

BusinessJet *interiors* INTERNATIONAL

JANUARY 2014

THE INTERNATIONAL REVIEW OF BUSINESS JET INTERIOR DESIGN AND COMPLETION

smallwonders

THE FALCON 5X'S GENEROUS CROSS-SECTION MAY IMPRESS
BUT IT'S THE THOUGHTFUL LITTLE DETAILS
THAT WILL WIN HEARTS



 ALSO IN THIS ISSUE: SEAT COMFORT **CATERING SAFETY APPS GRANDE 870CJ** LARGE MONITOR INSTALLATIONS **NEW MATERIALS**

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detailtherapy

I suspect that most people have written a CV at some point that included “great attention to detail” among the characteristics that were supposed to set them apart. It’s a phrase that is often deployed in a box-ticking fashion and, therefore, ironically, one that must always be questioned.

However, I have to admit that the attribute could justifiably be claimed by the designers of the new Falcon 5X cabin, featured on page 22. They have understood that it is not broad strokes that win over folks, but lots of little things that might not be noticed at first – comforts that have a cumulative and perhaps unconscious effect on a passenger’s enjoyment of the space. And when these details are consciously noticed, they perhaps go some way towards cementing the perceiver’s faith in the care that has been taken, and the overall quality of the product. This is the essence of emotional engineering – great attention to detail.

I suppose clichés such as this have become clichés for a reason – the sentiment they express is deemed important. I would have guessed that attention to detail was important in catering, but until I met Paula Kraft (founder of Tastefully Yours and Aviation Catering Consultants) I had no idea just how important, nor how much detail was involved. This was revealed to me on a visit to the Tastefully Yours kitchen in Atlanta, Georgia, where I learned about a safety management system (SMS) Paula has written, devoted to improving food safety in the general aviation industry. I was particularly shocked to learn there is no legal requirement for food handlers to be trained on food safety in the general aviation industry; Paula’s *magnum opus* is intended to redress this lack of training, to enable the industry to help itself without recourse to legislation.

The SMS examines every aspect of the catering cycle – from ordering to decatering, taking in delivery and service on the way. It is incredibly detailed, but, as its creator points out, it needs to be. “Ask a crowd of 50 flight crew or passengers and I can assure you that they have all had a bout of illness they attributed to the food or beverages served in flight, or know someone who has,” she says. “In the past such problems were swept under the rug, but awareness of catering safety has increased over the past few years and is becoming more mainstream.”

I hope the article on page 38 can add to this momentum, and help raise awareness of an issue that surely deserves greater attention.

Izzy Kington, editor



Cover image:
Dassault Falcon 5X

"The ergonomics, the craftsmanship, the innovations; all the things that focus on the customer, things that make them more comfortable, that make things intuitive – people don't notice. I suppose that means it's working!"



22 Falcon 5X

ALTHOUGH IT IS THE FALCON 5X'S CROSS-SECTION THAT IS HOGGING ATTENTION, IT IS THE SUBTLE DETAILS THAT WILL CAPTURE HEARTS

Tim Kern, Business Jet Interiors International

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Paul Skeldon, Business Jet Interiors International

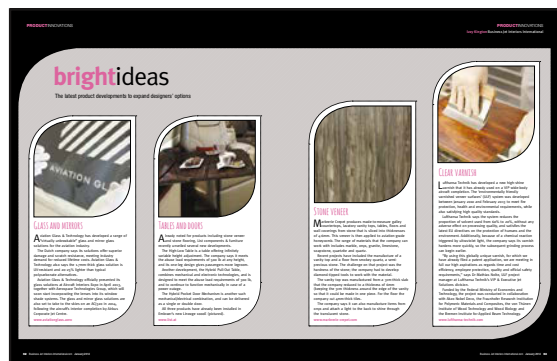
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EMIRATES LAUNCHES PRIVATE AVIATION SERVICE WITH ACJ319

Commercial airline Emirates has launched a private charter service, Emirates Executive, using an ACJ319. It is designed to appeal to private and corporate customers alike. The aircraft is configured in two main zones, seating up to 19 passengers.

The lounge is in the front section and can be used for dining, relaxation or work. With two divans and six seats (five of which convert into lie-flat beds), the lounge can seat 12 passengers. It also features four mechanically activated tables. The aft section is configured with 10 private suites and a 'Shower Spa'.

The ACJ319 is supported by a dedicated team of inflight crew and ground staff. The company says the aircraft can be chartered to most locations worldwide, with a range of 3,800 nautical miles. Emirates Executive's website is available in English and Arabic, and includes a video of the aircraft.



The Shower Spa has a full-height shower and features a floor-heating system, decorative serigraphy on mirrors, marble accents and walnut veneer. It is stocked with luxury skincare products and bathrobes.



The aircraft is equipped with Emirates' commercial airline IFE system, ice, which offers up to 1,500 channels of on-demand entertainment. The aircraft also offers live TV, video conferencing, high-speed internet and mobile phone connectivity. As well as 32in monitors in each private suite, there are two 42in HD LCD monitors in the lounge.



There is 8.3m³ of baggage space. The luggage weight limit is approximately 1,200kg, which translates into as many as 50 standard suitcases.

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Each private suite features a lie-flat bed (equipped with a memory foam mattress), sliding privacy door, visitor's seat, mini-bar and a 32in IFE monitor.



Emirates Executive is offering multicourse options from its airline menus, hot and cold beverages, and customised options.

Q&A: EMIRATES EXECUTIVE

WHY HAS EMIRATES EMBARKED ON THIS VENTURE?

Emirates is constantly looking to innovate and further develop its products and services to suit the dynamic needs of its customers. There is a growing market for luxurious and customised travel with inherent flexibility, which is exactly what Emirates Executive provides. Our intention is to cater to this niche market with a product that both elevates and is reflective of the high standards Emirates is renowned for, with personalisation at every point along the customer's journey to make it a memorable experience.

WHAT IS YOUR TARGET MARKET FOR THIS SERVICE?

The audience for Emirates Executive is the discerning traveller who seeks flexibility, privacy and a high level of service when they travel – encompassing both private and business travel. We are targeting the traveller who desires this bespoke experience in conjunction with the exacting standards Emirates is known for. Our main markets will include the Middle East and Europe as well as Russia, India and China.

HOW DOES THE ACJ319'S INTERIOR SPECIFICATION CORRESPOND TO THIS MARKET?

The ACJ319 has one of the largest cabins available, offering enhanced comfort for customers and giving Emirates the greatest flexibility to tailor the cabin. Besides the design of the cabin, the ACJ319 offers more baggage space in the hold than traditional business jets, which is of great appeal in our main target markets. We have a long-standing relationship with Airbus, and Airbus Corporate Jet Centre (ACJC) has customised the ACJ319 for us. We share a similar vision – to develop a product incorporating innovative technologies and unsurpassed luxury and elegance. It is a natural partnership and we are very pleased with the outcome.

WHAT ELEMENTS HAVE YOU CARRIED OVER FROM YOUR AIRLINE CABINS?

We have incorporated private suites, state-of-the-art IFEC systems, innovative lighting features and a more luxurious interpretation of our iconic Shower Spa, always bearing the hallmark of quality that our premium customers have come to expect of Emirates' product and service. However, while the ACJ319 carries many features of our airline product and service, what is particularly distinctive is the wide, large lounge area. It's both a sense of space and intimacy that make Emirates Executive stand out.

DO YOU HAVE PLANS TO ADD FURTHER AIRCRAFT OR EXPAND YOUR SERVICES?

Having just entered this segment, we prefer to focus our efforts on our first private jet – delivering consistent quality and service and building a sustained customer base for the product.

COMPLETIONS ROUND-UP

THIS QUARTER'S ANNOUNCEMENTS FROM COMPLETION CENTRES AROUND THE WORLD

INDIANAPOLIS, INDIANA,

USA: Comlux America is expanding its workscope to include wide-bodies such as the ACJ330, ACJ340, ACJ380, BBJ 767, BBJ 777 and BBJ 747. It will begin a facility extension upon signature of a VIP wide-body completion. Meanwhile, Comlux Aviation Services has delivered a head-of-state ACJ319 to a Malaysian client following maintenance tasks and the reworking of major parts of the cabin.

TULSA, OKLAHOMA, USA:

BizJet International completed a BBJ for Chinese Nanshan Group. The interior includes a VIP bedroom, two lavs, a lounge and meeting area, galley and staff/crew seating.

DALLAS, TEXAS, USA:

Associated Air Center has two wide-body interior completions under way – an ACJ330 and a BBJ 747.

WACO, TEXAS, USA: L-3 Platform Integration has announced it is making “excellent progress” on two BBJ 747-8s. The first should be delivered in mid-2014. The company also announced its readiness for BBJ 787 completion work.

ONTARIO, CANADA:

Flying Colours Corp delivered its first special-mission CRJ ExecLiner conversion to Eagle Aviation FZC. The aircraft can be used for VIP charter, medevac or a combination of these roles. The company also began the expansion of its headquarters.

CLEVELAND, OHIO, USA:

Constant Aviation relocated its interior operations to a new 30,000ft² facility. The company also completed its 15th public address system installation on the Phenom 100/300 platform.

HOOFDDORP, THE NETHERLANDS:

Fokker Services was selected for a green ACJ319 completion. The aircraft should arrive in the first quarter of 2014 with redelivery scheduled for the first quarter of 2015. It will be configured for 19 passengers, and include executive seating zones, a formal lounge and a private lounge that can be converted to a bedroom, complete with private bathroom.

SAN ANTONIO, TEXAS, USA:

Gore Design Completions (GDC) won completion contracts for two BBJ 787 head-of-state aircraft. “We are on track to deliver four aircraft this year – three wide-body ACJ340s and one BBJ 3,” said Mohammed Alzeer, general partner at GDC.

BORDEAUX, FRANCE:

Sabena technics announced projects carried out for Alpha Star Aviation Services over the past two years, including the installation of satcom systems on two ACJ320s and an ATR 42-600, as well as a Live TV system on an ACJ318 Elite.

TOULOUSE, FRANCE:

Airbus Corporate Jet Centre (ACJC) delivered an ACJ319 to a customer in the Middle East. The aircraft is configured in two zones and accommodates 19 passengers.

HAMBURG, GERMANY:

Lufthansa Technik has announced its preparedness for BBJ 787 completions from 2014/2015. The company is now working on two BBJ 747-8s, a BBJ 2 and a BBJ 767-400FSER. It also announced it has developed methods for load transmission into carbon fibre composite fuselage structures for VIP aircraft.

OBERPFAFFENHOFEN,

GERMANY: Ruag Aviation repainted the exterior and overhauled the interior of a Dassault Falcon 7X, in one period of downtime.

OBERPFAFFENHOFEN, GERMANY:

328 reconfigured a Dornier 328 for Air Peace, a Nigerian airline. It now has four business-class seats and 23 economy-class seats. The interior was designed by Robin Dunlop of CTM Design.

BASEL, SWITZERLAND:

AMAC Aerospace completed its second BBJ 777-300ER, for a private customer in the Middle East. The work consisted of a full maintenance C-check and interior modifications, and took 18 months. AMAC also redelivered an ACJ340 after maintenance and a partial refurbishment; an ACJ319 after a nine-month completion; and is completing a BBJ 747-8i also destined for the Middle East.

BASEL, SWITZERLAND:

Jet Aviation Basel has sent a team of Part 145 licensed engineers to receive EASA Part 66 B1/B2 type training on the B787 at Boeing.

DENTON, TEXAS, USA:

Greenpoint Aerospace acquired Jet Works Air Center, a corporate and VIP MRO provider in Denton. Greenpoint Aerospace plans to perform refurbishments, completions, maintenance, painting and avionics work at the facility.

SINGAPORE:

Jet Aviation Singapore is constructing new hangar facilities at Seletar Aerospace Park, which it hopes to open by early February 2014.

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PINBOARD



An ACJ330 concept by MBG International Design



Comlux's brand-new Bombardier Global 6000, with a cabin designed by Comlux Creatives

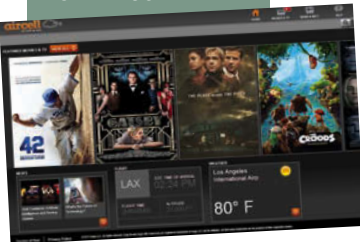


A windowless private jet concept by Technicon Design that turns the cabin walls and ceiling into one huge display

LAUNCHES

Gogo Vision, an on-demand IFE and information service from Aircell

A patient transport unit from Aerolite Max Bucher and Lufthansa Technik



A 3D moving map for light jets from Rockwell Collins

LUXURY LIVING

Maxi-size bulletproof Kasor luggage case by Orobianco; £5,700 (US\$9,313)



BEST OF THE WEB

There are plenty of new videos to see on our website, including one of the Technicon Design concept above:

www.businessjetinteriorsinternational.com/video_exclusives.php

Complementing our feature on page 48, here's *Business Insider's* list of the 50 best business apps: www.businessinsider.com/50-best-business-apps-2013-8#business-productivity-1



24ct gold 128GB iPad Air by Goldgenie; £1,825 (US\$2,982)

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LOG BOOK

Event: NBAA

When: 22-24 October 2013

Where: Las Vegas, Nevada, USA

The static display of aircraft is always one of the real highlights of NBAA, enabling visitors to have a nose around some truly beautiful aircraft, and this year attendees had a double treat. As well as the outdoor display at Henderson Executive Airport, replete with 83 fixed-wing aircraft, there was a smaller display in the convention centre, with 12 light aircraft and helicopters.

In terms of numbers, around 1,100 exhibitors showcased their products and services, and the show closed with 25,425 people in attendance – representing more than 90 countries.

Headline news came from Dassault, which took the wraps off the Falcon 5X. The aircraft is larger than the super-mid-size aircraft some were expecting, with a cabin that is 6ft 6in high, 8ft 6in wide and nearly 39ft long. Another attention-grabbing aspect is the skylight. You can read more about the aircraft in the feature on page 22.

Meanwhile, Nextant announced the King Air C90 series as the next platform for its remanufacturing process, which will include the installation of GE's H80 engine. The newly named G90XT will be available in configurations including air ambulance, freight, training, surveillance and high-density.

