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June 2012

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first thought

Victims of old-world economics

An old joke goes that banks will only lend money to those who don't need it, and it's never been more true. Small and medium enterprises, perhaps seen as too great a risk, are finding it very difficult to finance expansion. It is inhibiting their investment in people, premises and equipment.

In our own industry, sellers of used aircraft complain that the soft lower end of the market is restricting those higher up the ladder who, in more normal times, would now be seeking to upgrade. Business aviation activity has always correlated closely with corporate earnings, which are increasing – but perhaps the historical rules are now being rewritten. Brokers insist it has never been a better time to buy. Potential customers in the static markets of North America and Europe must be thinking: if only we could.

By contrast, cash buyers and fast-growing companies in emerging markets continue to buy large, long-range jets. In the BRINC economies – the former BRIC has expanded to take account of Nigeria's new wealth – buyers want the best and they want it now. The old world's current austerity measures are an unfamiliar idea here, and there is less sensitivity around business aviation. Operators do not face the threat of new taxes and regulation is less burdensome.

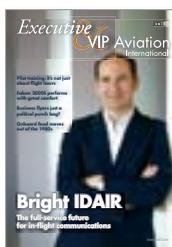
This all puts pressure on manufacturers of smaller aircraft with longer established product lines in traditional markets, which makes the troubles of Hawker Beechcraft look sadly inevitable. The company delivered 198 GA aircraft in 2011, down from 214 the year before. Although it was catching up by the fourth quarter, delivering 85 planes compared with 88 a year earlier, it still lost an eye-watering \$632.8 million in the full year.

Difficulty in obtaining composite parts has halted production of some models. Hawker also admits to problems implementing new computer software. But the real issue is clear: private equity interests acquired the former Raytheon Aircraft Co in a highly leveraged buyout right at the top of the market in 2007, leaving it saddled with multi-billion dollar debts.

Hawker has assured customers their down payments are secure and it will fulfill its commitments to them. But those in a position to order new aircraft will be understandably cautious in these circumstances, and rivals such as Cessna, Bombardier and Embraer will not be standing idly by.

In its delayed annual results filing, Hawker has admitted it may not survive the year unless it can comprehensively restructure or improve its liquidity. More than 10% of employees in Wichita have already been laid off. More drastic surgery lies ahead.

MARTIN ROEBUCK
Editor
 martin@evaint.com
 Tel: +44 (0) 208 657 0138



PARVEEN RAJA
Publisher & Business Development Director
 parveen@evaint.com



DON PARRY
Online News Editor
 don@evaint.com



MAX RAJA
Sales Manager
 max@evaint.com



SHELDON PINK
Graphic Designer/Production
 mrpinktoo@gmail.com



LESLEY WHITE
Conference Manager
 lesley@evaint.com



SHOBHANA PATEL
Head of Finance
 finance@evaint.com



JAYDE OCHELLO
Circulation Department
 jayde@evaint.com



HANNAH SAFIYAH
Circulation Department
 circulation@evaint.com

Address changes and subscription orders to:
 circulation@evaint.com
 ISSN 1754-1166

EDITORIAL CONTRIBUTORS
 Benét Wilson and Ian Putzger

PUBLISHED THREE TIMES A YEAR BY
EVA International Media Ltd
 25 Burcott Road, Purley
 Surrey, CR8 4AD, UK
 Tel: + 44 (0) 20 8668 9118
 Fax: + 44 (0)20 8660 3008
 Website: www.evaint.com

PRINTED BY
Headley Brothers
 The Invicta Press, Lower Queens Road
 Ashford, Kent, TN24 8HH, UK

DISTRIBUTED BY
Business Air



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TrueNorth's Stylus handset can be personalised to match cabin decor

Improved connectivity has drastically changed how we communicate and do business, in the office, at home but most especially while on the move.

"Passengers flying on business aircraft expect to be able to make a call, access their email, surf the internet and more while they're in flight," says Jason Natwick, director of product line management at Satcom Direct, the Florida-based satellite voice, fax, datalink and internet communications solutions provider. "Recent advances in technology have made these capabilities more accessible, whether you operate or fly on a Gulfstream or a Cessna Citation.

"Ultimately, the determination of which system to install comes down to the mission of the aircraft, the passengers that are on board, the type of connectivity needed and where the aircraft is expected to fly."

Andy Beers, director of aeronautical sales for the Americas at satcom equipment manufacturer Thrane & Thrane, agrees: "How good your connectivity is - not how your cabin looks - now determines how many planes you sell."

A series of type approvals from Inmarsat has meant that new Thrane & Thrane customers have several more antenna options available. Aircraft

operators who already have the appropriate antennas can upgrade to SwiftBroadband more easily via their existing installation.

The company's broadband solutions range from the recently introduced entry-level Aviator 200 for light jets, which has greatly reduced the cost of previous high-gain antennas, to the Aviator 700, which offers the ability to access a true IP-based network in flight facilitating global voice and data calls, email, fax and internet browsing. Thrane & Thrane supplies its own Wi-Fi, VoIP-based handset (voice over internet protocol) with noise-cancelling system.

Following ARINC's appointment as an Inmarsat SwiftBroadband distribution partner, ARINC Direct, the company's business and general aviation arm, has rolled out new products including a business jet Wi-Fi hotspot, enabling in-flight payment. The company says this development, which complements its Cabin Connect product for commercial air transport, will enable business jet users to charge passengers for internet usage in a totally transparent way.

Satcom Direct has introduced the same idea with SkyTicket, which can be used by any business aircraft operator, including fractional and Part 135 charter operators. Passengers can cre-

ate an account while on the aircraft or log in to their existing SkyTicket account to choose a package of time or block of usage, determined by the satellite network and the hardware on the aircraft. Users are charged to their credit card and can view their usage as they go, with any unused balance remaining valid for one year.

SkyTicket currently works with Inmarsat and Yonder hardware, and functionality on multiple other hardware platforms will follow in the near future. "It is designed with a simple graphical user interface [GUI] that works similarly to when you use internet in a hotel or coffee shop, and the log-in screen can be branded to showcase logos and brand colours for a charter operator or business," says Jim Jensen, founder and owner of Satcom Direct.

Inmarsat and Honeywell have signed an exclusive \$2.8bn agreement under which Honeywell will produce the onboard hardware that will enable commercial, business and government aviation customers to connect to Inmarsat's Global Xpress (GX) satellite network. This Ka-band network, which will provide users with a higher throughput than satellite solutions based on Ku-band, is due to launch in 2013 and will provide global services from 2014. Users will be able to



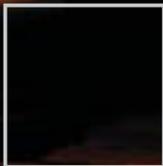
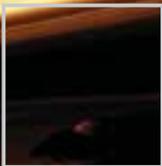
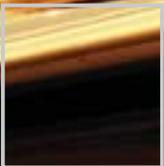
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access multi-media presentations, video conferencing and social media in real time while in flight via laptops, iPads, tablets and smartphones.

Panasonic Avionics Corp announced in March that it had become the majority shareholder in AeroMobile Communications, producer of the eX-Phone product. The deal reinforces Panasonic's role as arguably the leading global provider of in-flight entertainment and communications (IFEC) technology for commercial airlines. It offers broadband access and live TV through its Global Communications Suite as well as the ability for passengers to use their mobile phones, smartphones and BlackBerry devices to make and receive voice calls and generate text messages and emails.

The system is available exclusively to the VIP and business jet market through IDAIR, a joint venture between Lufthansa Technik and Panasonic Avionics. IDAIR's CEO, Andrew Muirhead, says the company is installing GSM telephony, IPTV and broadband internet based on Panasonic solutions on aircraft the size of BBJs and larger today and plans to provide a business jet solution within the next 18 months. Passengers will have global access to the full suite of broadband communication services, live TV and GSM telephony using the same network as commercial airlines.

"The difference between us and other suppliers is that we have a large-scale commercial aircraft rollout to support the business case. Companies we're competing against don't have that degree of scalability. We're in a good position to provide global broadband with an attractive end-user cost model," Muirhead says.

"Other companies that tried to provide this previously worked on a business model that didn't cover the cost of leasing the necessary satellite space. You need access to the transponder on the satellite on a worldwide basis. The advent of smartphones means the number of passengers who can take advantage of broadband connectivity has increased dramatically compared with the limited number of laptop users a decade ago, providing an expanded user base to support the model."

In addition to providing cutting-edge connectivity and telephony systems, IDAIR is also developing an advanced wireless-based content distribution system, which will enable passengers to access news, flight information, video and au-

dio media as well as a number of services not available on existing systems. These services will be available from 2013 via passenger-owned devices such as iPhones, iPads, Windows and Android mobile devices, and Muirhead promises "a unique, personalised interactive experience".

"Cabin-agnostic" technology

California-based technology company Esoteric, which produces next-generation entertainment and control systems for private jets and yachts, claims its app-based SkyPad is the lightest AV-on-demand (AVOD) product on the market

The system is described as "cabin agnostic". Any personal mobile device running it works in any cabin configured with a SkyPad backbone. The app's GUI elements are effectively recreated each time the user enters a SkyPad-equipped cab-

in, so the same app displays a customised GUI.

SkyPad can be installed as a stand-alone media system on any aircraft or integrated with any current high-speed satellite system and wireless router. It combines state-of-the-art audio/video compression and distribution technology with cloud computing, delivering content currently via Ku-Band and eventually Ka-Band. Esoteric claims it can be implemented for a fraction of the cost of traditional wired systems.

Innotech Aviation in Montreal, which provides interior completions, refurbishment and avionics, has fitted SkyPad on Cessna and Bombardier business jets, including several Global Express aircraft.

Also equipping Cessna aircraft is New York-based Talon Air Maintenance Services, master dealer for International Communications Group.



