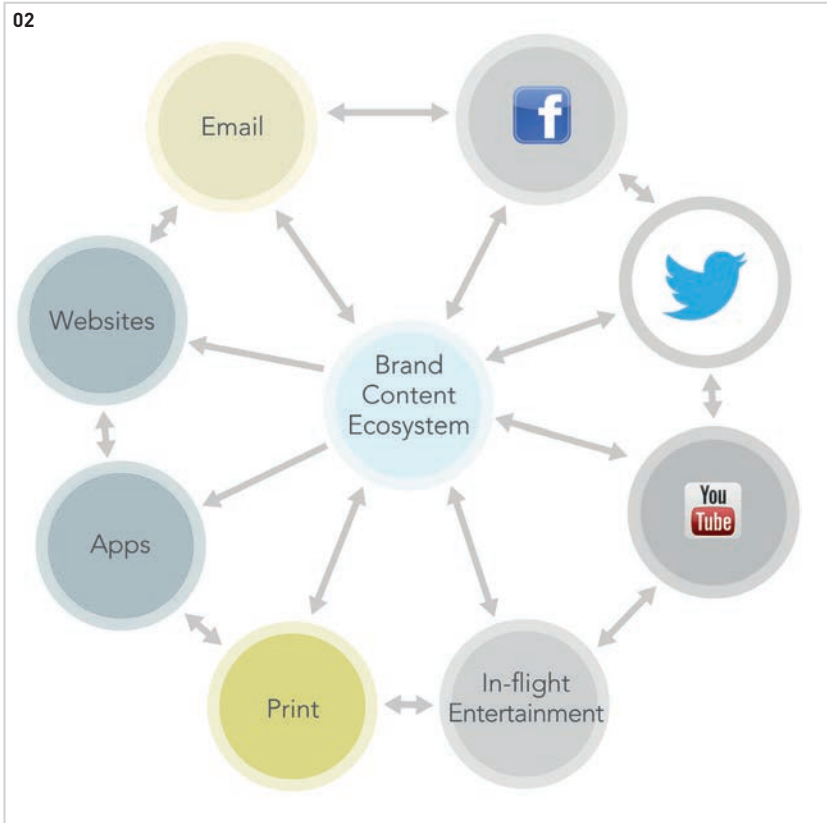
The goal for brands, from airlines and hotels, to pharmaceutical and retail, is to connect the touchpoints of these environments with targeted media solutions, addressing audiences in different modes with entertainment, information and interaction.

As the customer experience for brands evolves into a myriad of touchpoints, content plays its part with greater relevance and greater results. Brands are now publishers who must look to editorial curation, production, design and content strategy across any medium, channel or technology





THERE IS NO BETTER PLACE FOR CONTENT MARKETING THAN ON AN AIRCRAFT



where they can seed enterprise in their customers' experience.

AIRLINES AS CONTENT DELIVERY SYSTEMS Airlines are content providers. Think of a flight as an immersive media experience. Once you have paid your money, cleared security and are strapped into your seat, the screen in front of you is your dominant experience for the rest of the flight.

There is no better place for content marketing at its most powerful and resonant than on an aircraft. From the emailed e-ticket and onboard welcome video, to the inflight magazine and GUI, every platform plays a role – even

the safety videos. But what's essential is seamless integration between the airline's marketing and communications voice and how it talks to passengers on the seatback.

Providing movies, TV, games and audio to airlines is much more than an engineering, operations and procurement problem – it is a powerful opportunity for airlines to enhance their customers' experience throughout the journey cycle. It is a chance for airline brands to change the fickle, informed and transient passenger's underlying perception of the quality of service provided by the airline – for better or worse.

- 01. Spafax employed a cross-platform family of media products to help Air Canada celebrate its 75th anniversary, including a special book
- 02. A few of the media platforms currently available to deliver a brand message

The IFE business often feels as if it is fighting a losing battle against fragmented media consumption and fragmented media platforms. Always one step behind the rest of the entertainment-technology business and relying heavily on evergreen legacy provisioning. (Supporting ageing fleets with highly complex, multiplatform, multiplatform media files for their old embedded seatback systems.)

While this is true, it is not where the entire future of the IFE business lies. It is true that many passengers bring their own media on board, making inflight content provision obsolete, but by using content, packaging and high-quality consumer communications to add real, measurable value to the overall service provided by the airline, IFE providers can remain relevant and valuable. IFE is, after all, a service.

Every airline has the opportunity to claim its unique position in the marketplace, whether it is a trendy new player with a brand-new fleet, or an ex-national carrier with 75 years of transport heritage and airframes ranging from Dreamliners to 20-year-old Airbuses.

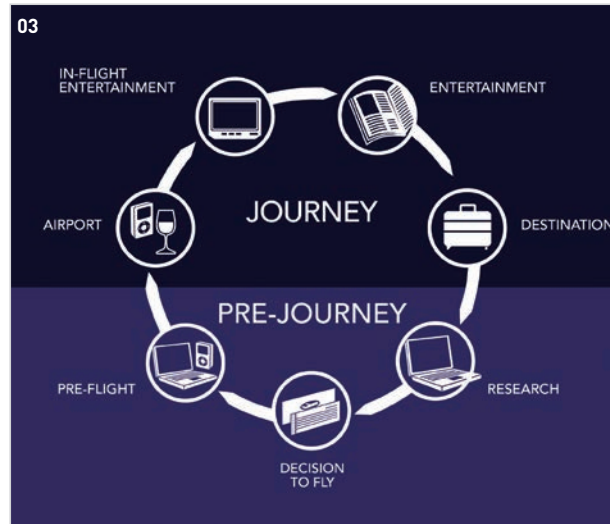
Air Canada, for its part, understands that it is not just an airline. It is Canada's pre-eminent travel brand and, as such, it is in many ways the place where Canada and the world come together.