There was also sight of the first new production Eclipse 550 twin-engine jet. The US\$2.89m (£1.77m) aircraft can be fitted with six forward-facing seats.

Postscript: NBAA 2014 will be held in Orlando, Florida, USA, on 21-23 October 2014; the event returns to Las Vegas in 2015.



Product launches included a cordless version of TrueNorth's Stylus phone handset

Jetsolution unveiled a Global 5000 featuring custom Tai Ping carpets; Jetsolution managed the refurbishment project



EDITOR'S PICK

Embraer made several big announcements at the show, including an enhanced version of its biggest executive jet. The Lineage 1000E (pictured top) carries up to 19 passengers in five cabin zones, and features a new interior design achieved in partnership with List Components and Furniture of Austria. There are new seats, electric doors, refreshed galley and cabinetry designs and automatic tables, plus Honeywell's Ovation Select digital IFE and CMS solution.

New interior designs were also unveiled for the mid-light Legacy 450 (pictured middle) and the mid-size Legacy 500 (pictured bottom). The Legacy 450's fuselage has been extended to provide more cabin space. Embraer also announced plans to add an assembly line for these types in Melbourne, Florida, USA. The Legacy 500 is due to enter service in the first half of 2014, and the Legacy 450 a year later.



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SLEEK CHIC

Architect and designer Michael 'Skyboek' Reichenecker of Lufthansa Technik created this lean interior for the BBJ 737-700 (BBJ 1) to enable a long range. "One of the main reasons for using a business jet is to save time; time is money," he says. "The greater the range, the fewer times you need to stop to refuel. In VIP configuration, the BBJ 1's range is typically around 4,500 nautical miles. To achieve the maximum defined by Boeing – roughly 6,100 nautical miles – the interior needs to slim down."

Lufthansa Technik says the concept achieves that top range by restricting cabin weight to 12,500 lb (including eight passengers and luggage), along with the installation of nine auxiliary tanks. "You have to get rid of all the non-essentials without compromising comfort," says Reichenecker. "Structures become surfaces and everything has to be as multifunctional as possible. For example, we developed a modular carbon fibre wall system that incorporates rapid decompression functionality and doesn't require a secondary structural subset. In addition, the lining consists of modular carbon fibre elements with integrated lighting, air-conditioning and window shades. They also act to reduce cabin noise. As a side benefit, the modularity of individually configurable cabin elements should allow for a faster completion."

The liberal use of carbon fibre has also influenced the colour scheme. "I used black for the carbon fibre and hues of cool oyster grey for the carpet, leather and other materials," says Reichenecker. "Carbon fibre is not limited to black, but this concept's leanness and purity is best reflected by showing the structural material as it is, without covering it up."

Reichenecker does not envisage any barriers in terms of certification, except that the seats may require further investigation. The concept has been checked with the company's engineering team, visualised in 3D and created as a scale mock-up.

CEILING

It is no coincidence that the ceiling structure is reminiscent of a spine. "It serves as the centrepiece into which all the wall and lining elements are hooked," says Reichenecker. "Instead of trying to recreate a residential feel in the air, the cabin reflects animal-like efficiency."

SEATS

The seats are based on a carbon fibre structure designed in-house. The maximum-range concept seats eight passengers, but in another version up to 18 passengers could be accommodated.

GUIDED TOUR

ENTRANCE

Upon entering the aircraft, one immediately noticeable aspect will be the contour lighting, which accentuates the seats and windows. The flexible LED lighting is the result of a partnership between Lufthansa Technik and Schott.



CONFERENCE AREA

As well as being used for working in the air, this area can be used for meetings on the ground, because the lighting and air-conditioning can be switched on at the push of a button when on terra firma.

SLEEPING PODS

The modular structure incorporates four private sleeping pods, each with a seat certified for taxiing, take-off and landing.



BATHROOM

The modular system can also incorporate smaller rooms, such as a bathroom.



GALLEY

The need to optimise weight and balance has affected the floorplan – calling for the aft positioning of the galley, which is one of the heavier components of this cabin.

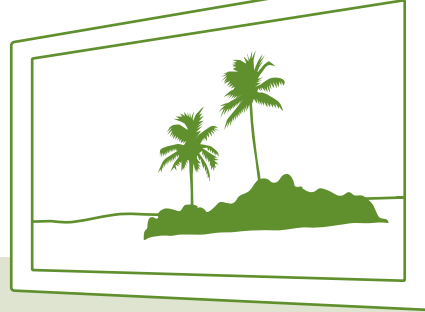
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DIVIDER

Furniture is limited to the bare essentials – seats, some storage and room dividers. This organic-shaped divider, separating the dining and working areas, can also be used for storage. It also carries the only integrated monitor in the cabin – elsewhere passengers can connect their own mobile devices to the wi-fi network, saving weight.





DESIGN PANEL: **LARGE IFE MONITORS**

WITH GROUND-BASED TECHNOLOGY PROVIDERS TOUTING BIGGER AND BIGGER MONITORS, THE CHALLENGE IS ON TO REPLICATE THE BIG SCREEN EXPERIENCE IN VIP CABINS

DAVID GRAY: You are trying to put a rectangular object, the display, into what is essentially a round space, so it begins with a suboptimal proposition. Generally people in this market won't settle for small; they want the largest monitor available. On top of that, the FAA has certain requirements, like using lexan in front of the screen in case of a catastrophic event. These strict requirements mean a larger casing. You can't just install an off-the-shelf display.

JÖRG GORKENANT: Heat dissipation is one of the main challenges. Large IFE monitors require forced air cooling, delivered by internal or external fans, which can create an unpleasant noise. A technology which offers a big improvement in this respect is LCD with LED backlighting. This technology is very common in the consumer electronics market but is only just entering the aerospace business. Then there is the display's weight and the size of its housing; but again LED backlighting is offering big improvements. Another challenge is that with some suppliers the equipment's qualification is incomplete. Typically, monitors of a certain size require qualification in accordance with RTCA DO-160, as well as in terms of abuse load, qualified by the ball impact test. Additionally there are the fire, smoke and toxicity requirements.

WHAT ARE CUSTOMERS
DEMANDING? WHAT ARE THE
MAIN CHALLENGES WITH THESE
INSTALLATIONS?

GUNNAR JANCKE: The customer always wants the next size up, but with narrow-bodies, we are now near the limit of what can be installed. With most transversal installations the cross-section is shared by a doorway – so a 65in monitor is the largest size you can install in this way on a narrow-body. The situation is different on wide-bodies, where the fuselage is 1.5-2m wider, but on narrow-bodies the limit has basically been reached for transversal installations. In addition, if the monitor is installed longitudinally there are other rules – you should not sit too close to an LCD monitor because you will see the pixels, so with a 60in or 65in monitor you need to sit 3-5m away. Considering the fuselage of a narrow-body, this limit has also now been reached. Then there is the weight – 65in models can be as much as 40 kilos. This represents a structural installation challenge; we need to make the installation stiff and strong enough to withstand emergency crash conditions.

TIM CALLIES: Aviation monitors tend to be functional rather than aesthetically pleasing, so the preferred solution when integrating them into a bulkhead is to make them flush with the decorative wall cover; to hide the monitor's frame as much as possible. The downside of this is the greater width needed to guarantee a flush mount and efficient cooling. Further complications with a wall location can include seats obscuring parts of the screen; and the limits imposed by being sandwiched between a doorway and the fuselage. The second main challenge is reliability – VIP operators are still struggling with defective monitors that need to be replaced. The main demands from customers are HD quality, the widest possible size and reliability.

THE PANEL



DAVID GRAY
CEO of Flight Display Systems



JÖRG GORKENANT
COO and head of the
design organisation at 328



TIM CALLIES
managing director at
Tim Callies Design



GUNNAR JANCKE
director of engineering at
AMAC Aerospace

JÖRG GORKENANT: I recommend thorough investigation during the equipment selection process. The price can vary wildly between suppliers, because of the different levels of qualification that monitors are supplied with.

DAVID GRAY: We've applied several tactics to overcome spacial challenges. Our engineers have designed electric lifts so that monitors can be hidden in monuments such as credenzas. We've also used a hydraulic mechanism to hide a 17in display in a door pocket, which can easily be deployed with one finger.

HOW HAVE YOU OVERCOME THESE CHALLENGES?

TIM CALLIES: For an ACJ319 I designed two years ago, the customer wanted the largest monitor available – at the time, 52in – for his cinema lounge. It was too big to install on the bulkheads and almost too high to achieve an ergonomically acceptable installation close to the outboard sidewalls, also limited by the curvature of the fuselage. So I had to design a credenza that could accommodate the monitor on top, also considering the customer's request to angle the monitor by 35°, to face his seat. With the completion centre we finally found a good compromise between design, ergonomics, function and weight.

GUNNAR JANCKE: We install large monitors on practically every completion project. We are currently working on a BBJ747-8i, which has several monitors in the 65in range on the main and upper decks. We've also installed several monitors with motorised lifts. Sometimes when monitors are integrated into a full-height cabinet they can have a shade that moves electrically in front of the monitor. This can be made to look like a framed painting, or other artwork.

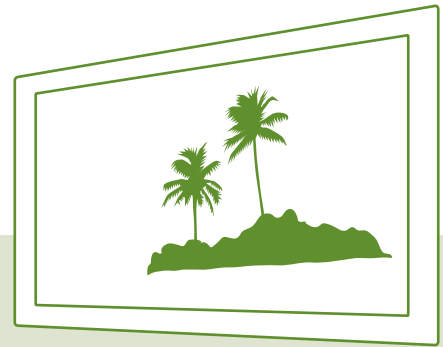
GUNNAR JANCKE: We are hoping that monitors will become lighter in weight, as not only would that make the cabin lighter, but it would make structural integration easier too. In particular I'm looking forward to the jump to OLED, which would incorporate backlighting, giving a large weight saving.

JÖRG GORKENANT: In the future we could perhaps see hologram presentations in 3D, or a foil display at every seat.

WHAT DOES THE FUTURE HOLD?

DAVID GRAY: Technology such as OLED may make it possible to install curved displays that match the interior surface of the aircraft. This would lend itself to a more efficient use of cabin space. Display size will always be limited on aircraft.

TIM CALLIES: My hope is that OLED technology will one day replace LCD and LED monitors. The paper-thin and flexible display would allow designers to integrate monitors in a completely different way, enabling interactive surfaces.



JÖRG GORKENANT: I would like to integrate a monitor in a transparent floor panel or divider, so if the monitor is switched off, it cannot be identified as a monitor. I'd also welcome 3D technology, which is common in the consumer market, and interactive control through hand movements.

DAVID GRAY: I'd like to see monitors used for something other than movies and maps. Perhaps art could be displayed; something that works with the interior design. It would be great if you didn't have to see a big dark rectangle on the bulkhead.

IF YOU COULD DO SOMETHING DIFFERENT
WITH A MONITOR INSTALLATION,
WHAT WOULD YOU DO?

TIM CALLIES: OLED technology would allow us to display footage of the sky outside (taken from external cameras) on the ceiling and walls. The walls could be completely covered using this technology. Another possibility is that their colour could change in interaction with the passenger.

GUNNAR JANCKE: At the end of the day a monitor has to be installed at a certain height in the cabin; you have to obey the ergonomics of the viewing angle. It's very similar to home; you don't want the passenger to have to look up or down too much, which rules out unusual configurations. I've been involved in this business for 18 years, and these installations are always driven by ergonomics.



Image by Roth+Schmid, Zurich

A BULKHEAD-MOUNTED MONITOR
ON AN ACJ320 DESIGNED BY
FRANCIS MUNCH OF STUDIO
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great and small

Although it is the Falcon 5X's generous cross-section that is hogging attention, it is the subtle details that will capture buyers' hearts

So here it is. Dassault finally took the wraps off its SMS project at NBAA 2013 in October. Those who were expecting the super-mid-size jet of the codename's acronym were in for a surprise. The Falcon 5X's cabin is 8ft 6in wide, 6ft 6in high and 38ft 8in long (excluding cockpit and baggage compartment) – making it Dassault's biggest, and admitting it to the large-cabin, long-range category. The manufacturer is also claiming the titles of 'largest cabin cross-section of any purpose-built business jet' and 'tallest cabin' for its grand new baby. Range is 5,200 nautical miles at Mach 0.80 with eight passengers, although the

aircraft will actually accommodate 16 passengers through its three lounges.

"I know that some of you were expecting the SMS to be a much smaller aircraft, but we introduced our new Falcon 2000S less than two years ago and we think that it is, and will remain for many years, the perfect response to this market segment's requirements," said Eric Trappier, chairman and CEO of Dassault Aviation, at the NBAA press conference.

He added that the Falcon 5X "represents our biggest investment since the beginning of the Falcon programmes" and is "a perfect complement to our other models – the 2000S and LXS, the long-range 900LX and the ultra-long-range 7X".

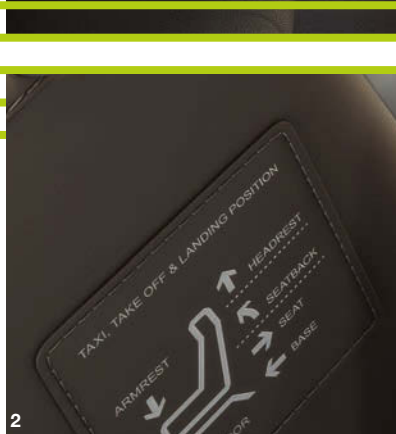




Picture perfect

One of the small details that Agnes Gervais (team leader for interior design on the Falcon 5X) insists makes a huge difference is the way placards are designed. She has lots of experience in making sure they are user-friendly and uncluttered, having worked previously in the public transportation sector.

“Some placards look so cheap, or have lots of words, when a good pictogram serves the purpose better,” she says. “We focus on readable labels – one line, with intelligible pictograms that are easy to see and close to the feature they relate to.”



Trappier also revealed that the Falcon 5X was designed with extensive input from the company's Operator Advisory Board, one finding being that cabin width was deemed particularly important. “The industry has moved in a direction of wider cabins, which has allowed Dassault to offer industry-leading functionality, space and comfort in the Falcon 5X,” Trappier said. This translates into a 5in wider aisle between seats.