How Legacy customers stay connected

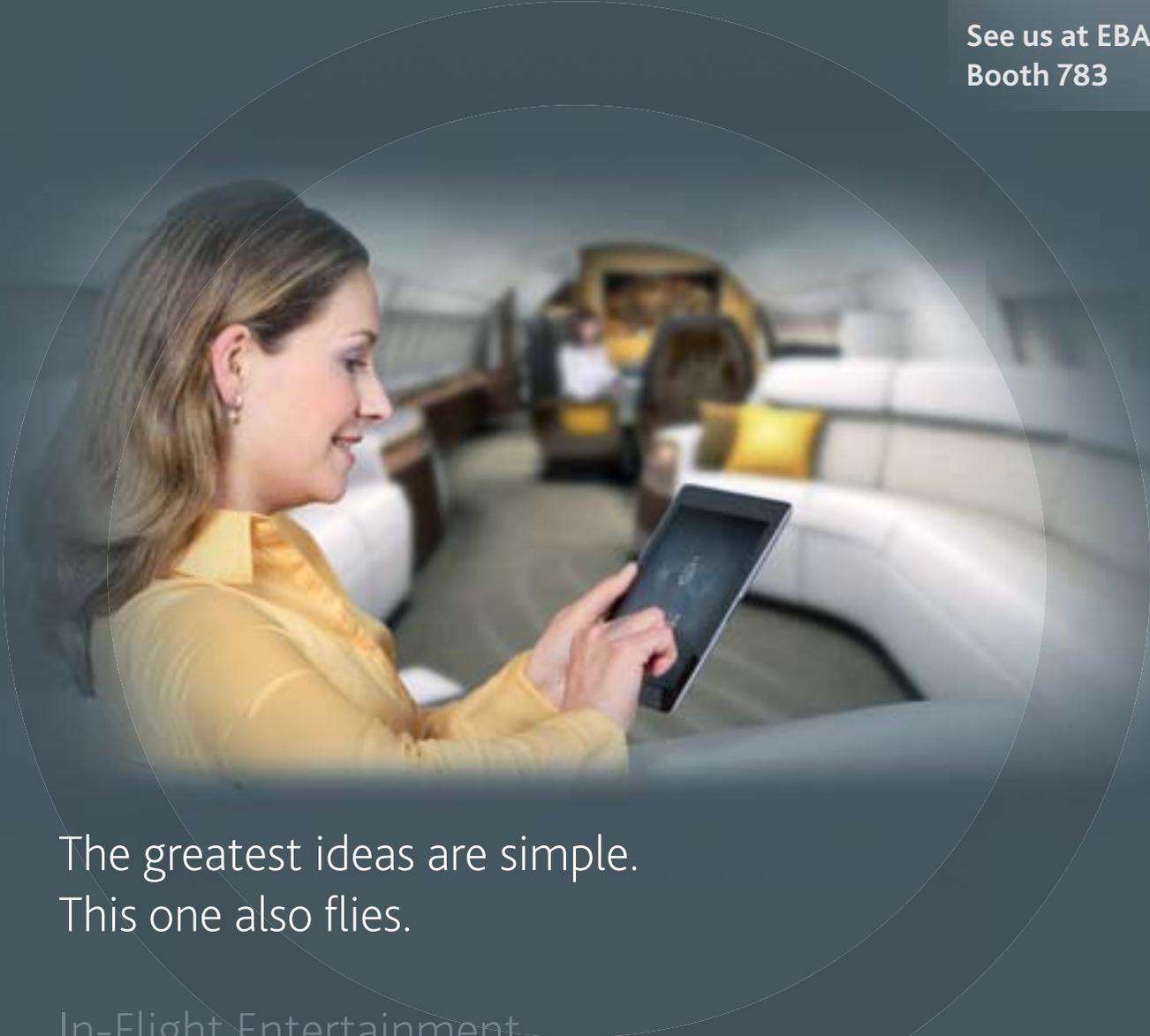
A worldwide demonstration tour by Embraer in March highlighted improvements to its Legacy 600/650 jets including Honeywell's Ovation Select digital cabin system, designed to boost connectivity for passengers' electronic devices.

Ovation Select, also offered on the Legacy 450/500, features a full, high-definition video system, media input, iPod and iPhone docking systems, USB, HDMI, VGA and composite video ports, Blu-ray player and a 3D moving map. Customers can choose

from a number of monitor options including 32in credenza or 24in bulkhead configurations or individual seat monitors with touch-screen controls. The new-look Legacy also provides a wireless handset Iridium telephone system.

Boeing's latest business jet, a modified 737-700 with -800 wings that is designed to seat 19 and sleep eight, also incorporates Ovation Select. The aircraft was unveiled at ABACE in Shanghai and the first delivery was made in April to a private customer

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Talon announced at last year's NBAA event that it had completed the first installation of an ICG SB-200 Sora Lite advanced Inmarsat high speed data and voice satellite communications system on a Cessna Citation III. This followed its earlier installation of ICG satcom equipment on a Sikorsky S-76B helicopter.

ICG's product line-up includes ePhone, a digital VoIP-based handset that provides the same screen quality customers are accustomed to on their handheld personal devices.

TrueNorth Avionics has teamed up with engineering services specialist StandardAero to earn FAA supplemental type certificates for communications upgrade solutions on Gulfstream III, IV, G450, G500 and G550 aircraft, based on its Simphone OpenCabin system

Simphone was designed in response to airborne telecom systems that were heavy, complex, expensive to install and operate, and prone to obsolescence, TrueNorth says. Its integrated system is claimed to involve less hardware, and presents an intelligent user interface. It is app-based, allowing a wide variety of customised features to be added.

The company's latest development is the TrueNorth Stylus multilingual handset, available from June in wired and wireless versions with a design that can be personalised to match an operator's cabin decor. "We're seeing interest in both the TrueNorth Stylus and the MyStylus app from our current customers as well as aircraft OEMs," says TrueNorth president Mark van Berkel.

Duncan Aviation has also been busy for Gulfstream, completing a Wi-Fi installation in a Gulfstream V for TWC Aviation at its avionics satellite facility in Van Nuys, California following a modified STC that initially covered only the Gulfstream IV. Duncan Aviation has also installed Wi-Fi operations in TWC's Gulfstream IV-SP aircraft.

Ohio-based MRO provider Constant Aviation



Satcom Direct's pay-as-you-go internet billing product works with Inmarsat and Yonder hardware

has received a supplemental type certificate for Wi-Fi, satellite phone capability and the Aircell Gogo Biz in-flight internet system in Embraer's Phenom 300 jet.

In Europe, 328 Design has completed installation of the new Cobham SB300 SwiftBroadband system on a 328DBJ after receiving EASA certification. The customer has Wi-Fi connectivity for personal mobile phones, PDA and laptops, and is said to be delighted with his "office in the sky".

Joerg Gorkenant, head of design organisation at 328 Design, says: "his is another product improvement that we can offer to our fleet of 328 customers who might find an interest for VIP, commuter as well as mission applications for live data streaming and long-distance communication."

InTheAirNetVIP, part of Rogerson Aircraft Corp, has introduced MAPP WAPP. The wireless entertainment platform displays maps, plays movies and audio and recharges smart devices.

Based on the company's patent-applied-for Android architecture, while also enabling access to a wide range of other operating systems, such as Apple or iOS, MAPP WAPP enables business passengers to use their personal electronic devices for all the things they were designed to do. With a broadband link in the aircraft, they also have full email and internet connectivity.

Resolution like at home

Innovative Advantage, based at Redmond in Washington state, claims to offer superior video quality for business and VIP aircraft by using a

fibre optic distributed network system around the aircraft cabin. Signals are routed at their full, uncompressed bandwidth, giving passengers equivalent screen quality to their Blu-ray system at home, the company says. It has made more than 100 deliveries, including to Gulfstream G450s and 550s.

ViaSat, the provider of the Yonder high-speed internet service, has appointed Flying Colours Corp as an authorised reseller and installation facility for its VMT-1500 system. This is claimed to be the lightest, smallest-footprint Ku-band terminal

for aircraft internet access, providing the fastest connectivity on the world's busiest air routes.

The agreement follows Flying Colours' first committed installation of the VMT-1500 system on a Bombardier CRJ ExeLiner conversion underway at its Peterborough, Ontario facility.

Meanwhile JetCorp Technical Services, a US subsidiary of Flying Colours, has increased the breadth of its connectivity offering following completion of an STC for the Aircell Cabin Telecommunications Router (CTR) on a Learjet 60. Installation and certification of the Aircell CTR provides in-cabin Wi-Fi capability for Aircell's Gogo Biz in-flight internet service. The system can be used on laptops, tablets and smartphones, enabling passengers to surf the internet, retrieve and answer email with attachments, and access their corporate virtual private networks.

The dedicated avionics installation team at JetCorp in St Louis has completed almost 40 Wi-Fi installations for Bombardier in total, for the Challenger 300, 604 and 605 as well as the Learjets.

Following hard on the heels of the first installation resulting in the STC, a second Learjet 60 has had the Aircell CTR installed and a further five aircraft are in the pipeline. The company has devised a more efficient installation process that has reduced the average downtime required from 10 days to just four. The company is also planning to gain more Aircell STCs over the next year, enabling it to fit additional Learjet models and other aircraft. ●

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Ocean Sky doubles capacity at Luton hub as busy summer looms

Private aviation company Ocean Sky has announced a multi-million pound upgrade of its FBO at London Luton Airport, giving it the ability to handle the anticipated influx of international passengers into the UK for this summer's Olympics. The work, in addition to expansion of Ocean Sky's MRO and aircraft interiors operations at Luton, forms part of a wide-ranging investment programme across the group's ground-based business. This complements its separately managed "air" business, comprising aircraft charter, management, brokerage, sales and acquisition.

The enlarged facilities will include a luxurious passenger lounge, a new concierge service and seamless screening. Luton will be able to cater for all types of business aircraft from helicopters to long-range business jets. CEO Stephen Grimes said: "We are forecasting a significant increase in turnover following the new FBO's opening. With space for up to 30 aircraft at any one time we will have the capacity in our first year to double our annual movements."

Ocean Sky started out as an aircraft broker in 2003 before expanding into full aircraft service by acquisition. In addition to its UK FBOs, the group has offices in Germany, Italy, Zurich and Moscow.

A 4,000sq metre hangar in Luton, acquired from charter airline Monarch in May 2010, operates as a sister facility to Ocean Sky's engineering base in Manchester and is receiving a £350,000 makeover. Manchester and Luton are certified by Bombardier to carry out maintenance and warranty work across the full Learjet, Challenger and Global range of aircraft.