The airline understands that its media outlets transform it into a multiplatform content platform (print, digital, mobile, video) that has become a powerful, and profitable, sub-brand. The enRoute media brand and its embracing of true journey-cycle thinking enables the airline to create and curate valuable service for its customers on and off the aircraft. It is a brand extension and enhancement in the truest sense of the word, and the essence of content marketing.

PLATFORM AGNOSTIC It has become a cliché to say that inflight entertainment is no longer just about movies on an aircraft. We know it is not just about movies, as TV, audio, games, learning, social media and connectivity have become integral parts of the overall airline passenger experience. But it is no longer just about aircraft either.



IFE IS ABOUT THE LINKED SYSTEM OF EXPERIENCES THAT TAKE PLACE AT EVERY STEP OF A CUSTOMER'S CONTACT WITH AN AIRLINE BRAND



03. While the passenger is most immersed during flight, many other opportunities are available throughout the whole journey

It is about the linked system of experiences that take place at every step of a customer's contact with an airline brand. It is the connection between the real-time activity of travel with the planning or ideas that inspired it: the purchasing of flights and products, plus the information, communication and entertainment on board. It is the time spent at the destination and the memories that accompany you on the return.

Today's brands need to be platform agnostic. The internet is here to stay and as mobile adoption increases, digital and social platforms will become even more powerful tools for engaging – and monetising – your customer base. But there is still a time and place for print, TV, audio, out-of-home and even face-to-face. In fact, as technology enables us to connect with people around the world, conferences and networking events have become more

popular than ever. The International Consumer Electronics Show, SXSW and TED have become *de rigueur* events in the worlds of media and technology and brands; agencies and even magazines are entering the live-event business.

Airlines are uniquely positioned to benefit from a Content Everywhere world. Where else are consumers so captive and hungry to be looked after? When safety and engineering are taken for granted, people quickly focus on their experience.

For airlines to punch above their weight in terms of consumer perception, they need to move from the business of putting only movies on aircraft into providing a rich branded-content experience for passengers that supports the values and tone of the brand. And they must do so wherever in the world their customers may be. Meaning everywhere. ☒

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
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brightfuture

On the back of big success for such a young seating company, Geven shares its vision for the future

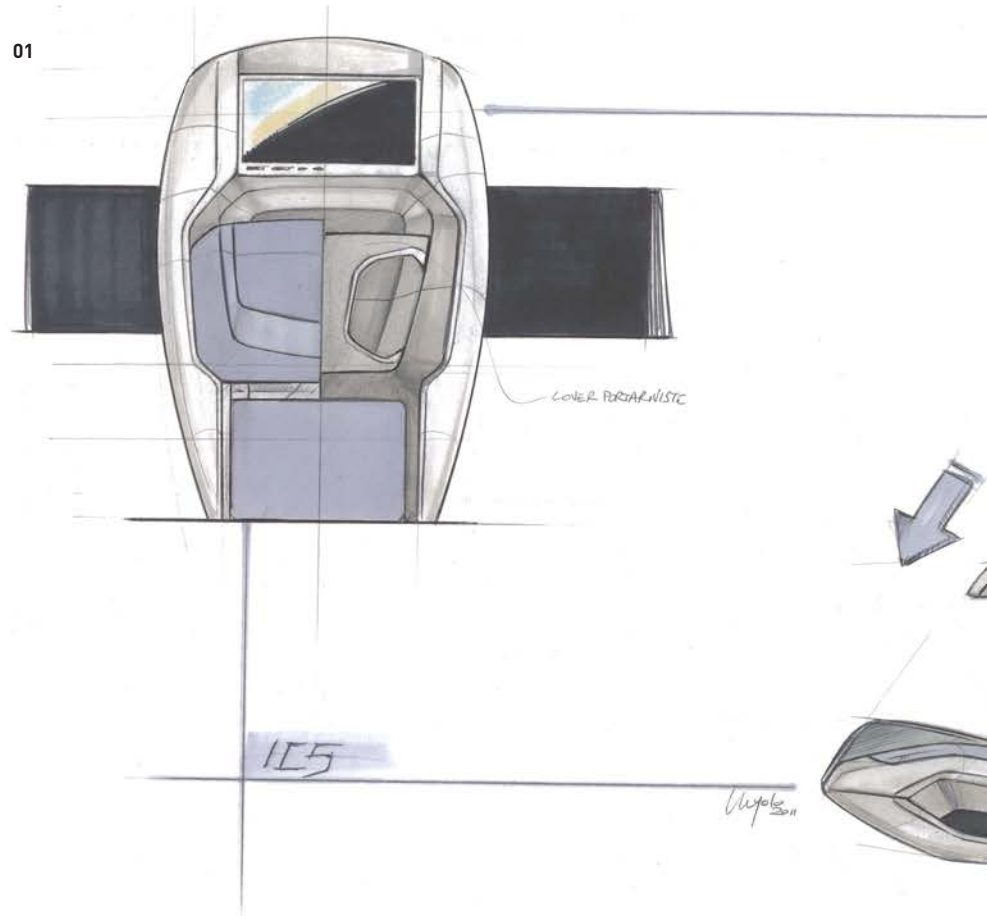
 Geven Aircraft Seating & Interiors of Italy is one of the aviation cabin interior sector's most recent success stories. In just six years, the company has entered the Airbus-approved BFE vendor catalogues, for both narrow- and wide-body aircraft, due largely to Geven being a step ahead of the market's needs and demands.