The seats and divans themselves will be made by B/E Aerospace, which has also been selected to supply the full-spectrum LED cabin lighting system (which will be integrated with the aircraft's CMS for adjustability) and wastewater management system. Seat features will include electric full berthing lie-flat positioning, and electric track and swivel assist. Dassault's Interior Design Studio worked on a 'lean and light' aesthetic for the seats, in line with its aim to present an uncluttered look throughout the cabin, and really show off the generous cross-section.

This design philosophy extends to all imaginable details, which for Agnes Gervais, team leader for interior design on the Falcon 5X, are what

1. B/E Aerospace says its divans will provide “the latest innovations in side-facing safety technology”
2. Placards make good use of simple pictograms
3. Various cabin harmonies have been put together to act as a starting point for customers

really sell an aircraft, because they affect how people feel in the environment. It is the same psychology that explains why a painting can fetch hundreds of times the price of something eminently more practical. Each detail is subtle enough for it to be overlooked by the conscious mind, but it adds to the impression that informs the final decision. “So many articles focus on the mechanics of the aircraft; nobody realises how hard it is to make things look simple,” says Gervais. “The ergonomics, the craftsmanship, the innovations; all the things that focus on

the customer, things that make them more comfortable, that make things intuitive – people don't notice. I suppose that means it's working!”

Small wonders Some of these nice design touches include hidden compartments for electronic devices and LED signage that is invisible when not illuminated. Ergonomics have also been thought through in painstaking detail. Although Dassault models everything on computer, it also makes full-size models. “Some things simply cannot be anticipated, even with CATIA,” says Gervais. “You have to install things, check clearances, work the doors, step through living areas and boardrooms, reach for things. Although the microwave may fit best near the floor, it may not be convenient there. So, what else has to be rearranged?”

SOME THINGS SIMPLY CANNOT BE ANTICIPATED

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As well as focusing on details, Gervais says an important factor in the design process at Dassault is collaboration. “We all worked together – engineers and designers, the quality and maintenance departments, buyers and vendors,” she says. “I think this brings a new level in quality.”

The cabin will be equipped with FalconCabinHD+. The CMS, developed in cooperation with Rockwell Collins, utilises a fibre-optic network to distribute HD audio and video content throughout the cabin, and gives complete control of the cabin systems.

A headline innovation, a skylight in the galley, is based on Vision Systems’ Nuance Dual electronically dimmable window, which uses Research Frontiers’



Falcon 5X

Cabin width: 8ft 6in

Cabin height: 6ft 6in

Cabin length: 38ft 8in

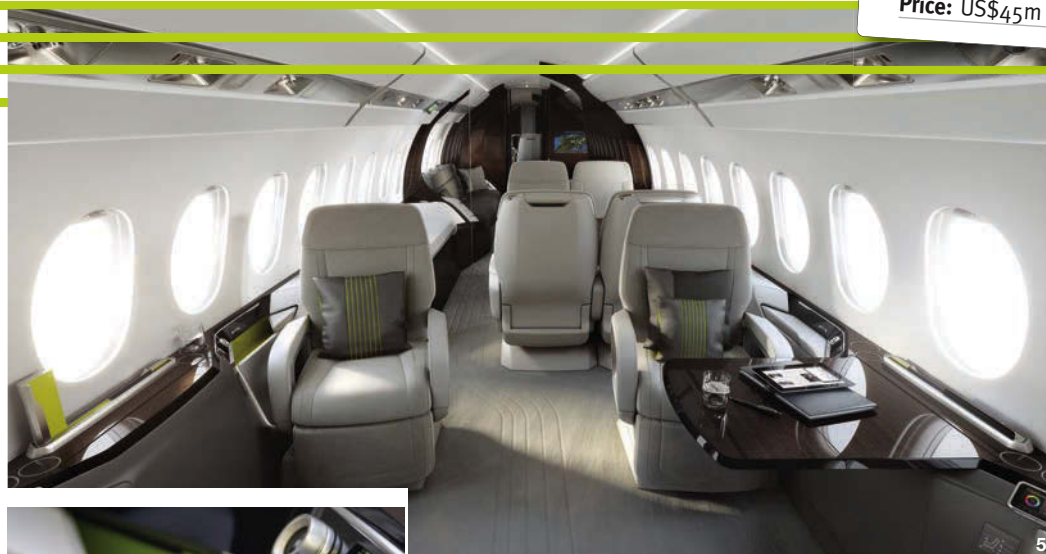
Seats: 3 crew + 16 passengers

Range: 5,200 nautical miles at Mach 0.80 with eight passengers, three crew, NBAA IFR reserves, ISA and full fuel

High-speed cruise: 595kts

Max altitude: 51,000ft

Price: US\$45m (£28m)



- 4. The galley, complete with skylight
- 5. The cabin is divided into three lounges
- 6. Handy storage areas should help keep the cabin uncluttered

SPD-Smart technology. Dassault wanted a skylight, but needed to ensure the amount of heat and light entering the cabin could be controlled. Vision Systems says its product blocks 99.9975% of visible light when at its darkest setting; and also blocks UV and reduces solar heat gain. Carl Putman, president and CEO at Vision Systems, contends that an electronic blind also offers a more space-efficient solution: “No mechanical blind could have been integrated in such a compact and critical environment,” he says.

There are 28 additional windows throughout the cabin, which are “significantly” larger than those on previous Falcons.

Multiple choice The Falcon specification process at Dassault is conducted in sections. Section 1 includes the cockpit, communication equipment such as telephones and wi-fi, and some environmental systems. Section 2 covers the floorplan, seat features (such as electric or manual operation, and widths from 18-20in), medical systems (including Dassault’s Virtual Doctor), sensors, cameras and lav options (including a choice between standard or vacuum toilets). Section 3 relates to the livery and Section 4 to built-in service features. Section 5 addresses aspects such as the cabinets and involves creating detailed finishing drawings. The choices that can make an interior feel like home, including the colours, fabrics, veneers, murals, stitching, carpets, leathers – basically the overall feel of the design – fall under Section 6. Within this section, Dassault has created various harmonies for customers to consider.

The 5X cabin mock-up shown at NBAA 2013 was modelled to American taste, with rich veneers and traditional colours. Dassault says another cabin will be shown at EBACE 2014, featuring an avant-garde European look, with a harder, techy edge.

200 additional hours of endurance testing will be performed on the Falcon 5X prior to certification

3,900ft cabin pressurisation level at 41,000ft

10,000+ parameters will be monitored by the new onboard diagnostic system

WE ARE NOT HERE TO SELL OPTIONS, BUT TO SPECIFY THE AIRCRAFT THE CUSTOMER WANTS AND NEEDS

Each customer's aircraft will be highly tailored. "Customisation is a real thing at Dassault," emphasises Gervais. "Sometimes they come with their own ideas, and we show them high-end material samples that match. We include the customer as much as they want. When they specify veneers, for instance, they can go with us to see the actual donor log. They may also invite us to their yacht or their home."

Production never sleeps

What does Dassault do in its spare time, when custom aircraft are all in process and on schedule? Interestingly, when workload and order schedules allow, it builds a Limited Edition aircraft, based on the options and floorplans that have proved most popular.

Dassault says that for buyers of these aircraft the advantages are a relatively short lead time and "exceptional value", particularly when the need for a new Falcon is urgent. The advantage to Dassault is that this activity helps to keep its factory running efficiently and maintains steady employment.

These Limited Edition aircraft account for less than 20% of Falcon production.

Although there are lots of standard options to choose from, customers can also go beyond the catalogue. "Small changes from our pre-qualified options list are sent to engineering to assess their cost, feasibility and their impact on the schedule," reveals Michael Armendariz, aircraft source data and programmes coordinator at Dassault Falcon. "Exotic options – things not on our lists – are examined for feasibility."

If found feasible, the lead time and cost offsets of non-standard items are brought back to the customer for consideration. "At some point, though,

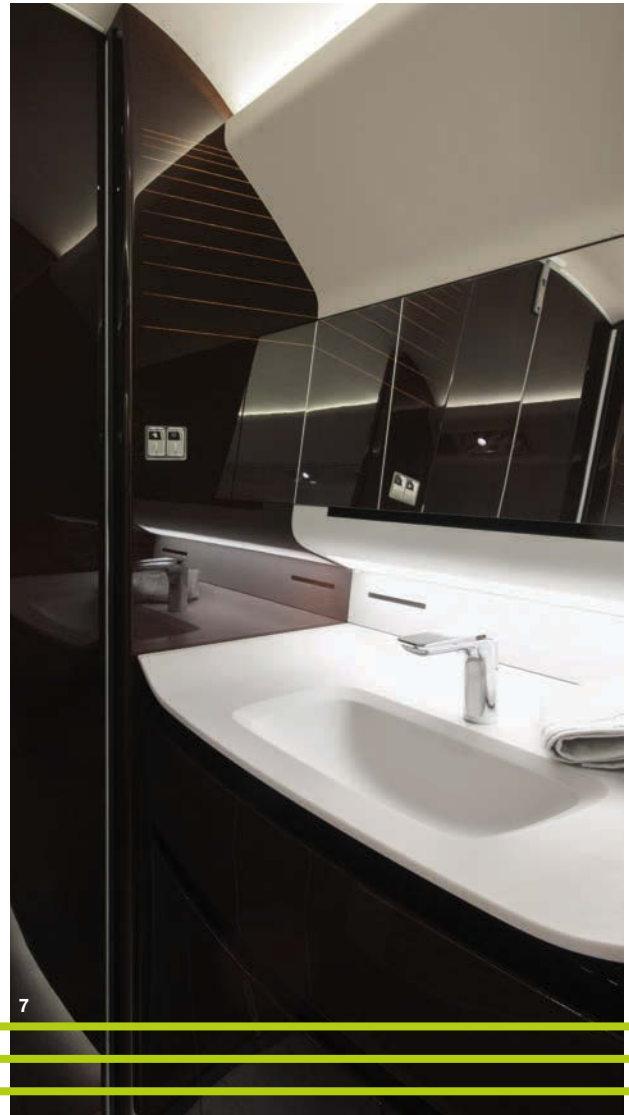
we need to freeze the design," says Armendariz. "After that, small changes are still possible, but they can add disproportionate cost and delay."

Armendariz also stresses that the process revolves around the customer. "We are not here to sell options, but to specify the aircraft the customer wants and needs," he says. "If most of the flying will be in the USA, for example, we don't need to specify the more expensive international satcom system. Sometimes, the customer's fly-in community has restrictions and regulations that impact design; we need to know these. Some customers want carpeting to match their house, boardroom or yacht. We may not be



able to match the material, because of weight or fire regulations, but we can replicate the look. Sometimes the customer wants the aircraft to match the ambience of their house or yacht, so we will send a designer there, to look and understand."

Customer driven Dassault is open to working with external designers and completion centres, but prefers an in-house approach where possible. "Sometimes customer requests require new processes or tooling, so we have to invent them," says Gervais. "External designers sometimes lack experience or knowledge of the regulatory constraints applied to aviation, for example wanting to use elements that are too



7. With its subtle and graceful lines, the vanity's design echoes the galley

8. The vanity features a sink made from a single piece of Corian

heavy or are not approved. Working together in-house enables us to develop new concepts, like the skylight."

Dassault anticipates most Falcon 5X interiors will be completed at its own completion facility in Little Rock, Arkansas. It is investing in a major expansion there. The airframe will be assembled in France – the first should emerge to make its maiden flight in the first quarter of 2015. Dassault is targeting certification for its new Falcon before the end of 2016. **END**

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1. The new single seat on Bombardier's Challenger 350
2. Iacobucci HF's new double VIP seat
3. A VIP seat developed by Iacobucci HF and BMW Group DesignworksUSA
4. UTC Aerospace Systems' new Model 1 VIP seat
5. The G650 seat developed by Gulfstream and RCO



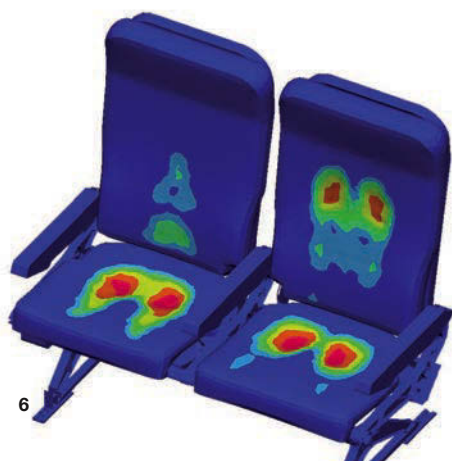
sittingtarget

The aircraft seating business is changing – with a stronger focus on improving comfort for passengers

In 1998, the FAA issued a Technical Standard Order (TSO-127a) that would have a massive impact on business jet seat development programmes. It set out new minimum performance standards that seats on newbuild aircraft would have to meet to gain certification. These seats would have to meet more stringent crashworthiness standards – to be able to withstand an impact at a force of 16g and increase the chances of survivability for

occupants. This was followed up in 2005 with more FAA legislation to clarify the requirements for retrofits on Part 121 aircraft.

The rule impacted the cost and timescale of new seat development programmes, and the relationship between seat manufacturer and OEM. In some cases seat manufacturers were asked to cover development and certification costs – to basically become risk-sharing partners – on new aircraft development programmes.



Virtual prototyping

One method being used to improve seat comfort is virtual prototyping. For example, the ESI Group's Virtual Seat Solution uses a digital mock-up of the seat and occupant to assess and fine-tune comfort factors such as body pressure and posture, foam hardness, material physics, contacts within the seat, vibrations, heat, accessibility, living space and possible manufacturing issues such as cover wrinkles and bridging gaps.

Customers include USSC Group, which wanted to achieve optimum comfort while also determining precisely how much foam was needed, to enable it to reduce the overall weight of an aircraft seat.



As seat manufacturers focused on ensuring the increased structural integrity needed to attain certification, some felt that weight, functionality and comfort had become secondary concerns. But comfort is not a secondary concern for the passenger, especially when they have written an eight- or even nine-figure cheque for the aircraft. The expectation is for unparalleled comfort.