Work to resurface the floor and refurbish the office accommodation at Luton was scheduled to take five weeks through April and May. New tooling is being installed to increase capacity for heavier, more complex maintenance operations, and staffing levels will double to 20 by the end of this year. Alongside Bombardier, Luton also carries out line maintenance on Dassault and



How the lounge will look at Ocean Sky's remodelled Luton FBO

Cessna aircraft and is working to gain additional authorisations.

Ocean Sky now boasts the biggest multi-purpose engineering operation in Luton, second in size only to a dedicated Gulfstream facility that also saw significant investment last year. Gulfstream opened a 1,000sq metre parts warehouse and almost doubled the size of its main hangar to 7,000sq metres.

It's part of an increasing success story for business aviation at Luton, which ranks in the top four in Europe for charter requests. Ocean Sky targeted the airport in 2009, when it first established an FBO there, now one of five together with Manchester, Glasgow Prestwick, Ibiza and Menorca.

"Luton was a big airport with just two existing providers," says Natalie Raper, Ocean Sky's Luton-based sales and marketing director. "There was space available for a new operator to start up and although it was a difficult time in the market, the weakness of commercial aviation probably made us more welcome. Business aviation has been a saviour here and has certainly paid its way." (In a further, unrelated vote of confidence, entrepreneur Lord Sugar recently transferred an Embraer Legacy 650 from Stansted to Luton after appointing a new management company, Air Charter Scotland, for the aircraft.)

Luton currently sees around 3,000 business movements per month and this inevitably means a good deal of AOG work. If Ocean Sky has sufficient advance warning, it can order emergency

parts in overnight from Frankfurt or Chicago, while the more commonly required parts are held in store at Luton and Manchester, Raper says.

The company is also set to open a new aircraft interiors department in Luton, again complementing its Manchester facility, as soon as this receives CAA approval. Ocean Sky's design team has experience across a wide range of business jets including Bombardier, Airbus, Dassault Falcon, Hawker Beechcraft and Cessna aircraft, as well as Sikorsky, Bell and AgustaWestland helicopters, but the present Luton facility is essentially a paint and trim shop that forms part of the maintenance hangar.

In February, Ocean Sky announced it had entered into partnership with Avfuel Corp to provide an enhanced range of fuel and service solutions including contract fuel, marketing support and the Avtrip pilot incentive programme at Luton. It was only Avfuel's second UK collaboration after the US company agreed in late 2011 to service the new Eurojet FBO at Birmingham Airport.

When the partnership was announced, Raper commented: "We are very much looking forward to working with Avfuel as the partnership will further strengthen Ocean Sky's relationship with all customers flying into London Luton, particularly those from the US."

Avfuel director of marketing Marci Ammerman added that the deal "fits well with our ambitions to grow our international portfolio, especially in Europe". ●

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How new pilots measure up

Flight schools' increasingly broad-brush approach to training is at odds with proposed FAA regulations that simply ramp up the required hours. Ian Putzger reports

The airspace over America is about to become six times safer than before – if you subscribe to the reasoning that a sixfold increase in flight hours required to pilot a commercial aircraft translates into a matching improvement in flight safety. The US Federal Aviation Agency may not believe in such straightforward maths, but clearly views a drastic increase in the minimum hours required to fly a commercial jet as the right way to make the skies safer. In February, the FAA proposed a new regulation that would push the minimum flight hours needed to become a first officer for a commercial airline to 1,500 hours, up from 250 under the current regime.

The proposal is the result of a mandate from US Congress to improve pilot training and safety standards in the aftermath of an accident in February 2009, when a Bombardier DHC 8 400 crashed on approach to Buffalo, killing 50 people, including both pilots. The subsequent investigation into Colgan Air's ill-fated flight 3407 concluded that the flight crew had not properly managed an unexpected problem that led to a stall, a verdict that prompted a chorus of calls for tougher training requirements.

Unsurprisingly, the FAA proposals have drawn heavy fire from flight schools and operators. To begin with, critics point out that flight hours, while a useful yardstick in pilot recruitment, are not an accurate reflection of proficiency.

"A certain number of hours does not equate with quality of training. You need to focus more on the type and quality of training and on the curriculum," says Dan Greenhill, manager of



Edgeworth: The number of hours flown is not the sole measure of competency

FlightSafety Academy.

"The number of hours is not a measure of competency," agrees Captain Mike Edgeworth, CEO and chairman of Pilot Training College. "If you accumulate 1,200 hours towing banners over a beach, does that reflect better competency? The notion of judging competency on the basis of hours is from the dark ages."

Instead of increasing the requisite flight hours, he advocates that aptitude testing should be stepped up, an approach that has paid dividends in Europe and other parts of the world.

"Thorough and reliable aptitude testing should be the starting point. In the next stage, you have training based on competency. The final part is the ability of the individual to fit in the organisation," he concludes.

CAE favours a mix of simulator, computer-controlled and real flying elements to better equip pilots to deal with emergency situations.

"One of the key challenges across the aviation spectrum is understanding and being prepared for loss of control in flight (LOC-I) and upset recovery situations – the leading cause of most crash-related fatalities in commercial aviation worldwide over the past 10 years. LOC-I is defined as flight that occurs outside of the normal flight envelope in which the pilot is unable to control the aircraft. CAE and Aviation Performance Solutions (APS) offer a three-part programme including computer-based training, simulator and in-aircraft training designed to improve the ability of business jet pilots to recognise, avoid and, if necessary, recover from LOC-I flight situations," notes Claude Lauzon, VP strategy, civil simulation products, training and services at CAE.

He adds that Bombardier recently selected APS to provide in-flight upset recovery training services as part of its Leading Edge programme to crews of newly purchased Learjet, Challenger and Global Express aircraft.

Industry concerns over the FAA proposals go far beyond the reservations about measuring qualification by flight hours alone. Operators and flight instructors see serious repercussions for pilot availability and remuneration structures in the industry.

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- ▶ Bombardier Challenger 605 – London Farnborough, UK*
- ▶ Bombardier Global 5000 – Columbus, OH*
- ▶ Bombardier Global 6000 – Columbus, OH*
- ▶ Dassault Falcon 900LX – Dallas, TX*
- ▶ Dassault Falcon 7X – Dallas, TX
- ▶ Dassault Falcon 7X – Paris, FR*
- ▶ Embraer Legacy 450 – St Louis, MO[‡]
- ▶ Embraer Legacy 500 – St Louis, MO[†]
- ▶ Embraer Legacy 600 – St Louis, MO; Houston, TX; Paris, FR
- ▶ Embraer Legacy 650 – St Louis, MO*
- ▶ Embraer Lineage 1000 – St Louis, MO; Paris, FR
- ▶ Eurocopter AS350 – Tucson, AZ
- ▶ Eurocopter EC135 – Dallas, TX
- ▶ Gulfstream G280 – Dallas, TX*
- ▶ Gulfstream G450 – Dallas, TX*
- ▶ Gulfstream G450 – Hong Kong*
- ▶ Gulfstream G550 – Dallas, TX*
- ▶ Gulfstream G550 – Hong Kong*
- ▶ Gulfstream G650 – Savannah, GA*
- ▶ HondaJet – Greensboro, NC*
- ▶ Pilatus PC-12 – Dallas, TX*
- ▶ Sikorsky S-76D – West Palm Beach, FL*

*Available in 2012 †Available in 2013 ‡Available in 2014

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"The minimum-hours requirement is discouraging to pilots who want to fly a jet but can't. It is really burdensome from a financial perspective. Young pilots spend a lot of money to get a licence and then do not have a chance to earn money flying a jet," criticises Matthew Winer, president of Executive Air Services (EAS).

"I think this will hurt the industry," warns Greenhill. Since the US is going against the grain with the new initiative, the likely outcome is going to be an exodus of young graduates to other parts of the world where pilot requirements are less onerous, he predicts.

For operators in the US, the proposed regime would likely bring a scarcity of pilots, resulting in higher costs, warns George Hamlin, president of Hamlin Transportation Consulting. "In the short term, this would reduce the supply of pilots, which makes the available pool more expensive," he says.

The ripple effect would spread across a number of segments, reckons Greenhill. Regional airlines, which would be hard hit by the proposed new rules, and flight schools themselves would have to improve their pay structures, he says.

Opportunities outside the US do look rather tempting, especially with the spectre of a steep rise in the minimum hours required to fly for a commercial carrier. "A graduate with 250 hours can build up his hours by working as a flight instructor, or he can fly on the right side of a plane in India, where he makes twice the amount of money," Greenhill reflects.

"When he goes back to the US after three years, he can go straight to large airlines. He can skip regional airlines – that is, if he comes back at all. He may stay in India or another emerging market in Asia and move to the left seat," he adds.

The financial incentive is considerable. According to Greenhill, co-pilots at American Eagle start at \$25,000 per year, whereas some Asian carriers offer \$9,000 a month to first officers and \$17,000 a month to captains.

On the other hand, a move to a carrier in an emerging market can turn into a holding pattern in the right-hand seat, warns Nick van der Meer, operations director at VistaJet. He advises young pilots to focus on a longer-term horizon to open up a better career path. Sometimes a well-paid



A trainee pilot makes a day approach to Hong Kong on CAE's King Air 350 simulator in Dallas

stint with an operator in an emerging market can turn into a cul-de-sac, he claims.

Faced with a pilot shortage in their home markets, carriers from Asia and the Middle East have been recruiting aggressively in established markets such as the US. Increasingly airlines are getting involved in pilot training as they seek to secure a supply of flight crews, notes Edgeworth. Likewise, FlightSafety Academy has been approached by airlines about training schemes. "We see airlines become more involved in ab initio training," Greenhill says.

Over the past couple of years, Spanish flight school FTEJerez has signed a number of contracts with legacy airlines and low-cost carriers for mentored training schemes. "We are working more and more in tandem with airlines," says sales and marketing manager Alex Padina. In March, the first cadets in British Airways' Future Pilot Programme, launched last summer, arrived at FTEJerez, one of three designated training organisations picked by the carrier for the initiative. In January, Aer Lingus designated FTEJerez the official flight training provider for its cadet pilots.