"The continuous quest for cutting-edge technology and innovative design solutions has been paying off, with a considerable audience of an ever-growing number of airline customers worldwide," says Doria De Chiara, vice president of business development at Geven Aircraft Seating, and a key figure in creating the business relationship with Airbus.

At present, the challenges in meeting the near- and medium-term market trends are undoubtedly essentially represented by the following main target objectives: weight reduction; comfort, ergonomics, living space and functionality at restricted pitch ranges; a reduced cost of ownership and low expendable parts count.

Based on recent market success and increasing volumes of deliveries, Geven has successfully addressed the above challenges with its super featherweight Piuma economy class seating product,

01



01. 'X' design studies for the Comoda's armrest

02. The finished product, complete with stowage space for a tablet



which offers lightweight materials and great ergonomic awareness in design.

"The Piuma seat model also requires very little maintenance thanks to the multitasking features of its key components and therefore the significant reduction in the number of consumables present," says De Chiara.

Never static, Geven has also created a dedicated R&D team in order to recognise and win new challenges.

"Any company," says Fabio Liccardo, Geven's technical director, "at some point in its life feels the need to create new products that do not simply follow the trend of the market, but rather have the ambition to create it."

To achieve this aim, in 2011 Geven created an area called 'X', where new ideas could find form. This new department took inputs from sources

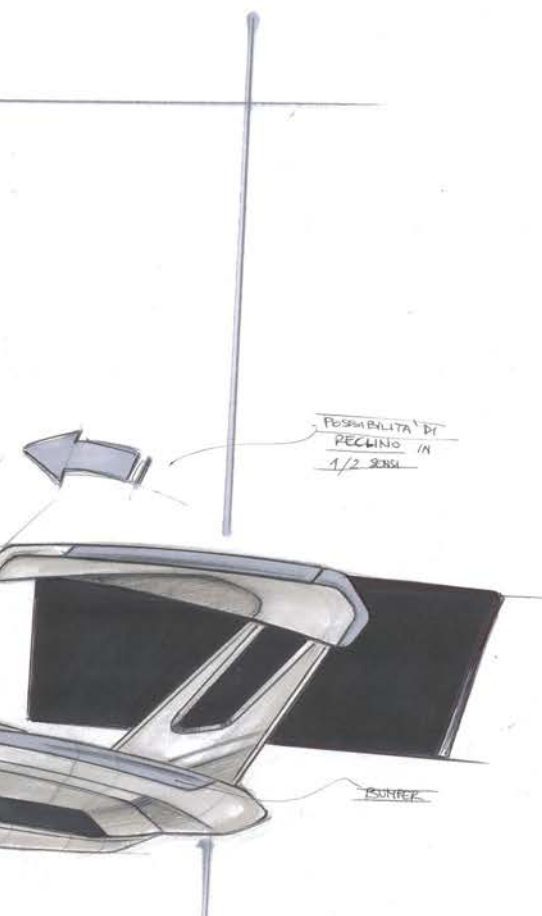
such as marketing and sales, which asked for new product portfolios; customer support, which asked for performance improvements of existing products; engineering, which asked for new material and technology research; and operations and production, which asked for product industrialisation and cost reductions.

Based on continual internal meetings, such inputs are individually analysed to define each scope of work for new research projects.

Once the scope of work is defined, all the R&D activities can be defined, beginning with the general product architecture definition. Next are quantitative indications of the main new product characteristics (weight, dimensions, performances, etc.) in order to estimate such quantities with



THE QUEST FOR CUTTING-EDGE TECHNOLOGY AND INNOVATIVE DESIGN HAS BEEN PAYING OFF



a maximum approximation of 10-15%. Finally, the company can estimate the amount of resources needed to create the new product.

INNOVATION “With this approach,” Liccardo continues, “we were able to achieve the weight reduction of the Geven Y/C Piuma to the Piuma EVO, a variant that will weigh at least 25% less and which will begin delivering to airlines in March 2013. Even lighter weight and more innovations in material and design solutions are the secret to the Piuma EVO.”

At Aircraft Interiors Expo 2013, the company will launch a new lightweight business class seat, suitable for both narrow-body and wide-body applications. Pasquale Rapullini, head of the ICS R&D department at Geven,



describes the newborn Comoda as the result of the Geven R&D team's studies and exhaustive research in new materials.

Besides weight reduction, the Comoda is the result of R&D studies aimed at creating a fully functional and fully optional higher class product, dedicated to pitches starting at 36in.

The seat immediately captured a deep market interest, especially due to its enticing design, which is inspired by Italian style and high-end luxury car interiors ('modern' and 'fast' were the words inspiring the research for the Comoda). Even though it is still in the design development phase, the Comoda can already boast a couple of important customers who are committed to taking delivery of large volumes of this new seat. They intend to equip their medium-range fleets of Airbus and Boeing aircraft with the seats on delivery.

Research and new design solutions always have to be matched with aviation rules and customer qualification requirements, as well as being part of daily efforts to improve the quality of products and processes.

Within Geven's organisation there are people tasked to look into these issues and make it possible to create a nice design concept or transform a new idea into a real and certifiable product.



Alessandro Riviezzo, certification manager at Geven, says it is fundamental to develop the capacity to foresee medium-term requirements coming from aviation authorities (namely EASA and FAA), as well as OEMs in terms of certification or qualification and testing.