Vox populi "This industry is about to change, because of the customer," says Riccardo Palmeri Lolli, director of

marketing for Iacobucci HF, an Italian company that entered the aircraft seating market a few years ago. "It is a very conservative industry; an industry that has been driven for too long by engineering. Now the customer is going to change the industry. The seats, although they are a very small cost component in the jet, play a big role – about 80% – in the overall perceived experience. The comfort, interaction and look of the seats are important. Today's private jet fliers want exclusivity and a lot of them are not getting it from current seat offerings.

- 6. The ESI Group's Virtual Seat Solution uses techniques such as pressure mapping
- 7. A VIP seat by Iacobucci HF
- 8. Iacobucci HF seats chosen for a BBJ outfitted by Altitude Aerospace Interiors

People want the same comfort on the aircraft as they can have at home."

Palmeri Lolli joined Iacobucci HF after experience in the yachting industry and a decade at carmaker Ford. He is leading the company's charge into VIP aviation seating and thinks private jet makers have little choice, in the wake of upgraded airline seating, but to step up their game.

Holistic design After years of studying seat design and interface, Iacobucci HF developed a modular seat structure that is highly customisable. "The comfort of the seat doesn't just depend on the seat itself, but also on the wider experience – factors such as the lighting and the ability to reach controls," says Palmeri Lolli. "We spent a lot of time pressure mapping and studying new materials for cushions. We designed a product that provides comfort, a very good look and sustained quality over time.

IT IS A VERY CONSERVATIVE INDUSTRY; AN INDUSTRY THAT HAS BEEN DRIVEN FOR TOO LONG BY ENGINEERING

Are you designing your client's aircraft this way?

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This spec tool is currently being used by OEMs and designers to configure materials and paint schemes.



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We worked a lot with cushions and leathers to ensure comfort on a long flight. We control all the upholstery. All of our seats have full recline with leg- and head-rest extensions.”

Palmeri Lolli says Iacobucci has positioned itself at the high end of the aircraft seating spectrum. The company expects to have a major role in the

refurbishment market. And Palmeri Lolli believes that for a really tangible increase in comfort, “private aircraft owners will spend money to change the old seats”.

In the firing line Of course if an aircraft owner is not happy with the comfort of their seats, their ire is usually directed

9. Cessna's Citation Latitude

10. A seat developed for the G650

11. RCO's Robostand in action

at the company they bought from – the OEM rather than the seat manufacturer. It is therefore in OEMs' interests to push for ever-greater comfort.

At Cessna, the rethink started with the Citation Columbus, announced in 2008 but later shelved. “We needed customers to sit down in that seat, look out of the window and envision themselves in this product,” said Cindy Halsey, senior vice president of interior design and engineering at the company, when the aircraft was announced. “Engineers typically design a frame and then we decorate it with foam. For the Columbus we are designing the seat for comfort and then handing it to the engineers to make it certifiable.”

Cessna, in partnership with Ipeco, would go on to develop a new comfort-focused seat frame for the refreshed Sovereign and X models, which will also carry over to the upcoming Citation Latitude. The new seats feature a highly contoured shape, increased pitch and retractable armrests.



PRIVATE AIRCRAFT OWNERS WILL SPEND MONEY TO CHANGE THE OLD SEATS

Replicating success

RCO Engineering has a piece of equipment called Robostand that it uses when clients want to simply replicate the comfort of a favourite seat.

Robostand measures the seat's contours and firmness and converts the information into 3D data, so these aspects can then be replicated. RCO says this equipment is particularly helpful because comfort can be very subjective.





13



14

Hands free

Among the products unveiled at NBAA 2013 in October was a prototype seat from UTC Aerospace Systems offering integrated wireless control. The wireless system is compatible with iPads, iPods and other smart devices. There is also a patented wireless charging system for such devices.

The Model 1 VIP seat also features a patented environmental control system with heating and cooling and an extensible electronic control system for motorised seat functions, including electric recline, leg rest, headrest, lumbar, tracking and swivelling release, and floor tracking lock and release.

Developing a common seat platform has saved development costs, but also ensures comfort across a broad cross-section of the company's aircraft.

Bombardier has continued its partnership with Ipeco on the refreshed Challenger 350, which is due to enter service in 2014. The new single executive seat on that aircraft has a redesigned extendable leg rest and a lifting seatpan that eliminates the gap between the seat's bottom and back sections when reclined. The seat also incorporates nice little touches such as

integral accent lighting built into the armrest side storage, and highly stylised machined components that give a high-tech look. The redesigned berthing divan can accommodate taller than average passengers and provides stowage underneath.

Automotive experience Gulfstream is another OEM that has invested in improving seat comfort and reliability in recent years. For the G650, announced in 2008, the company partnered with RCO Engineering, a

12-13. The G650
14. UTC Aerospace Systems' new Model 1 VIP seat features wireless charging

leading supplier to the automotive industry, on new fully electric single executive seat and divan designs. The G650's seats are the focus of ongoing development to maximise comfort. For the new Elite interiors in the smaller G450 and G550 aircraft, Gulfstream uses seat frames from B/E Aerospace and armrests from RCO.

RCO made a name for itself in the automotive industry by providing rapid prototyping of new seat designs before contracts are awarded to serial production companies. "We have touched virtually every seat you have seen in a car," says Larry Combs, senior electrical engineer at RCO. "In a rapid prototype environment you are doing the same quantities aerospace does, so it was a good fit for us."

While RCO focused on designing a high degree of functionality and reliability into the new G650 seat, Combs maintains the company never lost sight of the need for comfort: "There are a lot of parts and pieces to it – quality, cost, performance and styling – but most importantly it is a seat; people need to sit in it." **END**

THERE ARE A LOT OF PARTS AND PIECES TO IT, BUT MOST IMPORTANTLY IT IS A SEAT; PEOPLE NEED TO SIT IN IT

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foodforthought

Campaigners are trying to get the business aviation community to address its food safety blindspot – before it is forced to by outside agencies

The stark fact is that while standard procedures exist and are enforced for food and drink service on commercial airliners, the same cannot be said of general aviation.

Even in countries that do have food regulation agencies to inspect caterers' facilities, there are no guidelines for the safe transfer, loading and service of general aviation catering, nor training requirements for other food handlers in the chain. When you consider that a food handler is classed as anyone who comes into contact with the catering (even unopened) plus the equipment and surfaces used for its preparation, it

turns into a long list of relevant people, including flight attendants, pilots, FBO line service staff, delivery staff and schedulers/dispatchers.

The situation seems incredible, especially given that the industry caters for heads of state, CEOs whose time could be worth millions of dollars, and VIPs whose illnesses could be very publicly documented. And then there is the fact that the industry flies a high proportion of people in an older age bracket, a demographic with a higher risk of health problems than the general population.

"Our data shows 21% of the inflight calls we receive from business and general aviation clients are related to





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The event taking place in March 2014 is a great opportunity for the BBGA's members to engage with a slightly different community from our previous conferences. Because it is focused on the airports and their support services, it is an opportunity for members to place the operator firmly in their sights. Whether this is as owner operators, or as part of an MRO client base, or through a major operator, the airports still have to provide services for all.

We have an excellent conference facility at Farnborough, which is integrated into the hall overlooking the main display arena. We will be taking our breaks in a purpose-built facility at the centre of the arena, so there will be many opportunities to network with new and old contacts.

The conference will be held over two days and will be a mixture of training sessions, presentations on current topics, and open forums to capture and debate issues of concern.

The themes being considered are:

Human factors

- Ground operations and the development of common standards to save organisations from suffering due to human factors issues
- HF engineering and what we can learn from that approach to adopting HF in a maintenance context
- CRM and how it is developing

Ground operations and what we can learn from the US approach to dispatch

- Dispatch training
- Aircraft performance

SMS and how you should consider using it in your organisation

- Don't view SMS as a requirement, use it as a business improvement tool
- What does 'good' look like?

Security and Customs

- How can we meet the requirements?
- Delivering customer service
- Maintaining a safe and secure environment
- Permits and access

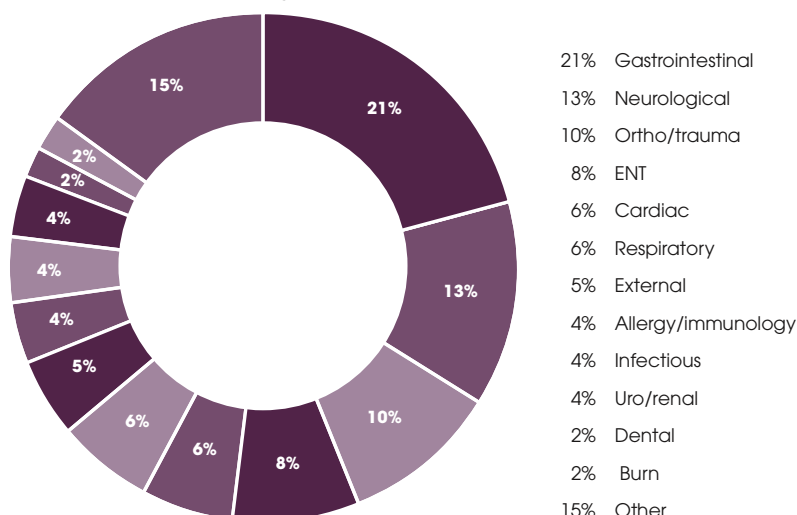
IT and how it can support us in a modern operation

- Working with the regulator and how that can look in an environment focused on risk-based oversight
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Marc Bailey
Chief executive
British Business & General Aviation Association

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Inflight medical events reported to MedAire between 2011 and mid-2013 (business and general aviation)



Water and ice

It's perhaps easy to forget that ice and water should be treated with the same care as food. Many FBOs use buckets to transport ice to the aircraft, but Kraft recommends a chute or bag. Her food safety SMS also covers such factors as how often ice drawers should be sanitised, how an FBO should care for its ice machine, and what safety procedures are needed for the safe handling of dry ice.

1. Paula Kraft in the Tastefully Yours kitchen in Atlanta, Georgia, USA

gastrointestinal events,” says Dr Paulo Alves, vice president of aviation health at MedAire, which provides medical advice and assistance to business and general aviation clients via its global response centre, MedLink. “It’s difficult, though, to link gastrointestinal cases immediately to any catering safety aspects,” Alves continues. “Many food poisoning agents are slow in action and incubation periods can extend to 24 hours. This means that food eaten the day before at the hotel could be responsible, and not necessarily the aircraft catering.”

Equally, illnesses picked up on an aircraft might not become apparent until later in the trip, when they might not be linked to the flight. Plus, not all symptoms are necessarily identified as a result of food poisoning. Beyond the obvious vomiting and diarrhoea, other symptoms such as headaches, dizzy spells and fatigue are easy to attribute simply to jet lag.



21%

of inflight calls to MedAire between 2011 and mid-2013 related to gastrointestinal events – up from 16% in 2011

31%

of these were on domestic flights, the majority within the USA

22%

of reported cases affected crew members

Raising awareness This difficulty in pinning down cause and effect may explain how this topic has managed to remain under the radar. But there are people shouting from the rooftops about it; people like Paula Kraft, founder of Tastefully Yours (a specialist business aviation caterer) and principal at Aviation Catering Consultants (ACC), which she established in part to address the issue.

“Flight crew members are expected to know emergency evacuation

procedures, CPR and other medical techniques, but no one is teaching them how to keep the crew safe and healthy,” says Kraft. “They can do this by making simple corrective actions at every stage – from placing a catering order to receiving, storing, reheating, serving and then cleaning it up and discarding the trash. Each of these steps in the flow of food can have a dramatic effect on the safety and security of the food consumed by passengers and flight crew.”



2

Kraft is passionate about improving standards throughout the industry, but doesn't believe rules imposed by a regulatory authority are the way to go. "We can take corrective measures before someone from the outside steps in to regulate an industry they may not understand," she contends. "Safe food handling practices for an aircraft are very different from those in a restaurant simply because of the environment. For example, restaurants often have three sinks – one for washing dishes, one for rinsing and one to sanitise. Have you seen a three-compartment sink on an aircraft lately?"

2-4. Tastefully Yours dishes, created in a kitchen following HACCP procedures for food safety



Practical tips for flight attendants, from ACC's SMS

Ordering: If passengers or crew will be eating at different times, order separate packaging – but don't say which is for the pilot, for security reasons. Ask to check the caterer's business licence, insurance certificates and health inspection report. Ask how the catering will be transported and how long this will take. Ask food to be delivered in a cooler or with ice packs to keep it cool, particularly with seared food, fruit and seafood. Ask the caterer to provide reheating instructions, including what the core temperature should be. Also specify the packaging you want. For example, order strong foil pans to avoid collapses; order liquids in screw-top bottles; and containers with self-locking lids that won't burst at pressure.

Reheating: Prepared food can only be reheated once. Use a thermometer to ensure it is at the correct temperature. Microwaves can produce a false boil, so use a stirrer to let steam escape. Don't use foil lids for reheating potatoes or rice, because these items can react with the foil.

Cleaning: It's not ideal, but if you do have to wash dishes on board use a styrene tablet to sanitise them. Use disposable washing implements – sponges and towels are a breeding ground for bacteria. It is a common misconception that hand sanitisers are as effective as hand-washing – if there is no alternative, use the hand sanitiser three times.

Condiment storage: Many aircraft feature a drawer brimming with sauce packets, which can easily go out of date. Throw away any that are torn, puffy, leaking and discoloured, plus those where the oil has separated.

About five years ago, Kraft set about creating a safety management system (SMS) for general aviation catering, as a plug-in for an operator's existing SMS. "I was very fortunate to have the support of local flight departments in its development," she says. "I was allowed to review their SMSs and see how food safety was addressed."

Numerous Fortune 500 companies have adopted the programme, which Kraft continues to add to and amend. "The SMS is a living document and is constantly changing as I address concerns and risks that I notice while auditing flight departments and talking

with flight attendants around the world," she says.

Risky business The emphasis with Kraft's SMS is teaching food handlers (especially flight attendants) to identify risks – from high-risk foods to high-risk passengers and crew, allergies or intolerances, and high-risk practices.

She says there are four main reasons catering becomes unsafe. The first is poor personal hygiene on the part of food handlers – common examples of which include continuing to work when ill and dipping fingers into sauces to stir or check temperature.