Such schemes are not new – Lufthansa has been running pilot training programmes in its own flight school for years – but more and more airlines are now moving in this direction in an-

icipation of a pilot shortage. The economic downturn has led to layoffs and a glut of pilots in some markets (indeed some operators were reluctant to talk to EVA about pilot recruitment as they have furloughed flight crews), but in the long run the industry will face a shortage of both pilots and mechanics, according to Boeing Training & Flight Services.

Airlines have stepped up their involvement in training just when aspiring pilots are finding it hard to obtain financing for their initial courses. "One of the biggest drawbacks is the availability of financing for pilot training. The regulations that are now in place (in the financial industry) do not make it business-friendly to go out and provide those types of loans," says Greenhill.

About 70% of the students currently enrolled at Pilot Training College are on airline schemes; only 30% are self-funded. Five years ago all trainees were self-funded, notes Edgeworth.

In line with international carriers' growing involvement in training, flight schools and training equipment providers are also becoming increasingly international in focus, and targeting emerging aviation markets. In February, FlightSafety International and Gulfstream Aerospace opened a new learning centre in Hong Kong, which initially offers training programmes for G450 and

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Falcon 7X – Asia (TBD)
Global 5000, Express and XRS – Asia (2013)
Gulfstream 450 and 550 – Dallas (2013)
King Air 350 Pro Line 21 – Melbourne (2012)
Phenom 100 and 300 – São Paulo (2012)

G550 models. Having identified Australia, New Zealand and south-east Asia as one of the fastest growing regions, CAE intends to deploy a new 5000 series simulator in Melbourne this year for training pilots and maintenance technicians for the Hawker Beechcraft King Air 350 aircraft with Pro Line 21 avionics. Greenhill says Brazil, India and Russia are among the leading targets for expansion at FlightSafety Academy.

This internationalisation trend is bringing some uniformity to training methods and standards. Operators like VistaJet need pilots that are comfortable in any regulatory environment. "We don't base crews in one location. We fly all over the place. We can't have pilots that are experts in one region," van der Meer says.

National regulations still ultimately determine the curriculum, however. "We are a distance away from a homogenous environment," confirms Edgeworth.

When it comes to criteria for selecting applicants for the cockpit, flight hours are the first milestone. Winer at EAS lists Part 135 experience, time and type of aircraft as other key aspects that an applicant needs to bring to the table. Simulator experience is another plus, but he is not enthusiastic over the Multi Pilot Licence (MPL) scheme, even though it has been widely hailed as a huge step forward in training. "Guys who flew single aircraft were the ones who really learned how to fly," he says, a view he shares with many operators.

Flight schools, on the other hand, give the thumbs-up to the concept. Graduates from this path have been proven "more than capable, more than competent," says Edgeworth. MPL is an easier business model to manage and allows flight schools to be more competitive in terms of cost, he notes. "I firmly believe that MPL is the future for pilot training, specifically for airlines."

Greenhill agrees. "Technology is a big issue for training. Doing more on simulators instead of flying is definitely a way to manage your cost," he says. "You can run a simulator almost seven days a week. And in a simulator you can stop, you can freeze and correct steps."

CAE recently enriched its training repertoire with RealCase, which the company describes as "business aviation's first network-wide recurrent pilot training using case studies of recent real-life events".

According to Lauzon, "These evidence-based training scenarios increase effectiveness by enabling pilots to apply their analytical and decision making skills in an interactive, collaborative environment."

Over and above the essential flying skills, van der Meer stresses a number of other qualities that he looks for. He wants pilots who can think on their feet, who are highly motivated, good team players, excellent communicators and who can help VistaJet grow and develop. For Winer, one of the key criteria that a pilot for EAS has to meet is a sound understanding of customer service. "Pilots are the face of this company. It behoves us to get good ones," he says.

So far, formal requirements have trumped such secondary qualities, but carriers are changing their approach. EAS has traditionally only hired pilots with the right time and type experience for specific aircraft, but it recently started looking at ways to allow outstanding pilots in its ranks to upgrade to larger aircraft. In the main, this has worked through asking owners to share in the training programme.

VistaJet also now offers its pilots the chance of internal upgrades, which has opened a completely new career path for them. Pilots hired as first officers can progress to the left-hand seat after three years, then move on to a larger plane



Winer: FAA proposals limit the opportunity for pilots to earn back the money they invested in achieving their licence

after about three years in that role.

The new policy is part of a revamp of pilot working conditions that van der Meer initiated some 18 months ago, soon after joining the business. Besides a clearer career path, this brought a more stable roster and perks for pilots as part of an overall drive to make the company more appealing to flight crews. "To retain pilots, you need a good seniority system and an upgrade path," he stresses.

Winer's change of policy was born out of the realisation that pilots were chiefly interested in job security and a chance to grow. This tallies with observations from Lufthansa that applicants for flight training nowadays tend to express a greater interest in career opportunities and possibilities for further training when exploring employment possibilities. VistaJet has gone some way in that direction by opening opportunities for pilots to turn into fleet chief, deputy fleet chief or deputy flight operations manager.

A corresponding move on the training side has seen flight training outfits broadening their curriculums and adding business and management courses, often in tandem with academic institutions. In 2009 Pilot Training College launched a three-year science degree programme in tandem with Ireland's Waterford University, which includes marketing, dispatching and planning modules. "We've tended to select course materials that allow students to migrate later," says Edgeworth.

Both FTEJerez and Flight Training College have added aviation English language courses to their offerings. "We see ourselves as a college rather than an organisation for the issue of [pilot] licences," Edgeworth comments.

Career trajectories for pilots have changed, he adds. "Typically, pilots joined airlines in their twenties and stayed until retirement. Now, especially with low-cost carriers, after 10 years pilots look for other opportunities," he remarks. Probably the highest-profile example is Willie Walsh, who was a captain with Aer Lingus before taking over the controls at the airline and subsequently moving over to British Airways.

Career paths for flight instructors, however, are a "serious headache" according to Edgeworth, who says they're in short supply. "There is no incentive these days for young people to take instructor courses," he concludes. ●



Falcon to kick-start super midsize sector

The latest model on Dassault's 2000 platform offers category-leading performance, space and comfort, reports Martin Roebuck

The latest member of Dassault Aviation's Falcon jet family, the 2000S, looks set to redefine the super midsize market when deliveries begin in the first quarter of 2013. The aircraft is designed with a shorter range than current Falcon aircraft, though it can still fly across the US from coast to coast, from Paris to Dubai or from Beijing to Moscow with fuel to spare, and costs comfortably less than its cousins (see table 1). Yet its spacious cabin, high specification and category-leading performance could pose a serious threat to competitors such as the Challenger 300, Gulfstream G280 and Hawker 4000.

"We have a good historical position in aircraft offering more than 3,000 nautical miles range, with the Falcon 50, the 900 and then the 2000, but many customers don't need a \$30 million, 4,000nm aircraft," explains Olivier Villa, Dassault's senior VP, civil aircraft. "The basic 2000 airframe is ideal and the large, flat-floor cabin has been very popular, but it was important to propose something new."

Villa foresees significant interest in the new 2000S for the intra-regional rather than the intercontinental market. Although the company does not break down orders by aircraft model, he reveals that it is booked out for almost two years on both the long-range 7X and the 2000S.

"While we wish the overall market was better, customers are coming over from our competitors," Villa says.

The 2000 platform was introduced in the mid-1990s, with the initial Falcon 2000 offering a range of 3,000nm. This was derived from Dassault's 900 tri-engine design, but the shorter range that the company now had in mind meant its designers could shed the third engine, bringing benefits in terms of maintenance and operating cost. The rear fuselage was redesigned to improve aerodynamic efficiency and the wing was modified, with the inboard slats removed.

A 2000EX variant, with new Pratt & Whitney 308C turbofan engines and additional fuel tanks, entered into service in 2004 and had an increased range of 3,800nm. The LX derivative, which saw its first deliveries in 2009, incorporated winglets that further extended the range to the iconic 4,000nm mark and the EX ceased production.

"So the 2000S is not a clean-sheet design, but required further re-engineering," says Dassault communications manager Vadim Feldzer. "Our goal was to design a new entry-level aircraft, using the same platform and retaining the same cabin size for the midsize segment and burning less fuel."

At \$26 million, the 2000S is cheaper than the rest of the Falcon range but more expensive

than its immediate rivals, penalised partly by the strength of the euro. The question was how Dassault could add value.

"Customers don't come to us on price; they buy because they are looking for advanced performance and quality. But at a price point 10% higher than the competitors, we knew we had to deliver 20% better performance," Feldzer says.

Military crossover

Dassault claims a head start in achieving good performance from its commercial aircraft because of the group's experience in designing the Mirage and Rafale supersonic jet fighters. No other manufacturer, it says, has the same engineering teams building military and business aircraft, the same factories assembling and the same test pilots flying them. The group may have separate Falcon and Defence operating divisions, but technology transfer between them is relatively seamless.

The Falcon jets have a high strength-to-weight ratio thanks to their aluminium monocoque construction, supplemented by titanium castings and carbon fibre components.

Its military heritage has given Dassault an unrivalled understanding of aerodynamics. The design of Falcon aircraft is commonly acknowledged as one of the "cleanest", most drag-free in the industry. The wing structure and fuselage

TABLE 1: CURRENT FALCON JET FAMILY

Model	Category	Year	Passengers	Engines	Range	Price
7X	long range	2007	12-19	3	5,950nm	\$47.4m
900LX	super large	2010	12-19	3	4,750nm	\$36.85m
2000LX	large	2010	8-14	2	4,000nm	\$30.76m
2000S	super-mid	2013	8-14	2	3,350nm	\$26m

shaping gives the existing 2000 model the ability to fly slowly at low altitude, offering take-off and landing performance close to that of a twin-engine turboprop performance, while cruising fast and economically.

In designing the 2000S, Dassault saw its biggest technical challenge as further improving short-field capability, and took the route of incorporating inboard wing slats as used on the 900LX. With the fully slatted wing, large winglets and a lighter construction, the new model generates yet greater lift at takeoff.