“This ability,” states Riviezzo, “should direct the efforts of our engineers to follow a certification path. The latest requirements regarding heat release rate, introduced by EASA, or the new FAA pressures for ever more total integration with IFE, are examples of regulations evolving and impacting the development of new products. New regulations are often aimed at increasing overall passenger safety. Therefore at the same time they may greatly complicate the work of those having to design more secure and modern seats into a continuously evolving scenario.”

This effort into research and innovation will see Geven continue to look into the future of air transport seating products in order to proactively anticipate market trends and directions and, in harmony with them, create a seating product line that is always one step ahead. ☒

- 03. The Piuma EVO weighs at least 25% less than its predecessor and has an optional high literature pocket for your favourite magazines
- 04. This middle plug-in table can change a triple Y seat into a double C-class seat on single-aisle aircraft

Contact: sales@geven.com
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againstthe grain

Lightweight, durable and comfortable, Ultraleather has been designed to beat leather at its own game



It's easy to understand why leather is so popular – it is soft and smooth, with a cushion-like feel and sumptuous texture. But in aircraft seats, there are drawbacks. Leather is heavy, not very durable, sometimes uneven in manufacture, and hard to clean and maintain. It's also quite expensive.

With Ultraleather from Tapis, these problems can be eliminated. That's because it is a technologically advanced polyurethane product. It was created to do everything leather and composite materials made of recycled leather waster fibres can do – only better. It has also been continually improved with state-of-the-art technology over the course of more than 30 years on the market. Today, it's actually an overall better aircraft seating choice than leather, right across the board.

- 01. The Fresco range of products has a polyurethane surface with a ventilation system that breathes
- 02. Ultraleather helps ensure your seat remains cool, dry and comfortable on a long flight

COST AND WEIGHT SAVINGS

Ultraleather is extremely lightweight and also stronger than leather, with much less shrinkage after cleaning. It's less than half the weight of leather, and less than half the cost, too. This



translates into two types of savings – comfortably lower fuel costs from less weight, and lower overall cost from reduced product price.

Ultraleather is also less costly than recycled leather fibre products. Leather remnant/synthetic fibre combinations are a bit more durable than leather and do weigh less, but they can't measure up to Ultraleather on either of these two advantages. Combination products also lack the tactile feel and luxurious touch of leather – another area in which Ultraleather excels.

CONSISTENCY Tapis guarantees that Ultraleather will give 100% yield. It has a totally uniform texture without scars, flaws, or product irregularities. This makes the fabric completely usable. And because it has been formulated

from premium-grade polycarbonate polyurethane, the result is a consistent and luxurious high-performance seating product.

Ultraleather has also been manufactured with an eye on usage and maintenance, and wear tests find it highly resistant to abrasion. It also rates highly in terms of crack resistance, without losing its soft, supple feel. Cleaning requires only soap and water – no harmful cleaning solutions. All these benefits add up to a healthier, longer lifespan than leather or leather remnant/synthetic products.

BUILT TO LAST Tapis makes sure the quality of Ultraleather begins with 'Takumi' technology – the dedication of craftsmanship, perfection and consistency in the creation of all high-



THE RESULT IS A CONSISTENT AND LUXURIOUS HIGH-PERFORMANCE SEATING PRODUCT



rayon for dimensional stability and long-lasting comfort. The excellent durability of all these properties means longer life, less to replace, less waste, and less cost.

NEW PRODUCTS Two Ultraleather products have a special application for the broad aircraft seating market – both are infused with an EPA-registered, silver-based anti-microbial agent. With today's large passenger loads and quick turnarounds, keeping germs at bay is increasingly important.

First is Promessa, an extremely soft and durable fabric with an innovative two-tone texture. Understated neutral colours complement timeless classics. When it comes to high-use areas, Promessa stands up extremely well in the most demanding of environments.

Meanwhile, Fresco is a breathable fabric with typical Ultraleather durability and softness, and an added bright colour palette with 28 choices. With its earthy tones and neutral colours, and a choice of textural surfaces, Fresco offers many new possibilities for bold-looking seating in the sky.

performance products. Looking at the relative thinness of the finished material, it's hard to believe there are four layers in every fabric. It starts with a protective surface layer that is resistant to stains and liquids, while also providing extra durability and ease of care.

Next, the permeable skin layer provides resistance to ageing and abrasion, as well as UV stability and anti-microbial protection.

Then the microporous layer adds a cushion for greater softness, and also provides all-temperature comfort via thermal conductivity. If you've ever had a leather seat on a long flight, you'll certainly prefer a cool, dry surface to one that may be moist and sticky.

The substrate layer strengthens the material with wet-spun reinforced

CUSTOM DESIGN The sky's the limit in terms of design possibilities, with the use of a custom-matching programme that offers a comprehensive product range for creating an original cabin and seat design. And the choices will be in stock, not in back order.

Tapis produces environmentally conscious products with a focus on a healthy indoor air quality. Additionally, the manufacturing process used to create Ultraleather is based on the conservation of raw materials, minimum use of natural resources, and toxin-free procedures. All products are free from PVC (vinyl), halogenated fire retardants, persistent organic pollutants, and any other toxic by-products. They are also odourless, skin-friendly and allergen-free.



Ultraleather has been around for more than 30 years, and Tapis was a pioneer of the special processes that align seating fabrics with stringent aeronautical specifications. The company also led the market in applying creative new fabric techniques to aircraft seating, including appliqué, embroidery and screen printing.