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The second reason is time and temperature abuse. Food needs to be cooked to a specific temperature, allowed to cool thoroughly before dispatch, kept at a safe temperature (below 5°C for raw food) and reheated to another specific temperature. It is also important to restrict the time that ingredients are left unrefrigerated. In the USA this time is often restricted to four hours from when ingredients arrive at the caterer, in the UK it is often two hours.

Although Tastefully Yours and other caterers adhere to these practices, Kraft has heard of incidences in the wider industry of these time windows being breached – catering might be loaded onto the aircraft one or two hours before take-off, and then not served for a further 20 minutes. This exposure can be extended even further with buffets that are left out for passengers to help themselves to – a style of catering Kraft has seen rise in popularity, sometimes in lieu of employing a flight attendant.

The third reason for food becoming unsafe is that the basic principles of food safety are sometimes ignored. These principles include washing, rinsing and sanitising equipment; thorough hand-washing or eliminating bare hand contact; and eliminating cross-contamination. The latter could happen if cooked and uncooked food were prepared on the same surface.

5. Flight attendant training at Alison Price On Air
6. Daniel Hulme, managing director of Alison Price On Air and vice chairman of the European Flight Attendant Committee



Food safety at the caterer

Alison Price On Air follows the Hazard Analysis and Critical Control Point (HACCP) system for food safety – so how does this work in practice? “We have a strict food tracking system whereby all food is temperature probed from when it is delivered to the kitchen as raw produce to when it leaves our refrigerated delivery vehicles at the airport,” says Daniel Hulme, managing director at the company. “Our fridges are constantly checked on a daily basis and this data is stored. Our vehicles are fitted with chillers that can go to -22°C. We also use a blast chiller to cool food very quickly.”

As part of its effort to provide authentic international menus, Alison Price On Air partners with a couple of restaurants. How does it ensure the safety of food not designed with aviation in mind? “We visit every restaurant we work with and create an efficient packing system,” says Hulme. “We then bring the food to our own kitchen where it is blast chilled and repacked in new, clean, aircraft-friendly packaging. This ensures we can always track the food’s temperature, which reduces the risk of food poisoning greatly.”

The company also offers free culinary courses to flight attendants to boost their food service skills and educate them about wider issues. “For example they are often unaware that the person who collects and orders the catering is legally responsible for it when it leaves the restaurant,” says Hulme.



7. A summer salad by Alison Price On Air

Kraft also highlights the decatering process as a flashpoint – FBOs might do the washing up but fail to wash the bus tub, the container used to carry dinnerware from and to the aircraft. Kraft reports that sometimes flight attendants try to do the washing up on board, particularly with expensive and delicate dinnerware or crystal that they are scared might get broken, but they can’t get the water hot enough, nor its flow strong enough, to do this properly.

The fourth major reason for food safety being compromised is the employment of untrained food handlers. Quite often, general aviation catering is provided by non-industry sources such as restaurants, grocery stores and hotels, or even by flight attendants cooking in home kitchens and shopping in street markets where they have might have no idea of provenance. A common problem with ordering from a restaurant or hotel without industry-specific knowledge is that they may assume it’s going to be eaten straight away, so it’s not chilled.

Take nothing for granted Even when ordering from a business aviation caterer, Kraft advises those doing the ordering not to assume that the FBO or handler has done their due diligence and checked the food source. “Almost all do not,” she says. “They do not ask



8

Operational insights

One of Kraft's partners for food safety awareness training is sajat solutions, which was founded by Scott Arnold, a former corporate flight attendant. sajat solutions offers food handling and storage safety training covering assessing caterers, delivery systems, storage at the FBO and on board and the importance of maintaining safe temperatures.

His tips for flight attendants include carrying extra zip lock bags, so they can create makeshift ice bags and cold storage bags; planning ahead to ensure that the FBO or hotel has cold storage available; and using peers or aviation discussion platforms to find reliable catering sources.



He'd like to see security seals used as standard on delivery containers. "Caterers can provide the cabin crew with the security seal numbers via email or text for verification," he adds. "I'd also welcome a global standard for caterers and FBOs in the form of an SMS."

8-10. Tastefully Yours demonstrates that safe food doesn't have to compromise on taste or looks



9



10

the food source to demonstrate the proper licenses, insurance certificates and health inspections; they do not check the vehicles used to deliver the food; they do not check the cleanliness of the facility. Most don't know what to ask. He or she has assumed the food is being handled safely."

Serious consequences It's symptomatic of the low level of awareness on this topic throughout the industry, something Kraft and others are working hard to change. "All flight departments, FBOs and others that in any way are involved in the flow of food from ordering to consumption should be trained," says Kraft. "It is time to treat this topic as seriously as emergency training: it could save someone's life. Food safety training is not a luxury, but a necessity."

It is a view shared by Daniel Hulme, managing director of Alison Price On

Air, a business aviation caterer based in London. Hulme is also vice chairman of the European Flight Attendant Committee, and is working with Kraft on a certified food handling training programme for the EU.

"I feel it is my duty to push the industry to change its stance on food hygiene," says Hulme. "It should be a legal requirement that flight attendants have a food handlers' certificate. Much is made about the pilots not eating the same meal as each other, or as the passengers, in case of food poisoning, yet the person serving it has no formal food handling training. More effort should also be made to ensure aircraft galley design considers safe food storage and refrigeration. The rest of the committee also agree that food handling and hygiene is such an important topic that it should always be on the schedule of talks in one way or another."

MedAire's Alves also sees the value of training, but recommends a belt-and-braces approach, just in case. "Food education and care – particularly in areas with less-developed standards of food hygiene – are important," he says. "And, in the event food-borne illness still affects crew or passengers, a well-designed medical kit and remote medical advice are important things to have in place." **END**

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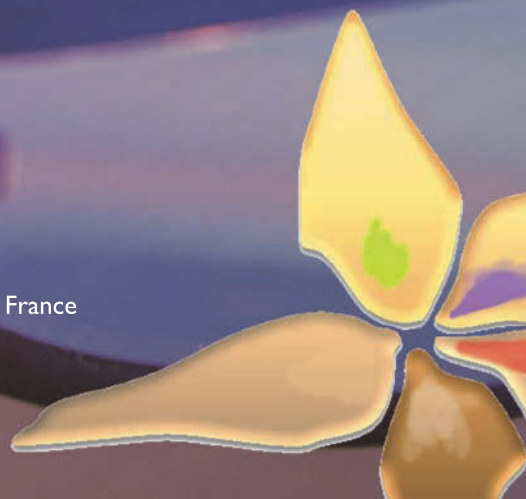
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Smartphones and tablets have become indispensable to many, so the business aviation industry is making creative use of these technologies to offer a wide range of apps

Many people are now accustomed to using smartphones and tablets for everything from accessing email to watching videos, checking transactions, reading the news, planning holidays, dictating notes, scanning documents and generally organising their personal and professional lives. A huge bank of apps is available to enable them to do so, and there is an expectation that there

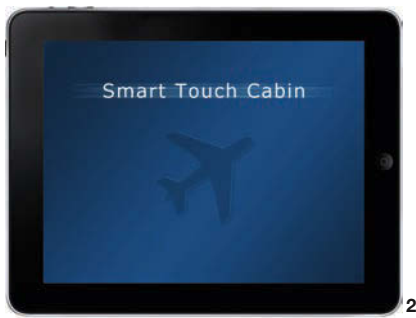
will be something to help navigate every sphere of their experience.

Evidently the business aviation industry has noticed this, because many apps are now available, tailored to business jet buyers and fliers. One popular use for app technology turns the passenger's device into a remote control for the aircraft's CMS – so they can adjust everything from lighting to temperature and window shades.

PGA Electronic's Smart Touch Cabin app is one such solution for CMS in the

1. Gulfstream's CMS app, Gulfstream Cabin Control, loads the actual floorplan of specific aircraft





2

WHAT WE ARE TRYING TO DO IS TIE IN OUR APPS TO THE SERIAL NUMBER OF THE AIRCRAFT



3

palm of the passenger's hand. "It allows the user to change audio and video channels, control volume and home theatre modes, call an attendant, and adjust environmental features such as lights, temperature, window shades and more," says Emilie Honneur, marketing communication manager at PGA Electronic. And the list of services is still growing. "Soon a passenger could register their preferences for food or other services, so that at the press of a button on the app, the crew would deliver the order directly."

Crucially, apps are also being developed and offered by OEMs for new-build aircraft. "These things are

pretty much a given these days," contends Steve Cass, vice president of communications at Gulfstream. "But what we are trying to do is tie in our apps to the serial number of the aircraft so that it is set up for the passenger to control. This will fire up the correct floorplan for that aircraft and allow the passenger to control the entertainment and environment."

Casting the net In line with business jets' role as productivity tools, mobile devices – and the networks on which they run – are being extended and adapted to allow for more collaborative working, both among those on the

The paperless cockpit

One area where business jet operators are making use of mobile devices – typically tablets such as iPads – is in simplifying paperwork for flight crew. Pilots are increasingly using apps to access flight support services on the move. For example, Pilatus PC-12NG operators can connect to Honeywell's Global Datacenter using the myGDC app, which provides flight planning and decision support tools. "We've taken it a step further and simplified the pre-flight process as well by allowing flight plan uploading straight into Honeywell's Primus Apex flight deck," explains Blane Boynton, director of aerospace services at Honeywell Aerospace.

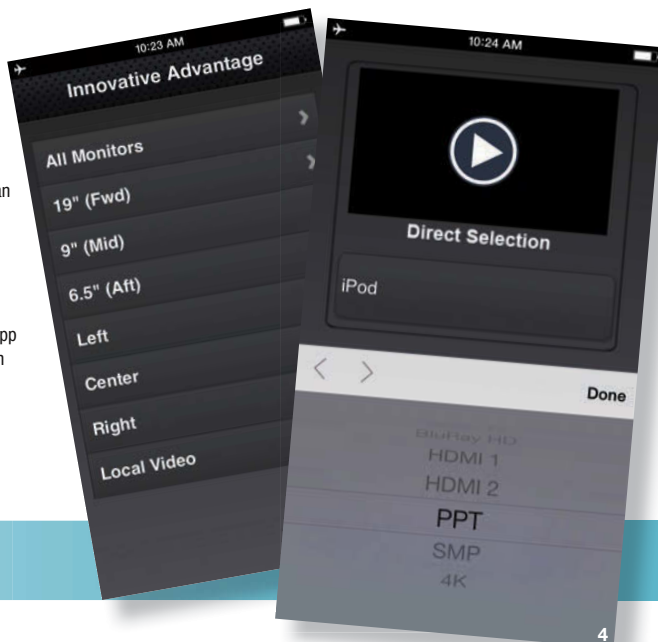
More recently, Honeywell collaborated with Jetex Flight Support to launch MyJetex, which enables flight planning, aircraft datalink, flight following and international trip support services.

On the ground apps are being used by crew for everything from booking stopover hotel rooms to ordering catering and even load balancing – the latter one of Gulfstream's offerings. "The PlaneBalance app helps speed up the calculation of weight and balance prior to take-off and helps ensure accuracy," explains Steve Cass, vice president of communications at Gulfstream. "The app is also customised to each aircraft by serial number, so when the crew log on it automatically understands what that particular aircraft needs and can calculate and advise accordingly."

PlaneBalance complements Gulfstream's PlaneBook electronic document management iPad app, which features checklists and manuals, again tied to that specific aircraft by serial number.

Meanwhile Honeywell recently launched an INDS data manager app with Jeppesen to allow wireless upload of charts and map updates, and a Maintenance Download app which enables Pilatus operators and maintenance department personnel to wirelessly download aircraft fault and health data once on the ground.

2. PGA Electronic's Smart Touch Cabin app for CMS
3. CMS apps such as Custom Control Concepts' iPlane can enable control over the entire cabin, including window shades
4. Innovative Advantage's CMS app
5. Honeywell's Ovation Select CMS can be used with satcom to keep personal devices connected



4



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Five other uses for apps

1 AIRCRAFT TYPE COMPARISON

There are apps to aid business jet owners at every point in their relationship with the aircraft, beginning at the acquisition stage, where they can help buyers to compare models. One such app is Upcast JetBook for iPad, which features range and cross-section comparisons, cabin layouts, photos, 360° views and videos.

The Jet Business has also developed an app to help visitors to its central London showroom to decide on suitable aircraft types. Users can input their required range, passenger count, price and aircraft age range and the app produces a shortlist that the user can then compare and contrast, using dimension and performance information, images, videos and cabin cross-sections.

2 INTERIOR SPECIFICATION

Once the buyer has an idea which aircraft types to investigate further, apps can be used to show them what might be possible with the cabin interior design. The Jet Business added this capability to its app in 2012. It now enables users to change fabrics, carpets, cabinetry, veneers, finishes and upholstery in a virtual representation of the cabin.

Jet Aviation St Louis has also been active in this area. Its free iDesignJets app for iPad enables customers to try out colours, fabrics, design themes and floorplans for the cabin, and designs and colours for the livery.

OEM Gulfstream also sees the value of apps when showing interior design options. "All this helps with customer service and sales," says Steve Cass, vice president of communications at the company. "It is a nice thing to have and a nice initial point of contact."

3 COMPLETION UPDATES

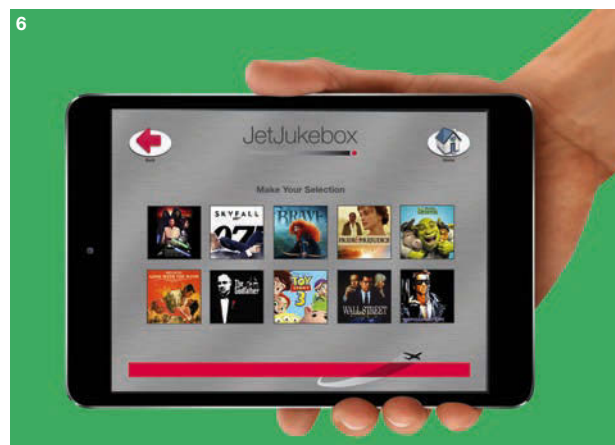
Moving on to the interior completion, apps are being used to keep buyers posted and involved in what can be a lengthy process. SkyDragon's app, for example, can be used to share completion documents, photos and videos, and includes a timeline. More recently, AP Completion Services, a completions management company, created its own tracking app. It provides weekly or bi-weekly status reports, identified discrepancy reports, a timeline and schedule, an image library, interior and exterior videos and direct communication with the company via an in-built email system.