At maximum takeoff weight of 18,688kg, the 2000S needs a take-off distance of 1,360 metres, 10-20% less than its closest competitors. Nose-up auto braking reduces landing distance to 980 metres, and even less on steep approach, which will qualify the aircraft to use London City Airport in line with the rest of the already-certified Falcon range. The 2000S can climb to 41,000ft (12,500 metres), has a maximum certified altitude of 47,000ft (14,325 metres) in 19 minutes and will fly at up to mach 0.862 (970 kph or 520 knots).

The 308C engine is retained, but Pratt & Whitney has modified it with a new Talon II combustor that emits 40% lower NOx emissions than required by CAEP/6 regulations, giving the aircraft the greenest footprint in its class. Highly efficient thrust reversers and good aerodynamics give a claimed fuel burn advantage of up to 65% against similarly sized aircraft, and typically 10% less than planes one size down with smaller cabins. The engine also has a reduced maintenance requirement.

A seeming technicality in the performance figures of the 2000S, but one that makes the aircraft much more flexible in operation, is that the maximum landing weight of 17,826kg is much closer than usual to the maximum take-off weight. This means an operator can refuel at its home base then make a short hop to pick up clients before continuing on its revenue flight,

or can pick up passengers at separate locations before embarking on the main leg. Hence London-Paris-Dubai or San Francisco-Los Angeles-New York trips are possible. Range without intermediate refuelling is 3,050nm, compared with 1,750nm for the Challenger 300 and 1,625nm for the G280.

The aircraft's Enhanced Avionics System (EASy II), developed with Honeywell, offers an improved navigational package giving a wider range of approaches and reduced minima. Next-generation ADS-B Out air traffic management provides significant routing advantages. Improved symbology using the SmartView synthetic vision system, together with an enhanced vision system for night flying and conditions of poor visibility, increases pilots' situational awareness.

The EASy II configuration is unique to Dassault and Villa is especially proud of the graphical interface. "You can build a flight plan by pointing and clicking on a map. It's not a heads-down process over a keyboard, and gives good

access to both crew members," he says.

He adds that the entire cockpit received considerable attention from the designers, with the focus on comfort and durability, soft lines and noise absorption.

Extra elbow room

The 2000S is fractionally shorter than its super midsize Gulfstream and Challenger competitors, with a slightly greater wingspan, but has more generous cabin proportions (see table 2) with 18 large windows to admit as much light as possible. The 6ft 2in high cabin (1.88 metres) with flat floor allows easy movement down the aisle while the 7ft 7in width (2.34 metres) is "especially accommodating at elbow level – a godsend on long working trips," Dassault says.

A Rockwell Collins cabin management system puts remote control of temperature, interior lighting, electric window shades, video playback and other functions in passengers' hands thanks to an iPhone app. The 2000S features an Aircell



The cabin is designed to admit as much light as possible

Axxess II satcom phone system and a media centre for viewing Blu-Ray media on a widescreen monitor on the forward cabin bulkhead or individual seat monitors.

BMW Designworks USA, which was also responsible for the 7X design, has formulated a standard 10-passenger layout incorporating a large forward galley, dedicated cabin attendant rest seat, passenger wardrobe, galley/cabin dividing door, full-sized rear bathroom and in-flight accessible baggage area. There are three choices of colour scheme, but although the overall spec is high, this is the only flexibility Dassault offers with the 2000S.

"The 2000LX has whatever configuration the customer requires, but here we fixed the layout so we could optimise the production line," Villa says. "We've gone with the most popular floor plan and within that, we have worked to provide the best design we could. The customer may feel he has a right to specify his own configuration when he's investing \$25 million, but we needed greater efficiency in the completion process. There is a lot of cost in making each plane different."

For historical reasons, Dassault produces its in-house components at various sites around France, with 50% of parts insourced from third-party suppliers. Fuselages are assembled at Bordeaux and the green aircraft are transported to the Dassault Falcon completion centre at Little Rock, Arkansas for fitting out.

The first stages of the 2000S project were carried out in some secrecy, and first flight tests had already been carried out three months before the aircraft was formally announced at last year's EBACE. Dassault announced in April that it remains on track for certification by the end of this year, after racking up almost 300 flight hours in more than 100 flights during its first year of flight testing.

The first part of the test campaign included



The cockpit features advanced avionics, but the designers paid attention to comfort and durability

manoeuvres to demonstrate the handling qualities of the 2000S, including stability, stalls, pitch, roll rates and failure mode tests, as well as take-off with engine failure. "The rigorous test flight programme has confirmed the expected performance of the aircraft," a spokesman says.

Dassault claims direct operating costs for the new Falcon jet will be lower than for competing aircraft and for almost all those in the next class down, chiefly thanks to its low fuel burn.

Residual value must also be taken into account, the company points out. Falcon aircraft have consistently held their value better than rivals over the first six years from new, regardless of market conditions. "You can be certain your investment won't depreciate the same way as others," Villa says.

A longstanding reputation for after-sales support may be a factor in this. Of the 2,300 Falcons produced since 1965, 1,900 are still in active service. Yet Dassault claims it can support 98% of maintenance requirements, and still holds spare

parts for planes whose production ceased 30 years ago. Around \$50 million worth of inventory was added in 2011, taking the total to \$750 million.

Two-thirds of the installed Falcon fleet is based in North America, but there has been an inevitable eastward migration in recent years. Of 438 aircraft delivered since 2006, 54% were destined for Europe, the Middle East, Asia, Africa and Australasia.

Just 63 Falcon aircraft were delivered last year compared with 95 in 2010, but orders have begun to move in the right direction, with 36 net new orders in 2011. Cancellations had outnumbered new orders in 2010 to leave the net figure at minus nine.

China remains a strong market, and Dassault signed a memorandum of understanding with Minsheng Financial Leasing last October for 10 Falcon 2000S aircraft as well as 10 7Xs, in addition to a firm order for five 7X aircraft placed earlier in the year. Although China's growth rate is now slowing, there has been no impact on orders as yet, Villa says.

Globally, he sees more activity than a year ago in the large-cabin market, but says that for older aircraft, prices are still "going the wrong way", forcing owners to hold on to their assets. "Companies need to change and renew their fleets; they've been waiting four years. The need is there and the profits are now there," he comments. ●

TABLE 2: FALCON 2000S DIMENSIONS AGAINST COMPETITORS

	Falcon 2000S	Gulfstream 280	Challenger 300
Length	20.23m	20.30m	20.92m
Wingspan	21.38m	19.20m	19.46m
Cabin width (max)	2.34m	2.18m	2.18m
Cabin width (floor)	1.91m	1.72m	1.55m
Cabin height	1.88m	1.91m	1.85m
Cabin volume	29.00cu m	26.50cu m	24.35cu m



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US industry fights off the lawmakers

In the first of our two reports on threats to business aviation, Benét Wilson says a proposed US flight tax appears to have been shelved – but other perils await

A number of legislative and regulatory issues potentially threaten the US business aviation industry as it looks to maintain its slow recovery from recession. Last year, 55.7% of the general aviation aircraft delivered worldwide went to North American customers, but 2011 was not the expected turning point for the sector. Demand for business aircraft and services, especially in the established markets of North America and Europe, remained soft and customer confidence in making purchase decisions in these regions remained weak, according to the General Aviation Manufacturers Association (GAMA).

In its annual report, GAMA notes that general aviation manufacturers continue to pin their hopes on the international marketplace, and expect demand from emerging markets to lead the industry towards recovery.

"Overall, shipments declined in all three industry segments from the previous year, but the declines reached single digits which indicate general aviation is reaching the trough in this cycle," GAMA chairman Caroline Daniels told a press conference in February. "The large-cabin, long-range business jet category remained sound and midsize business jets saw growth. This resulted in a small uptick in billings for 2011."

Daniels noted several positive market indicators, including an improvement of almost 8% in US corporate profits in the first three quarters of 2011, with cash holdings close to record levels. In the past, the business aviation industry's performance has aligned closely with company results. But buyers were still in "wait-and-see" mode, she said, reflecting lingering economic uncertainty – and 2012 began with the industry under twin attack from the US government.

The Obama Administration's budget for the new fiscal year included a proposed fee of \$100 per flight. Meanwhile, a halving in the depreciation benefit for acquisition of corporate aircraft, signed into law two years ago, was still in place.

The business aviation community has vehemently opposed both measures.

Mike Pompeo – Representative in the US House for the Wichita district of Kansas, which is home to manufacturers such as Cessna, Hawker Beechcraft and Bombardier Learjet – made his objections to the proposals clear in a speech on the floor of the House. He noted that the industry, still one of America's manufacturing jewels, had become "a political punch bag".

Companies involved in business and commercial aviation know that user fees are a bad idea, says Dan Hubbard, senior VP of communications for the National Business Aviation Association (NBAA). "But it's an equally lasting truism that in Washington, it's impossible to kill a bad idea," he adds.

Kent Jackson, managing partner at Kansas-based aviation law firm of Jackson & Wade, whose clients include corporate jet owners, lessors, investment banks, manufacturers and government agencies, is puzzled by this latest attempt to introduce user fees. "Business aviation does a remarkably good job of uniting and stopping these efforts, but they keep coming back," he notes.

The industry has seen both Democratic and Republican administrations propose this kind of tax, Hubbard explains. "In recent years, user fees were proposed as a separate way to fund the Federal Aviation Administration [FAA] apart from fuel taxes," he says. "Congress sees user fees as a means of deficit reduction."

Another reason government keeps coming back to the idea is because it is attractive to promote user fees as a "pay as you go" system, Jackson says. "The government is broke, and user fees, in some minds, are something that can be done to raise revenue, but also allow the administration to claim it didn't raise taxes. In some corners, people believe that user fees are not a tax, but payment for a service. I have a hard time getting my mind around that."

Hubbard is concerned that the idea has never been tried or tested. "The current system of fuel

taxes works well, compliance is total and they are efficient to collect and pay. With user fees, you need to create and maintain a large collection bureaucracy and the FAA doesn't need to be in that business. It needs to focus on safety," he says.

A suggestion that the industry has made its voice heard came in the shape of a bill to fund the FAA through to 2015 that was finally passed by Congress and signed into law by President Obama in February after a record 23 extensions, stretching back to 2007.