This innovative scope of technological advancement and the premium quality of its products have made sure that Tapis has been a market leader in this field for many years. ☒

03. The Promessa anti-microbial range combines durability with a luxurious, innovative, two-toned texture

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caseclosed

Through clever design, Zodiac Aerospace is hoping to tame the wildness of overhead bin stowage



When air travellers embark on a journey, they usually share two common concerns: they have things to carry on board, and they need a place to stow them. Passengers nowadays are especially concerned about how their luggage flies with them. With airlines charging for checked baggage, more people now carry on roller bags to save money.

As a result, overhead bins often fill up before boarding is finished. If space runs out and it leads to confrontations with others who have not yet stowed their luggage, or bags are unexpectedly gate-checked, these events can delay flights and upset the experience of flying. And when carry-ons end up in the cargo bay, it can cause anxiety in passengers who want to be near their bags while travelling. It can also displease frequent flyers who are forced to visit a baggage claim carousel.

It is important to consider how we as an industry can improve the situation. One approach is to retrofit new bin systems into aircraft to increase roller bag capacity. Although each aircraft type has its architectural quirks to deal with, in most cases, older aircraft are limited to stowing roller bags longitudinally. To improve stowage capacity, Zodiac Airline Cabin Interiors can engineer retrofit bin systems that allow bags to be stowed transversely.

A 767-300 for example, with Boeing Service Bulletin 767-25-0336 implemented, can hold approximately 114 roller bags. By supplying airlines with pivot bins to replace the OEM's



shelf bins – as Zodiac Aerospace is doing for United Airlines and Austrian Airlines – the roller bag count increases to approximately 170 bags per cabin. Likewise, United Airlines has a similar problem with bag stowage in its narrow-body Airbus fleet. In this case, Zodiac Airline Cabin Interiors was awarded a contract to supply a deeper door system to replace the OEM's door assemblies. When installed, the retrofit kit enables most roller bags to be stowed transversely, raising the bag count in A319s by about 36, and in A320s by 42.

While this is great news for many, some frequent flyers remain sceptical about new bins providing a total solution to the carry-on problem. They comment in travel blogs and forums that roller bag manufacturers will just make bigger bags to fill the bigger bins, and passengers will continue to try and sneak them on board with too many other carry-ons in tow.

Naysayers aside, a plethora of people online believe that if airlines would just enforce their own policies for carry-ons, things would be better. It is encouraging to hear and read stories lately about airlines becoming more

strict about carry-on limits. Passengers who are abusing the system are having their oversized or excess bags gate-checked and being assessed for fees when necessary.

Beyond that, introducing new technologies or more premium services could potentially help here, too. What if ramp agents could use real-time tracking programs to limit the amount of larger carry-ons they allowed down the jetway? If a smart system indicated the overhead bins should be full in a particular section, pull aside bags that are destined for those areas, gate-check them, and avoid a confrontation on the aircraft. Regarding a premium service for larger jets, could airlines find a cost-effective way to offer a jetway baggage claim for gate-checked carry-ons, without affecting turnaround times?

No matter how it is done, everyone knows the handling and stowage of carry-ons must be improved. We see progressive airlines making investments to reconfigure aircraft with bigger bin systems, proving their commitment to improving customers' experiences. ☒

Editor's Note: Zodiac Airline Cabin Interiors was previously known as Heath Tecna

- 01. Zodiac's A320 Pillow Door System
- 02. A United Airlines 767-300 with NuLook® Pivot Bin Interior installed



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A ZODIAC ENGINEER'S COMPLEX EQUATION

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PROJECT AMBER » 737/757

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Designed as an innovative retrofit kit, Project Amber offers contemporary styled components including half-oval lowered ceilings, a patent pending overhead bin system, intuitively designed PSUs, sculpted sidewalls with wider looking reveals, and LED mood lighting. To learn more about Project Amber's unique features, available options, and our 2012 Q4 launch flight, contact a Zodiac Airline Cabin Interiors representative.



Project Amber's deep bins hold up to 7 bags on their sides per 80" module and utilize a bin assist system.

*Cabin capacity for roller bags is determined by aircraft model, OEM bin type, and interior configuration. The stated increase in baggage capacity is based on a 737-800NG baseline aircraft.

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FOR UPGRADING A NG FLIGHT EXPERIENCE



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
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lightfantastic

Thermoplastic alloy sheets can give aircraft window shades a lift in performance

 Window shades must exhibit extreme durability, minimise weight, withstand thousands of use cycles, conform to stringent FAA fire ratings, and meet the pricing requirements of cost-conscious airlines.

It is difficult to develop shades with these properties, according to Magee Plastics, which supplies all major US airlines, many European airlines and distributors worldwide. The company starts by using a proprietary, two-colour, thermoplastic sheet developed specifically for the application, called Boltaron 9250C.

The sheet exhibits high opacity in bright-light conditions, and high resistance to impact, abrasion, staining and harsh cleansers. It also meets FAA regulations for flammability, and is intended for thermoforming and related processes, which, in Magee's case, includes vacuum forming.

Magee applies the sheet for various window shades destined for new aircraft and aftermarket shades.

The shades vacuum-formed from 9250C sheet have a grey backing on the outer layer to maximise their light-blocking properties, while the interior layer is a different colour that matches the cabin decor. Most of the interior colours specified are Boeing-equivalent shades that match the original window shade colours on new aircraft. Only 1%



01. Magee specifies 9250C alloy sheeting for vacuum forming of window shades incorporated into window assemblies

02. Magee injection-moulds window components into which thermoformed shades are installed



of the aftermarket shades that Magee produces require custom colours.

The shades are 53.3cm long, 30.4cm wide and 1.27mm thick. The company cuts blanks for the shades from 9250C sheet and fabricates them in a specially configured process.