4 CATERING

There are myriad uses for apps once an aircraft is in service. For example, the technology is playing a role in catering. "We have developed a unique tool that can be used by flight attendants to order their catering at more than 130 airports worldwide," says Sascha Gassmann, managing director at DeliSky. "The app provides priced menus from our carefully selected caterers, restaurants and hotels, updated automatically when the app is opened." Beyond ordering, smartphones might also be used to show crew how best to present the caterer's creations.

5 FLIGHT TRACKING

Not forgetting opportunities for increased efficiency, apps can be used to track and schedule the movement of aircraft and aircrew, and create detailed scheduling and usage reports.



aircraft and between those in the air and those on the ground.

"The ultimate goal is to enable a passenger to travel from office, via car, into a business jet and take-off, all the while holding a video conference on a personal device without any downtime," says Bill Rowell, senior manager for cabin systems at Honeywell Aerospace. "This is where our Ovation Select CMS comes into its own. The system is built around a 100% digital backbone that links every component in the cabin. When coupled with our satcom technology, it allows business travellers to connect in flight over email, phone and video conference from their personal devices, and stay connected as they move from terminal to aircraft and back again."

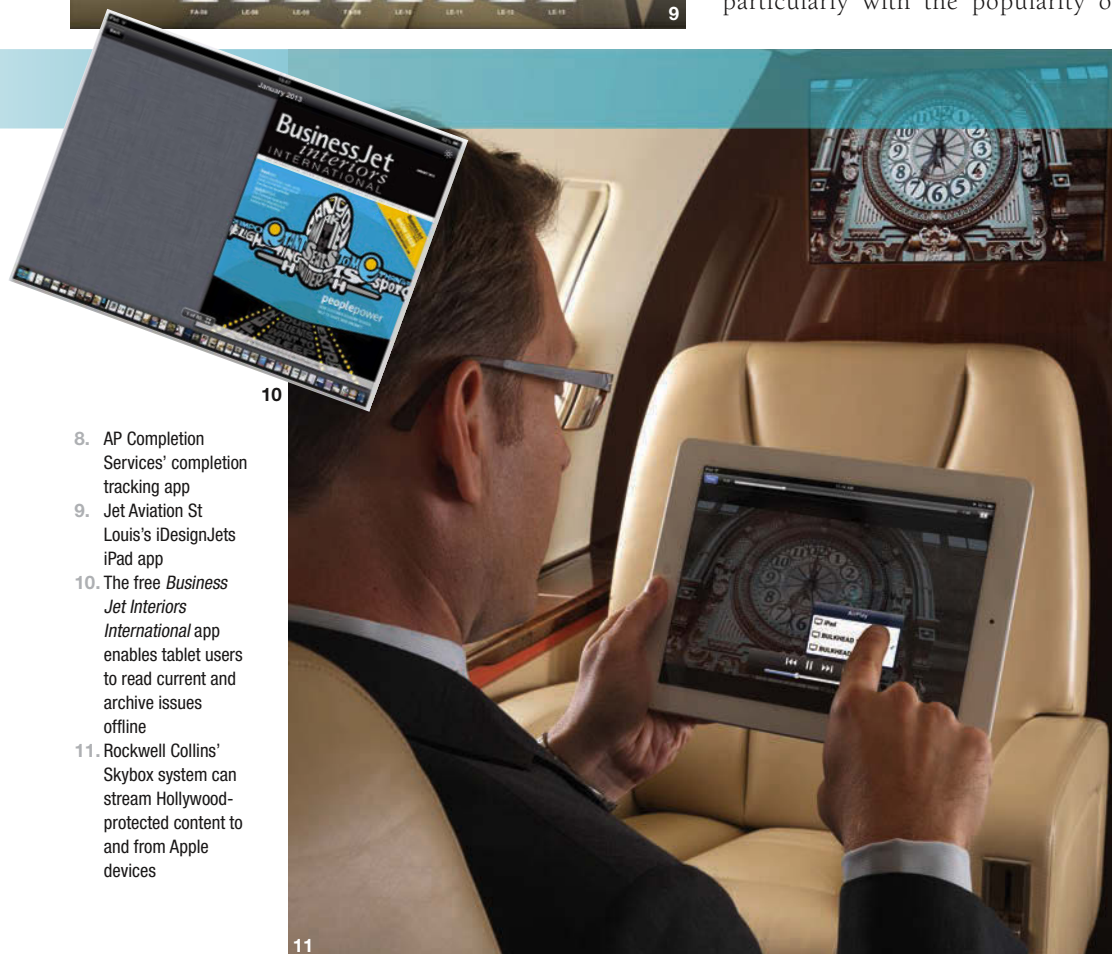
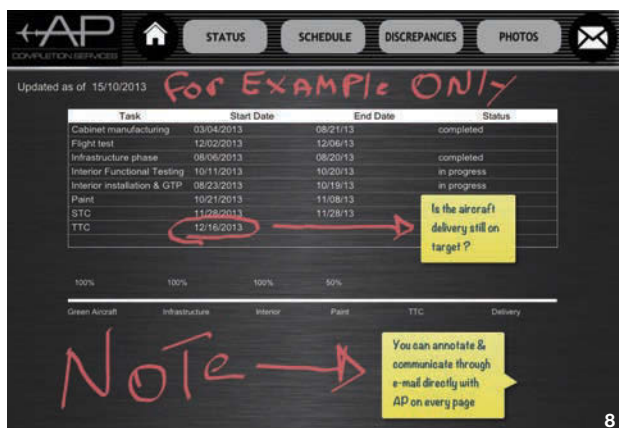
The system also incorporates live TV, enabling passengers to watch breaking news from the London Stock Exchange, for example.

Key to a smooth user experience however, is bandwidth. "We are looking all the time at how to add more bandwidth within aircraft," says Dave

6. Flight Display Systems' JetJukebox streams IFE content to passengers' devices

7. TrueNorth's app-based Simphone OpenCabin solution delivers voice, fax, wi-fi and email capabilities for mobile devices





8. AP Completion Services' completion tracking app
9. Jet Aviation St Louis's iDesignJets iPad app
10. The free *Business Jet Interiors International* app enables tablet users to read current and archive issues offline
11. Rockwell Collins' Skybox system can stream Hollywood-protected content to and from Apple devices

YOU CAN'T GUARANTEE WHAT DEVICES PEOPLE WILL BE USING FOR THE LIFETIME OF THE AIRCRAFT SYSTEMS

Dodson, marketing director at Flight Display Systems. "We are looking at upping bandwidth from 2.4GHz to 5.8GHz with new models as well as switching N routers to those using AC to offer better wi-fi that can connect more devices. Aside from collaborative working, travellers increasingly have more than one device each that they want to connect and this has to be factored into the system design."

Tyranny of choice But networking is only one issue facing the digitisation of the business jet. While much of the developments thus far have centred on developing iOS (Apple) apps for the iPad and iPhone, increasingly this is being seen as too narrow a focus, particularly with the popularity of

Android phones and Kindles. "In fact 60% of devices in use are Android types," says Dodson. "Microsoft has bought Nokia, Samsung is looking at an operating system, Sony has devices and an operating system in the offing and travellers are using many devices – not least smart watches and other wearables, which are coming along. You can't guarantee what devices people will be using for the lifetime of the aircraft systems. Five years ago I would have said we would only ever see Blackberries; restricting our solution to that one platform would have been a disaster."

Thus Flight Display Systems has switched to looking at how it can roll out its control and information services not as apps but as mobile web (m-web) services that are, essentially, device agnostic. However, not everyone is persuaded by this approach. "Apps are especially useful as some can be used offline," comments Sascha Gassmann, managing director of DeliSky, which offers an app enabling passengers to order food for their next flight. "iOS devices are very established in business aviation and among crew," he says. "In my experience apps are used much more often than m-web."

A final point to consider is that with the battery-draining potential of both apps and m-web, designers would be well-advised to factor in charging facilities when catering for those who simply can't put their phone away. **END**

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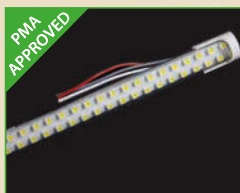
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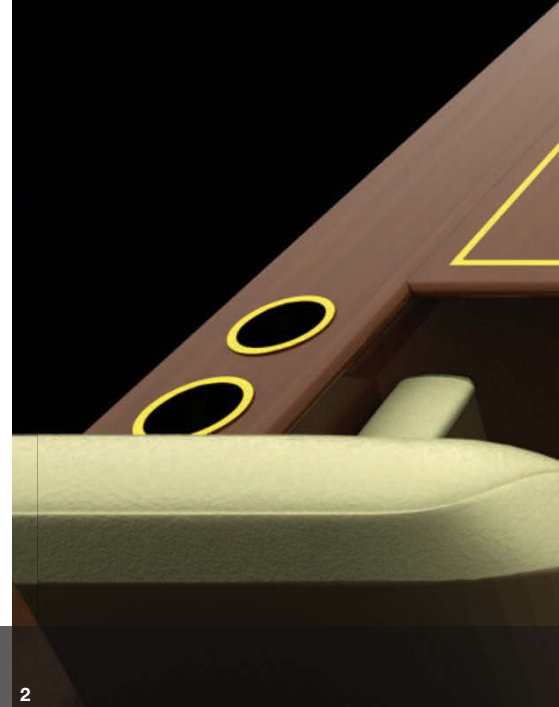
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grandplan

Bombardier's CRJ700 NextGen airliner provides the starting point for a new conversion programme aimed at the Asian market



Gaëtan Dureau left Bombardier in 2012 following many years in management roles in the Far East. Having identified a niche in the market, in January 2013 he initiated his own grand plan – to convert Bombardier CRJ700 NextGen airliners into business jets. He is implementing the Grande 870CJ idea through Asia Aviation, a Hong Kong-based company he established in 2004.

“I noticed the need for a business jet the size of the Bombardier Global or Gulfstream G650 but without the range or price tag of those models,” he says.

1-3. The Grande 870CJ

“Our aircraft is also for customers who want a large cabin and medium range, but don't require the ramp presence of a very large aircraft such as the BBJ.”

Asia Aviation has identified a market for around 50 aircraft. The company plans to buy CRJ700 NextGen aircraft from Bombardier in what Dureau describes as “purely a buyer/seller relationship”. He already has a letter of intent (LOI) for five aircraft. Work to find the first customer is ongoing.

Asked why a customer would go to Asia Aviation rather than arranging for a conversion independently, Dureau cites cost and delivery times. Asia Aviation aims to perform conversions

more economically through its investment in pre-engineering and ability to bulk buy. In fact, it believes customers will make a financial saving of up to 15%. Another benefit is that Asia Aviation will provide on-site representation during the completion.

Early plans are for interior modification work to be carried out at one completion centre, although the possibility of customer-chosen completion sites has not been ruled out. The company says slots are already available and the first completed aircraft should be delivered around two years after contract signature. Asia Aviation believes the period from order





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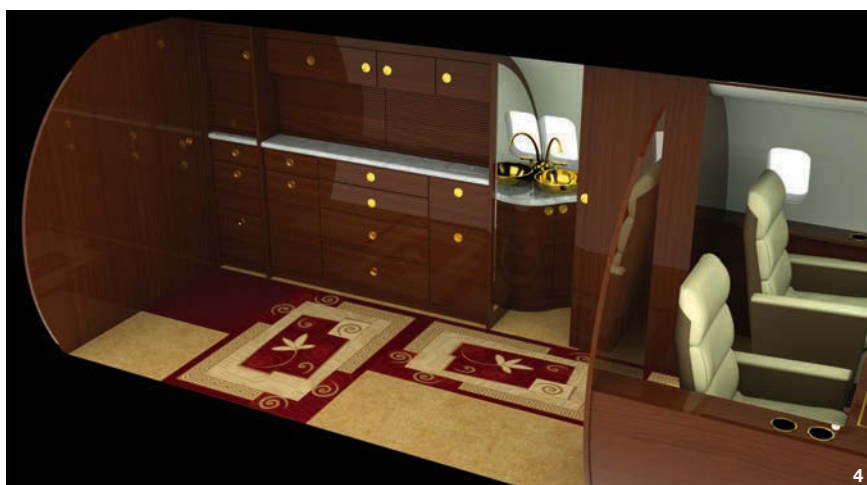


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SELECTING FROM A CATALOGUE, CUSTOMERS WILL BE ABLE TO MIX AND MATCH INTERIOR OPTIONS

to customer acceptance could be cut by as much as 50% once the programme is in full swing. Dureau aims to sell the LOI aircraft before the end of 2014, when, he says, “the window of opportunity closes”.

Work on defining the cabin design began as soon as the project was launched. Concepts are being realised following consultations with operators. However, final contracts for realisation, completion, engineering and so on are yet to be placed; Asia Aviation is in discussions with various providers.

Pick and mix The cabin will be based on a standard design, but the company says a lot of customisation will be possible. The interior will be divided into four sections, with multiple pre-approved designs available for each. Selecting from a catalogue, customers will be able to mix and match interior options to suit their requirements, without their choices impacting the completion schedule.

Although Dureau can't discuss suppliers at this stage, customers should expect high-specification fittings, iPad-controlled lighting, wi-fi connectivity and lie-flat seats. Aspects that will be standard across all Grande 870CJ aircraft include the galley equipment and lavs, with customers simply specifying colour and trim. Galley fittings will include an espresso maker, oven, refrigerator, worktop space for food preparation, and storage including dedicated spaces for crockery and silverware.

Once the project is fully under way, Dureau intends to use virtual design software to enable clients to configure their ideal cabin.

Space travel Of course, the CRJ700 NextGen was designed as a 70-seat airliner and while it may not have the wider cabin of the BBJ or ACJ319, it still offers a huge amount of living space. As the Grande 870CJ it will be configured for 18 people.

Gaëtan Dureau



A fluent speaker of English and French, and with passable Mandarin, Gaëtan Dureau began his aerospace career with the Royal Canadian Air Force in 1973. After working as a technician on a variety of aircraft types he moved into the civilian world, initially on similar work to his service career, but joining Canadair in 1985 to work on technical matters relating to the Challenger business jet.