"We're delighted that Congress finally passed a bill after five years because the FAA needs long-term authorisation in order to properly plan in terms of strengthening and modernising US aviation," says Douglas Carr, VP of safety, security and regulation for NBAA. "In that new law, Congress clearly decided to set aside user fees, instead preserving the existing fuel tax."

The other main financial issue on which the business aviation industry has been lobbying is "bonus depreciation" on purchases including aircraft. GAMA credits the provision, which allowed 100% depreciation of qualifying aircraft sold in 2011, with helping boost sales in North America.

Industry groups united to circulate a letter to Congress asking it to extend the bonus depreciation scheme, and bills aimed at doing just this have been introduced in both the House and the Senate.

"A long list of economists believes it helps stimulate the purchase of assets for business, and we hear evidence of that from aircraft manufacturers," Hubbard says. "When you shorten the tax schedule of a business asset, whether it's an aircraft or a large medical device, you stimulate the incentive to make that purchase. In a time where aircraft manufacturers are still experiencing severe economic turbulence, we should do anything we can to stimulate an aircraft purchase and preserve jobs."

Almost every time the question comes up, bonus depreciation emerges as a last-ditch victory for NBAA and GAMA, Kent Jackson comments.

"Because of the history of these associations snatching victory, I wouldn't count on the bill to extend it out," he said. "If we get it, I'll give credit to those who lobbied for it. It's one of the toughest environments, but the priority must be jobs, jobs, jobs."

Detroit, historic home to the motor industry, has been the focus of much government attention. "But it has been hard, from Wichita, convincing people of the business aviation crisis," Jackson says.

Further evidence of the industry's lobbying power, however, is that Congress included measures in its new FAA reauthorisation package to restore the Block Aircraft Registration Request (BARR) programme. This allows business aviation users, on request, to block aircraft movements from being tracked in real time over the internet. The US Department of Transportation had decided to restrict participation in BARR, administered by NBAA, to aircraft operators that

could demonstrate a valid security concern.

"We saw flight tracking as a real security concern for the industry," Carr says. "People aren't subjected to this when they drive on the highway. But they had to forfeit their right to security and privacy when they got on a plane."

Congress recognised that the programme worked well for the authorities and the business aviation community, he adds. "Under BARR, the government still has access to tracking aircraft in a safety or law enforcement capacity."

The problems arising from the European Union's Emissions Trading Scheme (EU-ETS), which came into force in January, will be less easily resolved. NBAA is still studying how business aviation can comply and what the impact of the scheme will be, but is alarmed that the scheme was implemented unilaterally.

"It has been long understood that aviation is a global industry and any policies covering it are done under ICAO," Carr says. NBAA is opposed

to EU-ETS on these grounds alone, but the fine print is also of concern.

"As it is set up now, emissions taxes are charged to aircraft operators for the entire duration of their flight. If you take off in Los Angeles and fly into European airspace, you are charged a fee for emissions from Los Angeles until you land in Europe, which is a stark departure from long-understood policies on the sovereignty of airspace.

"We're just not sure of the true cost, because it depends on a number of factors. That, coupled with the notion that people are paying a tax to Europe for a flight that didn't start in Europe, is a problem," Carr says. "We're working with the International Business Aviation Council and ICAO on developing a global, market-based programme that would reduce emissions. But it's an enormous undertaking that involves all ICAO states, and will take time to create and review." ●



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What price European connectivity?

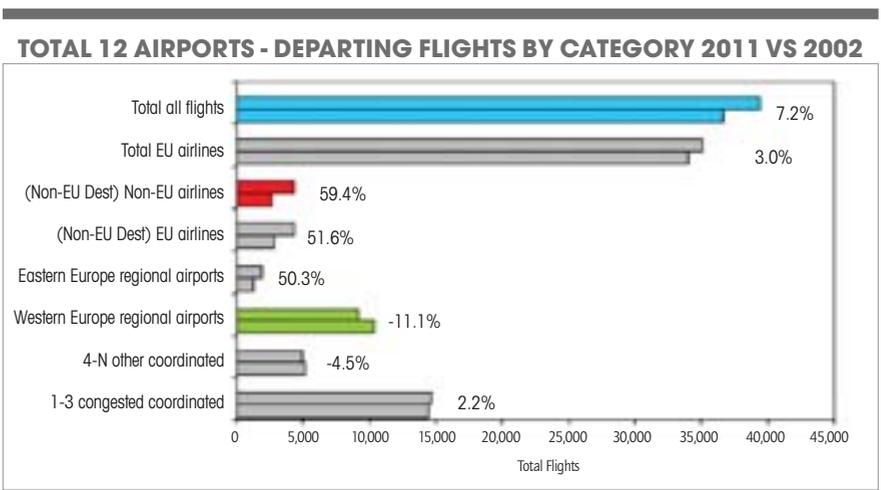
Chris Cain and Tristan Crawford, from Oriens Advisors, argue that joined-up thinking on airport capacity is needed if Europe is to get back on its feet economically

The current headlines in the aviation community in Europe concern the threat of a trade war over the EU's inclusion of air transport in its Emissions Trading Scheme (ETS) on climate change grounds, and taxation of air transport as a means of raising revenues and tackling government deficits. Yet an ever-present debate behind these hot issues is the looming shortage of airport capacity. In an ever more globalised economy, where connectivity to the fastest growing markets is seen as fundamentally important to future competitiveness, congestion at Europe's airports could significantly constrain long-term growth.

Perhaps the most pressing example of this problem is in the south-east of the UK, where London faces the prospect of being unable to meet a growing demand for flights to emerging economies. Frankfurt, Paris and Amsterdam, each with between three and five runways, look better placed to serve this requirement. A period of inertia in UK aviation policy is not helping. The economic downturn has coincided with the intervention of the courts to delay implementation of the UK's 2003 Air Transport White Paper. The election of the new coalition government in 2010, with its high-profile "no new runways" pronouncement, has deepened the sense of a policy vacuum.

Various proposals to address a future capacity crisis have met with apparently contradictory statements over the direction the government may take. The industry is still awaiting the release of a new "sustainable aviation framework" (originally planned for the end of March but now delayed until June) to replace the 2003 document.

Whatever long-term policy ultimately emerges, there will be no new runway capacity in south-east England for at least 8-10 years. This puts an emphasis on maximising the use of existing capacity, not only at Heathrow and Gatwick, but also at other tier 1 and 2 airports in the London system – including currently under-utilised com-



% change between 2011 (upper bars) and 2002 (lower bars) Source: Mott Macdonald

mercial facilities such as Southampton, Southend and Manston and specialist business aviation airports such as Biggin Hill and Farnborough. However, Oxford Economics – admittedly in work commissioned by the British Airports Authority – predicts that by 2021 the UK will lose around €10.2bn in GDP and over 140,000 jobs as a result of the inability of London Heathrow alone to increase aircraft movements in line with demand.

Even the airports serving the UK's near neighbours will run short of runway capacity in 10-15 years, with Amsterdam Schiphol and Frankfurt in particular facing legal and environmental challenges. The long-term capacity position in Europe looks increasingly problematic at a time when competitor economies elsewhere are investing heavily in their airport infrastructure. Prompted by fears for Europe's economic recovery, the European Union commissioned a study by Steer Davies Gleave in late 2011 to help amend Regulation 95/93, governing allocation of slots, to help open up aviation capacity.

The Draft Regulation that has emerged suggests that more control will be granted to an EU-level committee that could intervene at airport and state level to improve slot utilisation and

adopt a market mechanism to withdraw historical slots and auction them off.

A rival study carried out by Mott Macdonald for the European Regions Airline Association (ERA) and the European Business Aviation Association (EBAA) argues that the EU proposals take no account of the overall impact of revising current slot regulation. It puts the likely increase in the number of passengers flying through all coordinated airports at just 2%, equivalent to one year's normal annual growth. This could create 75,000 jobs, but with a net economic impact that is impossible to quantify. Mott Macdonald says the EU openly accepts that its proposals do not factor in the effect on regional and business aviation services of replacing certain flights with others that make "more economically efficient use of scarce capacity".

In short, the ERA/EBAA study warns that in return for a modest increase in capacity, slots will be opened up to the highest (probably non-EU) bidder, with the consequence that regional and business aviation connectivity across the EU will decrease and local economies will suffer.

The data suggests this is already happening. According to Airports Council International, airport traffic grew more slowly inside the EU than outside

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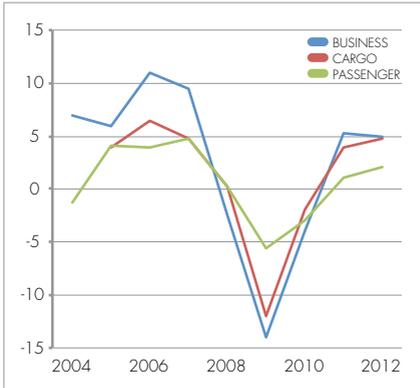


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GROWTH IN DEPARTURES



Business aviation suffered the most in the downturn, but grew strongly in 2010-11 Source: Eurocontrol

in 2011, at 6.3% compared with 12.2%, and capacity share is being lost to non-EU operators. NATS figures appear to confirm the trend, showing that flights departing from western European regional airports fell by more than 11% between 2002 and 2011, while flights to by non-EU airlines to non-EU destinations rose by more than 60%.

Stagnant regional economies, increasing fuel prices and additional regulatory burdens such as ETS and some countries' passenger taxes are already eroding regional and short-haul operating margins, a situation that is likely to worsen if the European Directorate-General for Mobility and Transport (DG MOVE) withdraws slots from airlines randomly and sells them off to the highest bidder, imposes slot reservation fees and closes down grandfather rights to slots for regional or business aviation operations.

Regional air services from congested hub airports do not create the commercial value of most long-haul slots, but serve to underpin thousands of jobs associated with economic sectors located away from core markets (for example the energy and tourism sectors in the UK). Relying on "allocative efficiency" as the driver of capacity, rather than connectivity, excludes regional services that cannot pay the market rate for slots at key hubs. SMEs could potentially lose the connection to their customers and suppliers in the wider world.

A large part of business aviation's *raison d'être* is that it enables business-critical employees to access, establish and support inward investment into less accessible or deprived regions,

which ultimately may lead to the development of scheduled commercial services.