The engineering staff of Magee and Boltaron often collaborate to meet changing requirements, with Magee providing a wish list of performance needs for Boltaron to fulfil.

One example involved a higher heat-resistant version of 9250C. A higher heat deflection temperature was required, without incurring price increases to achieve it. The sheet supplier was able to reformulate the material and raise its heat deflection temperature to a range of 93.3°C to 98.8°C, from 82.2°C to 87.7°C.

The company estimates it can be 50% less expensive for airlines to source window shades from Magee than from an OEM during refurbishing of fleets or replacing interior components. According to Magee, as airlines seek to reduce the cost of high-use items such as window shades, competitively priced options are very attractive,

especially if they are functionally equivalent to OEM versions.

The aftermarket business is good for the company, as there is strong demand for window shades, and a lot of business is under way worldwide as airlines refurbish their aircraft.

In addition to window shades, Magee thermoforms aircraft window panels and other interior panels of honeycomb and composite prepreg materials. The company also pressure-forms, compression-moulds and injection-moulds components for aircraft interiors.

Boltaron sheet products are offered in gauges from 0.076-76.2mm for thermoforming and fabricating of components for aircraft interiors.

The company is the only producer to offer calendaring, extrusion and press-laminating of sheet products. Each of these processes produces a range of products with distinct qualities. As importantly, sheet produced using more than one of these processes can be fused in-line or off-line to create a far wider selection of sheet products than any single production process can achieve. ☒

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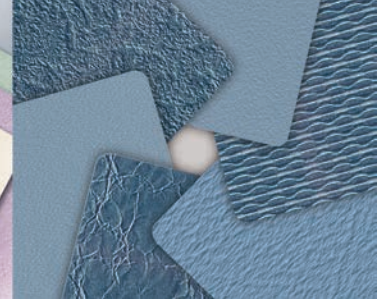
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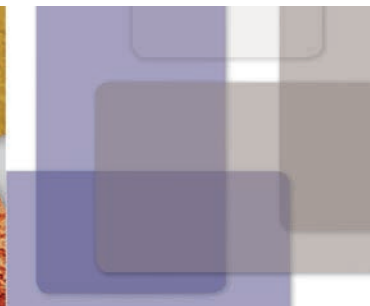
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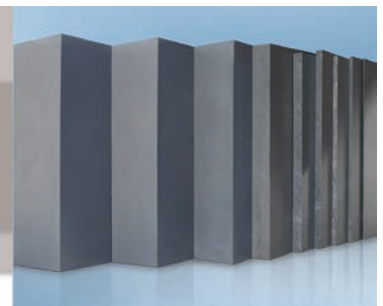
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
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forwardthinking

New management, facilities and products are set to take Aerolux to the next level, but the company's focus on quality and innovation will remain the same



01

 Aerolux, a specialist galley inserts company based in the UK, is renowned for its Nespresso coffee machines, wine chillers and fridges, and speciality products including rice cookers and skillets. The company is now under new management following the sad passing of founder owner, Ken Metcalfe, in June 2012.

The new team is to be headed-up by Tony Robinson, best known as the founder of Aircraft Interiors Expo, who takes on the role of executive chairman and CEO. He will be joined by another key member of the original Aircraft Interiors Expo team, namely Rob Shelton, who spent many years working on the show as one of three international sales coordinators. Shelton has already spent three months familiarising himself with the company's products and some its longstanding customers, and it is his mission to meet each and every Aerolux customer during the coming 12 months.

Robinson, who has played a passive role on the board of Aerolux for the past three years, explains, "Although I remain heavily committed to my role as chairman and CEO of UKIP Media &

02



- 01. Tony Robinson, CEO of Aerolux and founder of Aircraft Interiors Expo
- 02. Rice cookers are just one of the many galley options
- 03. Toast, or even a toasted sandwich, can be made using the special Aerolux toaster

03



Events, the global media and exhibitions company that I founded 21 years ago, the excellent team I have there enables me to now devote a significant amount of time to the future business development of Aerolux.

"The company has many excellent attributes, not least a fantastic commitment to quality, and very experienced staff with great skills. It is now time to harness these strengths to move Aerolux forward. We will be unveiling new and improved products in coming months, and working closely

with customers and key strategic partners to build on what is a very strong base," adds Robinson.

Aerolux continues to operate from its headquarters in Blackpool, UK, where much investment has recently gone into new buildings. This is just the start of a long-term growth and investment strategy, according to the company. Key established staff, including Noel Ellison, Sylvie Abina, Dave Brennan and Peter Robinson, will continue to work alongside the newer appointments. ☒

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looking ahead

Following the completion of its growth strategy, Diehl Aerosystems is now tackling consolidation and operational excellence

- 01. At Aircraft Interiors Expo 2012, Diehl Aerosystems demonstrated its portfolio for aircraft interiors
- 02. The former enterprise Mühlenberg – now ‘Diehl Service Modules’ – adds galleys to Diehl’s range of products
- 03. With its Eco-Line concept, Diehl won an e-auction for the A320’s all-LED cabin lighting

The past four years have been a big success for Diehl Aerosystems, as it has grown to become a Tier 1 supplier for avionics solutions, as well as a preferred partner for cabin integration in the global aerospace industry.

The nucleus of the corporate division was the avionics supplier Diehl Aerospace. Following the acquisition of Diehl Aircabin (the former Airbus site in Laupheim) in 2008, the Hamburg-based lavatory manufacturer Dasell became part of the company in 2010. Continuing its strategy of expansion, Diehl Aerosystems completed the takeover of galley manufacturer Mühlenberg in 2011. Now with almost 3,500 employees, Diehl Aerosystems generates an annual turnover of approximately €700 million (£560 million): both of those figures have tripled since 2008. The corporate division of the Diehl Group has now finished the phase of acquisition.