Dureau became a pioneer technical representative in Asia – initially in Malaysia and then, from 1986, in China. In 1989 he took on a role as an administrator at a Challenger training centre, leading on the creation and maintenance of a full training curriculum, as well as its customer implementation.

A management position in sales and marketing support came next, before he took up post as managing director of a Bombardier training joint venture in Qingdao, China, from 2001 to 2004. In 2004 he established Asia Aviation, initially as a training and consultancy business. RIM Enterprise followed in 2009, as an Iowa-based supplier of spares for corporate and commercial jets.

By then supplying flying as well as technical training, in 2011 Dureau took on a one-year role as Bombardier's director of business development in China, seeking out business development opportunities in the country. He subsequently left the company, and in 2013 conceived the idea for the Grande 870CJ.

4. Galley equipment will be standard across all Grande 870CJs
5. The cabin will be configured in four zones, which can be separated off

1

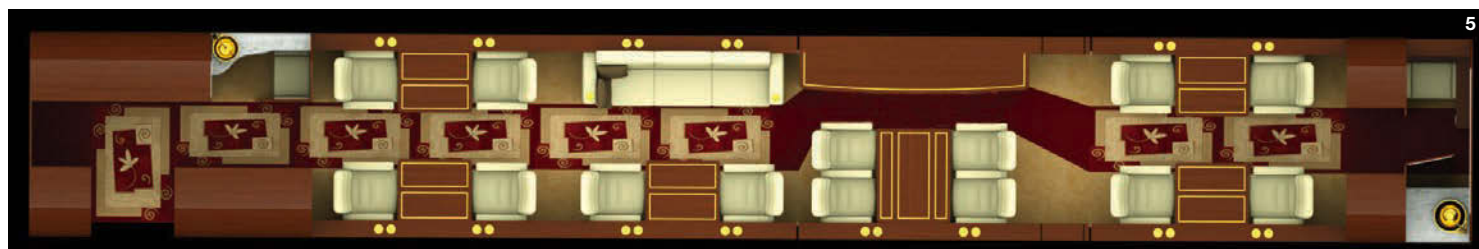
contract, payment schedule and point of contact

2

years expected design and completion time

4

cabin zones





THE DOOR ALLOWS ALL BUT THE TALLEST VIP PASSENGERS TO ENTER THE CABIN WITHOUT DUCKING

Other dimensions are also crucial to the concept. Dureau's experience in Asian markets is reflected in the company's marketing literature, which makes much of the aircraft's tall entrance door. The door allows all but the tallest VIP passengers to enter the cabin without ducking, thus avoiding the impression of bowing to others.

The feeling of spaciousness will be bolstered by the cabin's 6ft 2in height and lack of clutter – personal items can be safely stowed in four storage cabinets. The four cabin sections can be separated to create privacy.

Grande 870CJ customers should also be able to enjoy the view outside the cabin, thanks to the aircraft's high window position, which allows seated passengers to see outside without having to bend. The CRJ700 NextGen windows are also 24% larger than those of its predecessor, with sculpted window surrounds and inset window blind handles to maximise the view and improve natural light penetration.

Unsurprisingly given their joint heritage, the CRJs share some similarities with the Challenger and Global business jets, at least to the casual observer. The Grande 870CJ should therefore not look out of place

next to other business jets and neither should it draw particular attention, a consideration of potential importance to those requiring a large cabin but relatively modest appearance. Or as Asia Aviation's marketing puts it, it will appeal to the customer who wants to represent their company as "successful, but not extravagant".

Practical magic As well as replacing the standard airline cabin, the conversion includes the installation of auxiliary fuel tanks, extending the CRJ700 NextGen's range to 3,000 nautical miles with 18 passengers. This might be just half the range of a Global 5000, for example, but it is sufficient to fly


**CABIN
STATS**

CRJ700 NextGen

Cabin width: 8ft 4in (centreline)

Cabin height: 6ft 2in

Cabin length: 56ft 7in

Seats: 3 crew + 70 passengers

Range: 1,218 nautical miles at Mach .78, with IFR reserves and 70 passengers

High-speed cruise: 473kts

Max altitude: 41,000ft

Price: US\$39.95m (£24.5m)

- 6. The galley will be positioned at the front of the aircraft
- 7. The lav is at the aft

coast to coast across the USA, or from points in the Middle East to London.

The CRJ airframe itself is well proven; the NextGen version that forms the basis of the Grande 870CJ is noted for better reliability and lower operating costs than the legacy model, while the General Electric CF34 powerplant enjoys a similar reputation. The basic aircraft systems are built to withstand airline operations, with maintenance schedules to match, so A checks come up at 600 flight hours and C checks at 6,000. Asia Aviation says this modest maintenance requirement combines with relatively low fuel burn to produce low operating costs.

All things considered, Dureau is certain he has found a winning formula with the Grande 870CJ – a medium-range, practical aircraft with a large cabin that can be personalised with luxurious fittings without breaking the bank. He is convinced it will appeal in particular to the growing Asian market that he knows so well. He needs only find his first customer to begin proving the point. **END**

Web www.asiaaviation.aero;
www.bombardier.com

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- Ceiling systems
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The latest product developments to expand designers' options



GLASS AND MIRRORS

Aviation Glass & Technology has developed a range of “virtually unbreakable” glass and mirror glass solutions for the aviation industry.

The Dutch company says its solutions offer superior damage and scratch resistance, meeting industry demand for reduced lifetime costs. Aviation Glass & Technology also says the 1.7mm-thick glass solution is UV-resistant and 20-25% lighter than typical polycarbonate alternatives.

Aviation Glass & Technology officially presented its glass solutions at Aircraft Interiors Expo in April 2013, together with Aerospace Technologies Group, which will soon start incorporating the lenses into its window shade systems. The glass and mirror glass solutions are also set to take to the skies on an ACJ320 in 2014, following the aircraft's interior completion by Airbus Corporate Jet Centre.

www.aviationglass.aero



TABLES AND DOORS

Already noted for products including stone veneer and stone flooring, List components & furniture recently unveiled several new developments.

The High-Low Table is a table offering infinitely variable height adjustment. The company says it meets the abuse load requirements of 500 lb at any height, and its one-leg design gives passengers more legroom.

Another development, the Hybrid Pull-Out Table, combines mechanical and electronic technologies, and is designed to meet the abuse load requirements of 300 lb, and to continue to function mechanically in case of a power outage.

The Hybrid Pocket Door Mechanism is another such mechanical/electrical combination, and can be delivered as a single or double door.

All three products have already been installed in Embraer's new Lineage 1000E (pictured).

www.list.at



STONE VENEER

Marbrerie Crepet produces made-to-measure galley countertops, lavatory vanity tops, tables, floors and wall coverings from stone that is sliced into thicknesses of 4-6mm. This veneer is then applied to aviation-grade honeycomb. The range of materials that the company can work with includes marble, onyx, granite, limestone, soapstone, quartzite and quartz.

Recent projects have included the manufacture of a vanity top and a floor from smokey quartz, a semi-precious stone. The challenge on that project was the hardness of the stone; the company had to develop diamond-tipped tools to work with the material.

The vanity top was manufactured from a 3cm-thick slab that the company reduced to a thickness of 6mm (keeping the 3cm thickness around the edge of the vanity so that it could be made in one piece. For the floor the company cut 4mm-thick tiles.

The company says it can also manufacture items from onyx and attach a light to the back to shine through the translucent stone.

www.marbrerie-crepet.com



CLEAR VARNISH

Lufthansa Technik has developed a new high-shine varnish that it has already used on a VIP wide-body aircraft completion. The 'environmentally friendly varnished veneer surfaces' (ULF) system was developed between January 2010 and February 2013 to meet fire protection, health and environmental requirements, while also satisfying high quality standards.

Lufthansa Technik says the system reduces the proportion of solvent used from 60% to 20%, without any adverse effect on processing quality, and satisfies the latest EU directives on the protection of humans and the environment. Additionally, because of a chemical reaction triggered by ultraviolet light, the company says its varnish hardens more quickly, so the subsequent grinding process can begin earlier.

"By using this globally unique varnish, for which we have already filed a patent application, we are meeting in full our high aspirations as regards time and cost efficiency, employee protection, quality and official safety requirements," says Dr Mathias Nolte, ULF project manager at Lufthansa Technik's VIP & Executive Jet Solutions division.

Funded by the Federal Ministry of Economics and Technology, the project was conducted in collaboration with Akzo Nobel Deco, the Fraunhofer Research Institution for Polymeric Materials and Composites, the von Thünen Institute of Wood Technology and Wood Biology and the Bremen Institute for Applied Beam Technology.

www.lufthansa-technik.com

Business Airport World Expo 2014 SHOW NEWS

The must-attend exhibition for business aviation professionals around the globe

Business Airport World Expo will open its doors on 26-27 March in Farnborough, UK, showcasing the industry's leading FBOs, business and general aviation airports, MROs, handling agents and refuelling companies from around the world. Over 150 exhibitors will be showcasing their latest developments to more than 3,000 visitors, including executive and private jet owners and operators, operations directors, CEOs and managing directors. The event will also include training sessions organised by the British Business and General Aviation Association, offering insightful discussions on the biggest challenges and developments in the industry.



Register for your free pass at www.BusinessAirportWorldExpo.com

EXHIBITOR Q&A



Daniel Bull,
district manager
– European sales,
Avfuel

Stand 2090

What does Avfuel offer the business aviation industry?

Avfuel combines global access with personalised service across a fuelling network of more than 3,000 locations worldwide and 600+ Avfuel-branded dealers. The company also offers business solutions such as AVTRIP, an established, recognised pilot incentive programme; the jet fuel savings programme Avfuel Contract Fuel; and Avplan, a flight support and trip planning company for domestic and international customers.

Avfuel supplies its branded FBOs and airports with complete systems designed to improve safety, increase operational efficiency, enhance visibility and ultimately facilitate new and returning business. These systems improve experiences for pilots and flight departments in numerous ways. For example, more efficient

transactions result in less time at the counter; and Avfuel's ramp training programme ensures that the line staff has been professionally trained and certified.

What will you be exhibiting at Business Airport World Expo?

Business Airport World Expo provides an excellent opportunity for Avfuel to get face to face with aircraft owners, operators and brokers and show them how our fully integrated network and systems make business aviation more accessible and enjoyable.

What does the future hold for the company?

Avfuel's plans for the immediate future include continuing to grow our network both domestically and internationally. We're in the final stages of talks regarding more key branding opportunities in Europe and Canada, and we've just added the prestigious Sheltair network of 14 FBOs to our branded dealer network in the USA. Avfuel also continues to add Avfuel Contract Fuel locations and explore how our integrated network can provide new and enhanced services for pilots and flight departments.

Ground support equipment

Aviation Spares & Repairs (ASR) will promote ground support equipment, including a full range of tow tractors and bars, plus ramp equipment, such as ground power units, oxygen and nitrogen carts, lavatory and water carts, aircraft jacks, electric utility vehicles, stairs and stands, ramp chocks, marshalling wands, wing mats and more.

As the exclusive reseller in the UK and Europe for Eagle Tugs, visitors can see the Eagle TT-12D Aircraft Tow Tractor and will be able to arrange for a demonstration at their own facility. ASR has also been appointed as the exclusive reseller for Goupil in the UK aviation sector and will display its G3-2L Electric Utility Tipper Vehicle demonstration unit. **Stand 2000**

Gateway to Sardinia

Cagliari Airport will showcase its dedicated executive aviation terminal, improved facilities and new competitive prices. The airport says it plans to offer "very interesting" business proposals to current clients and discuss business opportunities with potential new customers. The brand new terminal, located just four miles



from the city centre of Cagliari, Sardinia, is a great starting point for discovering the beauty of the island, famous for its mild climate, white sandy beaches and crystal-clear blue sea.

Stand 2015

Regional alternative

Siegerland Airport will be a first-time participant at the expo. Situated in the heart of Germany, the airport proposes itself as an excellent alternative to larger airports, especially for business customers who wish to save time or to avoid high traffic areas. With a runway length of 5,315ft and a CAT 1 ILS system, the airport is ideal for aircraft such as Learjets, Citations and Embraer regional jets. **Stand 5032**

EXHIBITOR Q&A



Guy Putman,
general manager,
Flanders
International
Airport

Stand 1075

What does Flanders International Airport offer the business aviation industry?

Using our Fast In Fast Out (FIFO) service, we provide fast handling at a Schengen airport. The target is to enable customers to be on a motorway within 15 minutes of touchdown. We offer 100% flexibility, day and night.

What is the most challenging aspect of your operation?

Adapting to varying arrival and departure schedules is always a challenge, as well as getting the business community worldwide to understand the advantages of business aviation.

What are your plans for Business Airport World Expo?

We hope to increase the visibility of our services and airport; we are located in the heart of Europe close to key industrial areas in Belgium and France, and we have a runway measuring almost 2,000m (6,561ft). We want to use the exhibition to meet customers and find new ones. We will also compare our airport to others to learn how we can improve the attractiveness of our services.

What does the future hold for the company?

We will continue to identify and meet our customers' expectations, and work on promoting the airport. We also plan to integrate the airport and our services in the Eurometropole network, and we will cooperate with other regional airports to promote the advantages of business aviation.

New York minutes

Morristown Municipal Airport is exhibiting to continue its Why Wait? campaign. "We recognise that your time is valuable," says Maria Sheridan, senior director of business development. "We think Business Airport World Expo is the ideal opportunity to show Europe that when arriving into New York City's Metro-Plex, you don't have to wait in line with the others." The airport says clearing customs is quick and easy and it has all the amenities clients look for, set within a beautiful country-club-like setting. **Stand 4025**



Private aviation expansion

Ireland West Airport Knock, located 5.6km southwest of Charlestown, County Mayo, is a fast-growing airport, that is now planning an expansion in its private aviation offering. It will be attending the expo to promote its facilities to FBOs, MROs, handling agents and refuelling companies. **Stand 1080**

New crew lounges

As it celebrates its 5th anniversary, Euro Jet will promote two newly opened complimentary crew lounges in Tivat, Montenegro and Prague, Czech Republic. The Tivat lounge reaffirms Euro Jet's commitment to being a leading provider of ground support in the Balkan region. In Prague, Euro Jet has two lounges – one ramp side and the other street side – and a 1,500m² (16,146ft²) hangar that can accommodate multiple heavy jets.