Figures from Pricewaterhouse Coopers (PwC) indicate that with a total of some 9.5 million flights within the EU, business aviation brought a total of €19.7bn in annual gross value added to the European economy in 2007, accounting for approximately 0.2% of the combined GDP of the EU countries plus Norway and Switzerland. The induced impact, at €9.3bn, was the largest contributor to the economic impact of the sector. Considering business aviation's direct, indirect and induced impact, this section of the aviation industry alone accounted for more than 164,000 jobs across the continent and generated combined annual salaries of around €5.7bn.

Critics will claim that the underlying economy has far more influence than narrow issues such as slot availability when determining the benefits of business aviation. The counter-argument is that business aviation is usually the first part of the industry to recover following a downturn, due to its role in providing first-mover advantage for investors seeking access to new opportunities and exposure to growth sectors.

PwC says that following the 2008 downturn, business aviation was the strongest aviation market in the EU, with growth at 5.5% in 2010. Aviation as a whole grew by 0.8% in 2009. Business

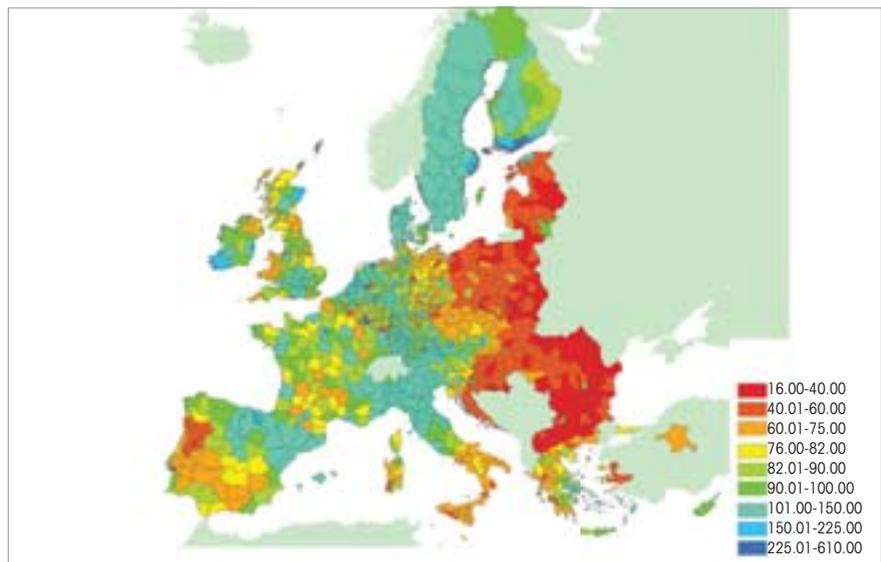
aviation flights in 2011 totalled 658,000 across Europe, up 4.7% on the previous year. One factor is "super-connectivity": the EBAA says business aviation serves three times more city pairs than commercial aviation.

Europe needs, arguably more than ever, to maintain the capacity, capability and investment activity required to meet the demands of faster growing economies elsewhere. What it does not need is ill-conceived regulatory interference that simply benefits non-EU interests, and which specifically penalises regional and business aviation relative to other sectors.

Ultimately, the ability of the EU's member states to sell their knowledge, lifestyle, products and services to the wider world is one of the priorities for getting Europe back on its feet again and creating a more balanced and resilient long-term economic future. Commercial, regional and business aviation can all combine to help achieve that common objective if they are given the freedom to do so. ●

Chris Cain and Tristan Crawford are associates at Oriens Advisors Ltd, which provides commercial advice to the aviation value chain

GDP PPS/HEAD IN % OF EU27 AVERAGE



Relative purchasing power per head across Europe Source: Eurostat

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'Any colour you like' – the broker's lament

The health of the pre-owned business jet market depends on what you have on your books and how well connected you are with emerging markets, says Martin Roebuck

The continued decline in value of many classes of used aircraft means it has never been a better time to invest in one – according to brokers and financiers, at least. Except for large and ultra-long range jets, the market remains soft, especially in mature markets such as western Europe and the US. For sellers, of course, the downturn in the last three or four years is a less welcome development and they have been forced to be more realistic about the value of their asset.

"There are 60 or 70 Citation IIs on the market at the moment, and the question is how you differentiate," says Andrew Hoy, MD of ExecuJet. "With Citations and even Learjet 60s, it's 'I'll get you one tomorrow. What colour would you like?' Only those aircraft that are hard to find are going up in value."

Hoy claims he has never been busier, and can sell a small aircraft in six months if the price is attractive despite the oversupply. "At \$1 million you can get a deal done quite quickly," he says.

The market in mid-sized equipment such as Citation Sovereigns and Challenger 300s is picking up a little, but is still price sensitive. A 300 will cost around \$11 million today "and you get an awful lot of plane for that," Hoy observes.

Further up the scale, the market dynamic is different and Global 5000s, for example, are fetching more than the Blue Book suggests. "We got one brand new on mandate. The owner ordered it in 2009 when OEMs weren't taking orders," Hoy says. "Now he will see a \$2 million premium. It wasn't speculation, simply a change of circumstances. He wants something bigger with longer range.

"It's the same with the XRS. I had a theory a year ago that they wouldn't go above \$50 million, but with the next ones not available from the manufacturer until 2015, they have stayed in demand."

Clients in China and Malaysia remain active, Hoy says, and Australia has come back to life, with buyers generally requiring sufficient range to allow flights such as Sydney to Los Angeles.



Hoy: concerned that some registers are applying an arbitrary age limit

Smaller, older aircraft are selling into countries such as Mexico, where owners are modernising though still primarily via the pre-owned market.

Brendan Lodge, business development director at JetBrokers Europe, is not optimistic about a sustained recovery in values this year. The guidebook is "miles adrift" particularly for light and medium jets in Europe, where values are still dropping quarter on quarter, he says.

JetBrokers Inc in the US shifted good numbers of older, smaller aircraft last year but Europe sold just seven. However, although the respective markets are very different, there are some benefits to having "a footprint on both sides of the pond," Lodge says. The company took a listing for a Swiss-owned but US-based Citation Ten in May 2011 and had concluded a deal with an American buyer by the end of July.

Such fast turnarounds are more typical of something like a Gulfstream 450, which spends an average of 100 days on the market, or the Global XRS, currently averaging 144 days.

Amstat data at the beginning of March showed that five XRSs, or 2.4% of the worldwide fleet of 210, were for sale. They were between three and seven years old, with an average asking price of \$38.975 million. Fourteen were sold in 2011, and two had already been sold in the first two months of this year.

In comparison, 22 Citation Sovereigns were for sale, or almost 7% of an active fleet of 326 aircraft. These spend an average of 295 days on the market and none were sold in the first two months of this year, although 21 were sold in 2011.

Some Sovereigns are probably listed speculatively since sellers are asking for \$14-15 mil-

lion, while the going rate is closer to \$10 or \$10.5 million.

"For a 2008 model, still in warranty and properly maintained on a programme, you could spend \$200,000 on the interior [after buying at the lower price] and it's almost as new. It's a hard argument to say you've got something that's \$3 million better than that," Lodge says.

Speakers at the International Corporate Jet and Helicopter Finance Conference in London last February voiced concern at the limited availability of financing. David Vandenberg, director of structured finance at Bombardier Aerospace, said financiers were "falling over themselves" to fund high net worth individuals and corporate buyers, but more help was needed for lease and charter operators. Lenders needed to start looking at aircraft as business tools, not toys.

Oliver Stone, MD of Colibri Aircraft, believed a potentially lucrative market funding smaller buyers was not being served. Sergio Guedes, VP aircraft finance at Embraer, said that lenders' uncertainty over the creditworthiness of those seeking financing at less than \$15 million was making things difficult. Demand was returning to the market but Guedes was worried at the impact of new taxes on aircraft owners and operators, and suggested that potential borrowers may fail the "stress tests" banks were obliged to introduce under the new Basel III liquidity rules.

Mark Wooller, head of corporate aviation and consultancy services at IBA Group, said banks were returning to the market and new entrants such as hedge funds wanted to invest. Export credit agencies were increasing their presence, stepping in to fill the funding gap and support manufacturers in challenging markets.

Under their new, stricter lending criteria, some banks are offering a maximum 70% loan to value, which generally means a more modest balloon – a market correction that delegates agreed was needed. Banks are also more likely to review their terms and reassess the borrower's business periodically.

Mike Kahmann, MD of CIT Business Aircraft, said his organisation had not implemented periodic appraisals but was aware that others had done so, increasingly conscious of the impact of usage on value. This was in contrast to the former attitude of lenders and lessors – "it's a loan, why would I worry about usage?"



Lodge: lack of finance for older, smaller aircraft is jamming up the whole resale market

Lodge argues that while headline deals on "heavy metal" are still being done, the lack of finance for older, smaller aircraft further down the chain makes it difficult to upgrade. The whole system will become logjammed without activity at this bottom end of the market, he fears.

Awareness of new models in the pipeline can depress used aircraft values, and this may even affect sought-after equipment such as Gulfstreams. A 2008 G550 was on offer in March at \$44 million, down \$500,000 on the previous quarter. Hoy at ExecuJet thinks this trend will continue, given that the G650, which is aimed at the same profile of buyer, is coming on stream next year.

Steve Varsano, founder of The Jet Business (see separate article overleaf), told the conference that the market must embrace the idea of a 10 or 20-year cut-off point, as it was unrealistic to imagine that 700-800 older aircraft every year were joining an ever-expanding global fleet.

While some much older aircraft remain pro-

ductive, the rising cost of maintenance and replacement parts eventually forces them into retirement. One speaker said nobody wanted 20-year-old Challenger 601s "because they will cost you two hours of maintenance for every hour you fly them".

Challenger 604s, which did not enter the market until 1995, are also being broken up for parts. The airframe and avionics are 11 years older than the 605, and owners and buyers are not prepared to spend money on re-engining them.

Even 1999 Learjet 45s are heading for the scrapyard, although Hoy tells EVA that ExecuJet has had some success selling former Singapore Airlines training aircraft in the 10 to 12-year age bracket with around 8,000 hours flying time.

"At the right price and with new paint, interior and engine programmes, there's no problem. The maintenance history is impeccable. Turn right and you're looking at a brand new aircraft. They're fetching nearly \$3 million," he says.