The product portfolio is divided into two areas: aircraft systems – cockpit and flight control systems, avionics platforms, utility systems,



interior lighting and safety and supply systems; and cabin interiors – floor-to-floor linings, monuments such as crew rest compartments, air ducting, galleys, lavatories and VIP furniture. The present product range is a unique blend of services and products that enables Diehl Aerosystems to provide its customers with integrated packages and individual, customised solutions. With the acquisition of Mühlenberg and its expertise in buyer-furnished equipment, the corporate division now also has a stake in the retrofit market.

Currently, the company is focusing on integration, consolidation and operational excellence. Improving delivery performance is the key to sustainable success: delivering on time, within the budget, and in a given quality, are vital demands that have to be met in order to be perceived as an excellent supplier to the industry. Integration and harmonisation of the processes within the corporate division are crucial prerequisites to achieve this goal and to benefit from synergies.

The gratifying result of the e-auction that Airbus initiated for A320 Eco-Line

all-LED cabin lighting shows the first steps towards operational excellence have been taken successfully. In July, Diehl was able to make the best offer in the e-auction. By developing and manufacturing an all-LED lighting solution that is no more expensive than fluorescent tubes, Diehl has proved its competitiveness in terms of cost-efficient development, and its ability to pursue innovative approaches.

A major step towards integration was the successful rebranding of the business units Dasell Cabin Interiors and Mühlenberg early this year. Since the rebranding in January 2012, Diehl Aerosystems has been presenting itself with a consistent branding. Dasell Cabin Interiors is now called Diehl Comfort Modules and Mühlenberg is now referred to as Diehl Service Modules. Diehl Aerospace and Diehl Aircabin complete the quartet.

At Aircraft Interiors Expo in March, the rebranded Diehl Aerosystems presented its portfolio, including a large cabin mock-up, and an innovation area that featured a number of future products. Among these were





DIEHL PROVIDES ITS CUSTOMERS WITH INTEGRATED PACKAGES AND INDIVIDUAL, CUSTOMISED SOLUTIONS



three finalists of the 2012 Crystal Cabin Awards: the Modular Glued Cable Bracket System; the Eco-Line Cabin Illumination Platform; and the Changing Room. The Changing Room is an extendable module that can be pulled out after take-off to provide a dedicated space for changing clothes, without losing cabin revenue space. Rather than use a small lavatory to change clothes before landing, a separate changing room, as proposed by Diehl Aircabin, provides a convenient environment, with a textile floor, large mirror, and shelves for items such as shirts or cosmetics. For emergencies and landing, the module can be collapsed very quickly.

Another innovation was the Pax Recognition System for boarding,

a system for automatic passenger identification on board the aircraft. The system uses biometric face identification algorithms in order to verify passengers' identities as they enter the aircraft. The system can be used to improve existing processes such as boarding status, turnaround time prediction, and passenger guidance. In combination with a profile database, the system can be used to offer personalised services to passengers, providing added value for the airline to market seats. Diehl is monitoring how the innovations are received by the market. ☒



Contact: communications@diehl-aerosystems.de
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wiggleroom

Claire Nurcombe from Airbus explains why space and light are the key factors that make its aircraft interiors popular, and why comfort is not just about pitch



The two main values at Airbus are space and light. Space is very important because unfortunately we're all getting larger and we need to accept that and deal with it in the cabin. We need to make things comfortable for every passenger, whatever shape and size they happen to be. People in the USA are considered to be growing, but in fact people in the BRICS countries are growing faster than people in Europe and the USA, so everywhere has the same problem. Is this going to change? I've noticed that there are calorie counts on menus nowadays, but I don't think things will turn around in the near future, if at all.

How will this growth affect seat design? There are two aspects to seat design. First there's the pitch. We always talk about pitch, but it is a one-dimensional solution to a three-dimensional problem. We have to take into account that we are three-dimensional beings and we don't just exist in pitch – we need to look at width as well. Of course as we get wider we need wider seats to accommodate us more comfortably. This was the basis of some research we conducted – we took a bunch of normal people, sat them down in an aircraft cabin in different widths of seats with different pitches and got feedback on comfort (versus a baseline setup).

We found something very interesting – and I think this was a surprise to Boeing as well when it did similar tests and came up with almost exactly the same results. You get the same comfort rating with a 17in-wide seat at 1.5in more pitch as with an 18in seat at the standard pitch. Passengers need space, whether that is pitch or width. We believe that an 18in width really is the standard for comfort, so we have that on all our current product, from the A320 to the A380. Boeing also has it on the 777 at nine abreast and the 787 at eight abreast. It really is what you need for maximum comfort.

We provide the most amount of usable space in the aircraft fuselage in which to install seats. After that, when we talk about legroom, it comes down to the seat manufacturers and the airlines. There are a lot of developments in slim seats, so while pitch is decreasing, the living space is actually increasing, with ergonomic

backrests, and beams being moved out from the knee and shin space.

And what of lighting?