Euro Jet will also be promoting its newly opened operation in Turkey, a joint partnership with Bee Jet. Euro Jet now has branded stations throughout Turkey providing VIP service.

Lastly, the company will be able to provide a demonstration of its new smartphone application, which is designed to enable agents to monitor real-time aircraft movements as they happen on the ground. The data is sent in real time to customers so they can track their flights instantly. **Stand 3125**



Aircraft detailing

The Full Wax will demonstrate the benefits of quality aircraft detailing. The Full Wax's director and detailers will be available to answer questions and there will also be a running video showing the company's more specialised services.

The company says its ISO9001 Quality Mark assures clients that they are receiving the very best possible service on all levels, being fully compliant with manufacturers' procedures and aviation regulations.

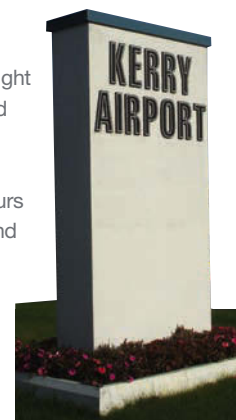
The Full Wax says regular use of its services enhances an aircraft, increases the longevity of paintwork and keeps brightwork corrosion at bay. **Stand 1120**

Irish charm

Kerry Executive Handling provides ground handling and customer services to business and corporate jets operating into and out of Kerry Airport in the southwest of Ireland. Its office is located in the main concourse of the airport, where dedicated staff are on hand to assist crews and their clients on their arrival and departure from the airport.

The company says that the size of Kerry Airport allows flight crew and their clients quick and easy access to services and facilities in all areas. Kerry Executive Handling understands that all aircraft operators require quick turnarounds and a professional service at all times, and the company endeavours to provide these services in a safe, punctual, professional and reliable manner.

As with all travel arrangements, plans can change at the last minute for both flight crews and their clients. To accommodate these last-minute changes, the company aims to be flexible and assist both flight crews and clients with any alternative arrangements. **Stand 4120**



BBGA TRAINING CONVENTION



The British Business and General Aviation Association (BBGA) will host training sessions, presentations on current topics and open forums to capture and debate issues of concern during Business Airport World Expo 2014



TOPICS TO BE DISCUSSED INCLUDE:

(correct at time of going to press)

HUMAN FACTORS

- › Ground operations and the development of common standards to save organisations from suffering due to human factors (HF) issues
- › HF engineering and what we can learn from that approach to adopting HF in a maintenance context
- › Crew resource management and how it is developing

GROUND OPERATIONS AND WHAT WE CAN LEARN FROM THE US APPROACH TO DISPATCH

- › Dispatch training
- › Aircraft performance

SECURITY MANAGEMENT SYSTEMS (SMS) AND HOW YOU SHOULD CONSIDER USING THEM IN YOUR ORGANISATION

- › Don't view SMS as a requirement – use it as a business improvement tool
- › What does 'good' look like?

SECURITY AND CUSTOMS

- › How can we meet the requirements?
- › Delivering customer service
- › Maintaining a safe and secure environment
- › Permits and access

IT AND HOW IT CAN SUPPORT US IN A MODERN OPERATION

- › Working with the regulator and how that can look in an environment focused on risk-based oversight
- › Keynote business speaker from a major airport, to put things in context
- › Hot-topic briefing sessions



Mark Bailey, CEO of the BBGA, explains why the training sessions are not to be missed

What are the main topics you'll be looking at over the two-day event?

We'll have many of the big players speaking at the event and will cover a variety of topics that affect both business airports and operators. We will be looking at dispatcher training, particularly in the USA, and how this can be translated to the UK. IT and operations systems will also be a focus for discussion, looking at what is available in the industry and how they can be used to schedule what you're doing on the aircraft.

Other topics up for discussion will be IS-BAO and how these approvals could be simplified; an update on the legal world and the latest twists and turns – these types of sessions are always extremely useful and well attended; the red tape challenge in aviation, which will provide an opportunity for a keynote speaker; the new CAA general aviation organisation; and changes to aviation security and border control, and how this will affect business aviation. The sessions will cover a whole lot of changes happening in the industry and will promote a lot of debate and discussion.

What will attendees get out of the event?

I don't think we've had this type of ops training event before in the UK – it is typical of what you would do in the USA. So the idea is to really push training and get the operations people from organisations at a middle management level to come along and



share their experience with attendees. Hopefully people will get a better understanding of what's available and what other people are doing in operations training at this point in time. They may actually get some understanding of what people do in the USA and whether there's any benefit that we can cross over and take from that. While they might not be subject to the same regulations, people still have to do the same things – make the onboard changes, schedule onboard crew, consider flight time limitations, and go through the permitting process – so it is still useful to learn about what is happening in the USA and apply it to our industry in the UK.

There will also be discussion sessions towards the end of each day that will see some very different and interesting topics brought up depending on what's going on, which will be very useful.

What are the benefits of running the sessions at Business Airport World Expo?

I think that Business Airport World Expo is highly professional and an excellent fit for our members. My main reason for doing this is to ensure that we can get consistent messages out at important events throughout the year. The visitors to Business Airport World Expo aren't normally the ones who attend our events, so it is an excellent opportunity to try and mix those people together.

We've set it up so that there is thoroughfare between the conference and exhibition, and there will be plenty of time available between sessions for networking. There will be a real buzz and people won't be able to resist visiting the stands at the show. We expect around 150 people to come through at a time to the sessions and hope to grow this further in the future.

FAA dispatcher training

Navigational solutions provider Jeppesen will deliver best practice training in line with the scope of dispatcher practices under FAA approval. A qualified FAA dispatcher will discuss effective ground operations activities that support aircraft on the ramp. Jeppesen delivers innovative products that integrate navigation, operations and logistics information into one end-to-end solution. The company helps flight departments, aircraft management and charter operations providers improve the safety and efficiency of their transportation operations by providing tailored products and services engineered to specific needs, and robust information solutions to access the right data when and where it is needed most.

Quality and SMS training

Sologic, which delivers Quality and SMS training, will present material associated with root cause analysis (RCA) during the BBGA Training Convention. The session will be beneficial for any part of an organisation wishing to learn about Quality and SMS training, and will provide information on good practice to stop people jumping to conclusions without evidence. Sologic's RCA solution suite is built on more than 20 years of field experience with clients around the globe. The company provides training, software and services to help clients solve challenging, costly problems and prevent them from recurring. Sologic uses logical analysis to identify and correct the systemic causes of major events. The company helps its clients reach their business goals by improving processes; enhancing customer service and supply chains; avoiding downtime, penalties and interruptions; and promoting more cohesive teamwork. The method is scalable and universal, so it's perfectly appropriate for problems big and small, in every field of business.

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printready

Is there a use for 3D printing in the VIP aviation business?

1. A seat mock-up created using 3D printing
2. A rendering of the same seat

3D printing technology has undergone massive development over the past 30 years and ACA believes it has now reached a stage where it could be a helpful tool during the VIP aircraft interior design process. The company has been investigating how it can tap this potential to offer a new service based on the technology.

"The main task of our research was to figure out what quality and what products might be achievable using today's 3D printing technologies, and how they can be used to support designers and completion centres," explains Tobias Malangré, CEO at ACA.

Because there are various techniques for 3D printing, it was necessary to test several possibilities. ACA found the results varied mainly on the quality of the printer, the 3D model and the printing material selected.

"To obtain a satisfying result, it's crucial to select the appropriate technique and materials, depending on the purpose of the print," says Malangré. "We found 3D prints could be an ideal addition to sketches, renderings and animations, and are attainable at a reasonable price."

One application for the technology could be to produce small, to-scale 3D mock-ups during the cabin design phase – showing the layout and its possibilities as a complement to computer graphics and animations. ACA says scales from 1:200 to 1:20 are possible.

"A changeable 3D layout is a fantastic tool to facilitate discussions regarding the layout,

proportions and space usage directly with the customer," says Malangré. "A 3D model is easy to understand and it gives the customer the important feeling of participation during the process of defining their new living space."

Feedback from customers has proved positive. "This would definitely be a great advantage," says Eric Jan, SR Technics' head of interior design. "We have been thinking about this new tool for a while. We believe it is now arriving at a mature stage and that it would definitely help customers to understand the project. The customer will be able to have a miniature version of the final product in his hand, giving a better vision and understanding of it."

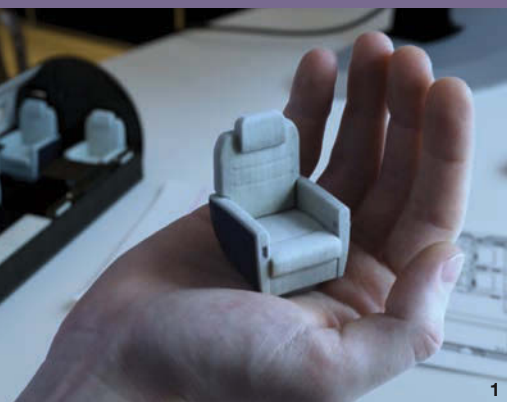
After the final design review stage, ACA says there are limitations to the technology at the moment. Although it could be used to print a full-colour aircraft model, recreating the look and feel of different materials is a challenge, and therefore at the moment it is not a valid replacement for real material samples or computer visualisations.

"I'm not sure about the haptic feel as the soft touch and the smell of materials is something very emotional," agrees Tim Callies of Tim Callies Design. "But I'm confident 3D models will help us to get closer to customers' wishes, helping in discussions regarding seats, for example."

Malangré also suggests that a 3D printed model could be a good basis for finishing using traditional model-making methods.

Another application for 3D printing is rapid prototyping of design details. "It is a fast, cost-saving tool in the completion process," says Malangré. "It gives designers a great variety of new possibilities, for example helping them to define shapes."

Overall, ACA believes anything that helps a designer to convince the customer of the advantages of a design is valuable. "3D printing could be a very powerful tool for designers and manufacturers," concludes Malangré.



1



2

ACA

Reader Enquiry No. 501



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2012 Winner

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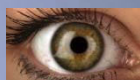
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photofinish



"Sometimes it's the little things that make a big difference," says Rick Niefeld, vice president of sales and marketing at HighTech Finishing. "Business jet owners and operators want the absolute best for their interiors and the impact of beautiful, high-quality decorative plating is no exception. The decorative plating in a business jet cabin plays a critical role in the overall look and feel and adds a distinctive element of luxury. Our customers expect zero defects, on-time delivery and, of course, it has to look amazing."

To get the very best finishing results for aircraft parts, HighTech Finishing relies on craftspeople to work each part by hand. These employees have accumulated many years of experience. The company has also invested in modern equipment such as extended-length tanks for plating large and custom pieces, advanced air-handling units for integrity in clear-coat applications, and upgraded testing facilities to ensure plating bath conformance. The company reports that these investments have paid off – it has

found that designers and aircraft owners are now selecting a wider array of finishes.

Furthering its commitment to investing in its future, HighTech has a registered ISO9001:AS9100 quality processing system in place and has also obtained FAA Part 145 repair station certification for plated parts.

"Our only focus is business aviation, so we understand the high demands placed on us," comments Niefeld. "That's evident in our decision to seek and obtain our ISO9001:AS9100 designation and our FAA repair station licence."

HighTech has been supplying decorative metal plating solutions for interior hardware and trim parts to business and head-of-state aircraft operators worldwide for more than 25 years. The company offers in excess of 130 standard finishes and custom capabilities. It counts aircraft manufacturers including Gulfstream, Embraer and Dassault – plus well-known completion and refurbishment centres – among its customers.

HighTech Finishing

Reader Enquiry No. 502

goodasnew

Aerotrim's purpose-built production facility in Wiltshire, the UK, produces high-end luxury interiors for executive jets, super yachts and other special vehicles.

For existing aircraft in need of some attention, the company can provide everything from new leather and fabric coverings to cabinet repairs and polishing. Seats and sofas can be redesigned and rebuilt, carpets can be replaced, ceilings and bulkheads can be upgraded, and new audio and lighting systems can be installed – giving the cabin the feel of a brand-new aircraft.

Aerotrim offers a complete design service, and waives the fee for this when a client commissions the company to undertake the refurbishment.

Aerotrim

Reader Enquiry No. 503



COOLCAT

INSIDE JAGUAR'S FIRST SPORTS CROSSOVER CONCEPT VEHICLE, THE SLEEK C-X17, THE CAR MAKER HAS MARRIED IMPRESSIVE TECHNOLOGY WITH TIMELESS CRAFTSMANSHIP



The C-X17 features four lightweight bucket seats designed for a sculpted free-standing appearance, and two leisure seats in the cargo area, which deploy from the floor for use when the car is stationary.

The seats, instrument panel, floors, doors and cargo area are finished in an overlapping combination of jet saddle leather and orchid leather panels. British leather specialist Connolly created the bespoke leather panels especially for the C-X17. The 3mm-thick saddle leather, which features bands of stitching, is die-cut in a Houndstooth pattern inspired by traditional tailoring materials. Ruthenium, milled aluminium and black brushed anodised metal finishes – supplied by Kussmaul – impart a dark tonal effect.

A centre tunnel running the length of the car incorporates the Interactive Surface Console – an infotainment hub with a series of touchscreens under a continuous panel of transparent acrylic glass, which in conjunction with the secure in-car wi-fi network, enables passengers to connect via social media. The C-X17's digital audio system has been specially designed by Meridian, and the centre console is configured for a heads-up display projector.



OTHER EYE-CATCHING DESIGNS AND SOLUTIONS FROM OUTSIDE THE AVIATION INDUSTRY...



Philips and Desso are partnering to develop solutions that combine LED lighting with light transmissive carpet, for potential interactive applications in offices, hotels, conference centres and other public buildings.



Zaha Hadid collaborated with shipbuilder Blohm+Voss to design a spectacular 128m superyacht concept, which also acts as the 'master prototype' for a further five 90m yachts. The first of these five to be technically specified and detailed by the naval architects at Blohm+Voss is Jazz, pictured. Its lineage is evident, but it has had technical refinements to address the specifications required for ocean crossings.

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