Making music out of light is another of our core values. Lighting is important in the aircraft as you can use it to create different atmospheres, help alleviate jetlag, create a more comfortable feeling generally, and even brand the cabin. You can change the atmosphere completely using mood lighting. We started with the A330 and A340 families, with the first installations of mood lighting in the industry. Now we have it in the A320 family, the A380 is full LED, and the A350 will take that a step further. In-service aircraft aren't neglected; we don't just launch an aircraft into the wild and that's the end of it – we constantly upgrade to maximise cabin value. Things don't stand still in this industry – they change, merge and disappear, and we need to keep on top of that. ☒

about the author

Claire Nurcombe studied aeronautical engineering in the UK and joined Airbus in 1998, holding several roles within customer support and engineering directorates, in France and Germany. She joined the aircraft interiors marketing team at the beginning of 2009 from the Airbus engineering design office, and is now the team's focal point for seating products, and passenger comfort and well-being. Her responsibilities involve driving Airbus's product offering to anticipate and meet the latest trends for the cabin.

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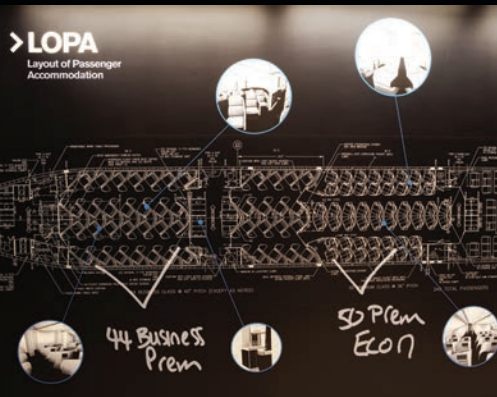
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Aircraft Interiors Expo Hamburg 2013.....29	Factorydesign.....49	Recaro Aircraft Seating GmbH...Inside Front Cover
Aircraft Interiors International Online Reader Enquiry Service.....22	Flight Interiors Ltd.....Inside Back Cover	Rockwell Collins.....127
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Business Jet Interiors World Expo 2013.....5, 6	MBLM.....57	TXS Industrial Design, Inc.....103
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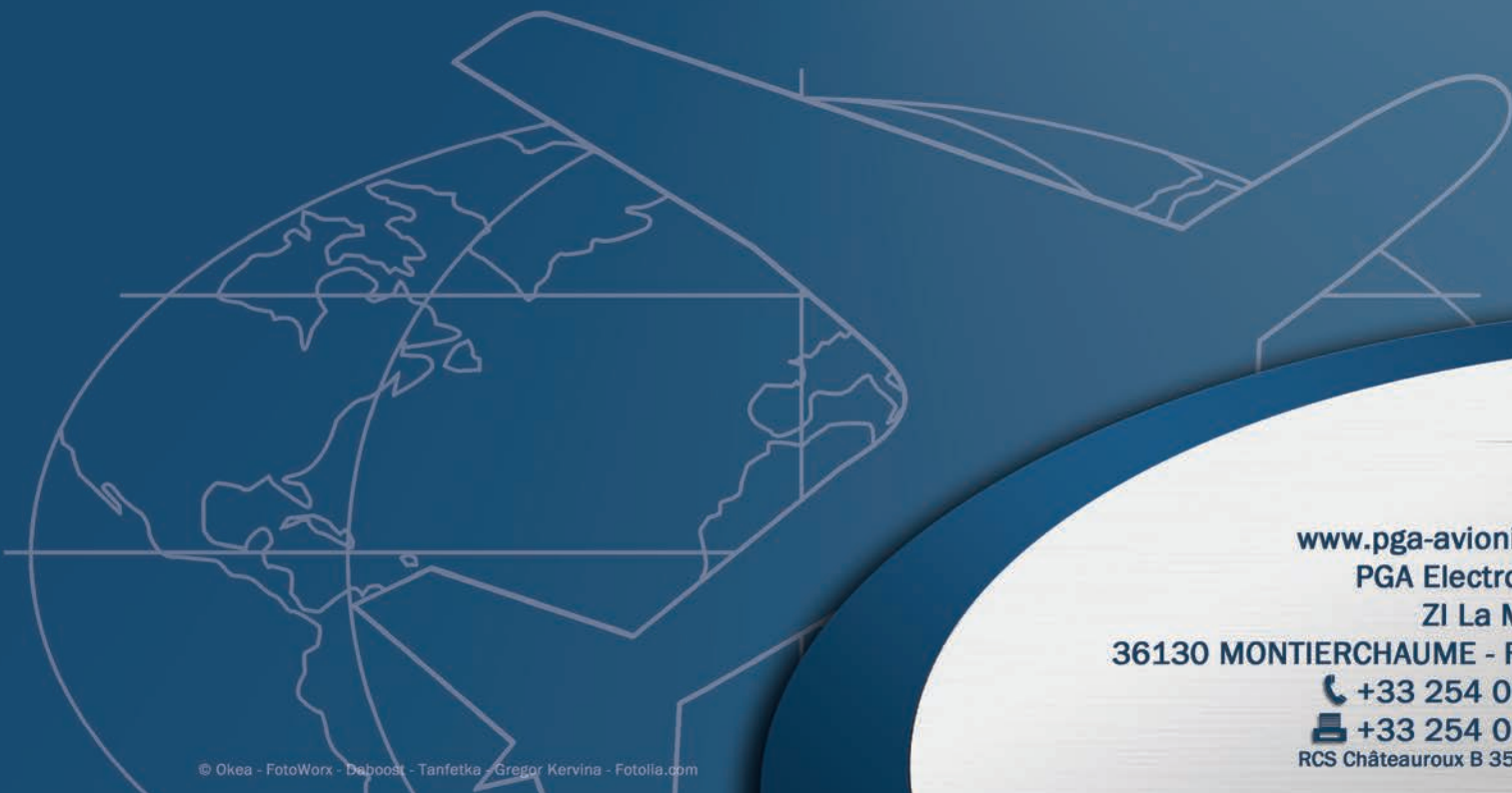
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