However, a new consideration beginning to affect resale values is the maximum age limit some jurisdictions are now stipulating for aircraft joining their registers. Jordan now has a 10-year limit, China the same (and with a maximum of three owners). Russia wants modern planes on its register, too.

Countries were trying, wrongly, to protect their safety records, but there was no rational basis for an arbitrary age limit, Hoy said. "There is no reason why you wouldn't take a 12-year-old plane with a good pedigree."

Many owners looked to sell three or four-year-old Challenger 605s with 1,500 hours on the clock, and this market was still lively. But the new age rules meant anyone now acquiring such an aircraft would be forced to think about their exit point and the likely demand for it at eight or nine years old, he said.

Perhaps with this in mind, Varsano had a different take on where buyers should be looking for value, given the cheap cost of borrowing. "A 10-year-old Challenger 604 will cost you, say, \$10 million, but you have to add \$400,000 per year for maintenance. An aircraft that's two years old will be \$20 million, but it's still under warranty. If you are borrowing at 4%, you will be paying the \$400,000 in additional interest but nothing for maintenance. That story's not being told," he said. ●

Paying the price for quirky design

Buying a used aircraft is an emotional decision, and Colibri has learned that first impressions matter

Oliver Stone, MD of Colibri Aircraft, says interior configuration – including colour – can have a significant impact on an aircraft's resale value. "First impressions matter. People buy planes when they either fall in love with the plane or the price," he says. "It's emotion versus logic."

He recalls a Gulfstream III that sold for \$3.3 million in 2007, \$2 million below the going rate at that time, partly because of its vivid green upholstery. Unusual decor can also lengthen resale time. A Global Express took a leading broker 487 days to sell in 2010-11, compared with a then average for the type of 278 days, resulting in additional interest payments of more than \$570,000.

The main reason was its quirky interior design, Stone believes. "Instead of seeing an aircraft they can modify for minimal expense, buyers see an aircraft they don't like.

"Neutral earth tones typically provide the fastest resale – and often the best prices," he says. "Neutral interiors aren't polarising. When buyers are not distracted by bright colours, they can focus on the aircraft's other selling points."

A less sought-after layout can also deter prospective buyers. An early model Global Express that hit the market in 2007 took 188 days to sell, more than twice the average at the time, because the dual aft couches were not certified for takeoff and landing, restricting the number of certified seats to 10 compared with the usual 13 or more. "Buyers buy an aircraft to have the freedom to go where they want and with whom they want," Stone says. "If they're spending millions, they don't want restricted seating."

In another example, the market shows a clear preference for a dual-seat divan in the Citation XLS rather than a single seat plus cabinet. The layout with the extra seat is a minority version on the market, but accounted for nine out of 13 sales of the XLS last year, Stone says.

Similarly, in the Gulfstream IV, an aft galley is more common (31 out of 40 aircraft on the market in January 2012 featured one) but buyers prefer the forward galley. Last year, 10 Gulfstream IVs were sold and only four of them had the aft galley.

"This comes down to passengers wanting privacy. They do not want the crew walking back through the cabin to the galley when they are trying to sleep or get work done. With a forward galley, this is not a problem."

The reverse is the case with the Falcon 50, which came with the option of a forward or aft toilet. The average time on the market for aircraft with the forward lavatory is 914 days, compared with just 593 days for the aft lavatory. Once again, buyers are voting for privacy and don't like passengers to have to use a toilet right behind the cockpit and by the crew.

Onboard entertainment also helps people fall in love with an aircraft, or not. Wireless internet connectivity, iPod docking stations and

flat-screen TVs make a better impression than a VHS player and an old sat phone, though Stone points out that this can go too far. In the case of one Gulfstream, seats and even windows had been removed to accommodate a big screen – not to everyone's taste.

The paperwork necessary to support an interior completion makes a good rule of thumb. An STC means an aircraft is more transferrable than if it comes with a Form 337 for a customised VIP modification, because it can be difficult to find another buyer who shares the same tastes. As refurbishments become more expensive, this cost, plus a risk premium, is deducted from the price.

"Sometimes, the items you cherish will not be fondly shared by the overall marketplace. It is important to remember that while it's always vital to a sale to be realistic on price, it is not always necessary to be lowest if you have something people can connect with," Stone summarises..



A seller's cherished interior may not be appreciated by the market



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General Aviation



London showroom raises the bar

A long-time believer in face-to-face relationships, Steve Varsano has opened a corporate jet showroom behind 'the best shop window on four continents'

An executive jet broker who has brokered more than 300 aircraft transactions in his 30-year career claims to be reinventing how pre-owned aircraft are bought and sold.

American Steve Varsano, who has lived in the UK for the last 2½ years, opened his corporate aviation version of a luxury car showroom in early January behind what he calls "the best 10 feet of window on four continents".

He initially thought Berkeley Square, in well-heeled Mayfair, might be the best location. But a real estate agent persuaded him to look at One Grosvenor Place, facing onto one of London's most iconic locations at Hyde Park Corner, and he was so impressed that within an hour, he had committed to a 10-year lease on the 2,100sq metre space.

Behind the glass frontage of The Jet Business is a full-size cabin mock-up of an Airbus Corporate Jet, equipped with white leather seating and contemporary fixtures and fittings.

"Anyone who has chartered aircraft in the Middle East or the CIS countries will come through London at some time and they have to go round the circle [Hyde Park Corner] to get to Mayfair and Knightsbridge. They're sitting in the back of a chauffeur-driven car, waiting at the light and forced to look right into the window," he says.

Varsano has been planning The Jet Business for five years and hails it as the first consumer brand in business jet trading. There is much more to the concept than an attractive location, however. Underpinning its service is cutting-edge technology in the form of a customised iPad application that compares and contrasts 120 aircraft models to the buyer's exact specification. How much do you want to spend? How many passengers do you wish to carry and what range do you need? What is your preference on aircraft age? How important are cabin dimensions?

As each parameter is defined and the range of potential acquisitions narrows, the information is displayed in high resolution on electronic floor-to-ceiling screens. Life-size or 1:2 scale overhead schematics show seating plans, window placements, galley position, baggage areas and so on. Cabin cross-sections of the jets can be compared graphically in actual size.

The company expects 80% of transactions to be in pre-owned aircraft, and has no affiliation to any one manufacturer. Varsano and his 14-strong team will not only act as exclusive brokers for owners looking to sell their business jets, but also have real-time information for prospective buyers about all relevant aircraft currently in operation.

A commonly quoted statistic is that 2,700 jet aircraft are on the market at any time, but that's

not strictly true once a buyer starts to define his or her needs, Varsano says. "If you cut the line at 14 years old, the number is already half that. If you want a US-based aircraft of a particular type, you could quickly come down to 10. You're looking for a forward galley? Now it's five."

The Jet Business pledges to call existing owners every 10 weeks as part of the process of cultivating an ongoing relationship with them. But if a prospective purchaser makes an enquiry, all relevant owners can expect a call even if they have not made it known that their aircraft is on the market.

Long-range models in demand

There were nine aircraft exclusively listed with The Jet Business as at the end of March. Speaking to EVA at ABACE in Shanghai, Varsano was unwilling to discuss how many he had already sold, but reveals that while the market in smaller jets remains soft, demand for large cabin, long-range models is as strong as ever, with buyers in emerging economies leading the way.

The idea is for visitors to take themselves through the selection process on the iPad, thus learning their way into the app. "You pay more attention that way than just watching someone else do it," Varsano says.

"It's important for us to know where they are based and how many times a year they need the

maximum range they're telling you. If it's less than four times a year, there may be a more appropriate solution. The number of passengers is also an interesting one, because average occupancy per flight is only 2.8 passengers. People sometimes buy because they can; they don't always need the range or capacity."

Once the main specifications are entered, customers can drill down if they wish into more technical information on operating cost, fuel burn and flight data. "It's not necessarily for a guy who's going to buy today, but shows at a glance what would take the client three months to research by traditional means," Varsano says.

The Jet Business describes a visit to its showroom – by appointment only – as a "fully immersive and educational experience" for ultra-high net worth individuals, government officials, royalty and influential corporate executives either living in London or visiting from overseas.

He is delighted at the number of "level one" visitors coming through the London showroom in its first three months of operation, including high net worth individuals from India, China, the UAE, Saudi Arabia, Nigeria, Israel, Canada, Switzerland, France and Monaco. "More than half of them have been new acquaintances. Our highly visible location and the unique technology we are showcasing is playing a huge part in this success," he says.

A graduate of Embry Riddle Aeronautical University, Varsano started his aviation career as a lobbyist with the General Aviation Manufacturers Association in the 1970s before starting to trade business aircraft.

He quickly understood the value of face-to-face meetings. "It used to be all on the phone and by telex. You never met anyone despite having a multi-million dollar product to sell," he says. "I always wanted to meet the client. It was a limited geographical market then, but now it's the whole world.

"How would I get clients to come and see me? I knew I had to break the mould. I have set up a futuristic environment that resembles their home, office or plane. Here, we summarise quality information that is as current as possible. We've built the app so the client knows what's in the market that very day."

The technology is all very well, but another benefit of meeting the client in person is that it puts Varsano's long career knowledge directly on the

line. "If a broker is on the phone to a prospective client, he can stall them while he Googles for information. In a face-to-face situation you're exposed and you have to have the know-how," he says.

Personal contacts are crucial. "I want to make this an exclusive club that you can't become a member of," Varsano smiles. Just before the official opening of Grosvenor Place, he persuaded a foreign former prime minister – who reluctantly said he would spend "five minutes" – to visit the premises and they ended up talking for two hours. He accepts it is difficult to market actively to such individuals, but the early evidence, thanks perhaps to its unusual business model, suggests The Jet Business will be one of those rare projects that goes viral.

Why potential sales are lost

Varsano believes that business aviation and its clientele base can expand dramatically if customers – especially from the emerging markets – are provided with better tools to enable them to purchase or lease a jet and if they are exposed to all the options open to them. "Our industry loses 20% of potential sales. What we've done is not complicated, but brings information into one place," he says.

If clients are unable to meet on The Jet Business's home ground, the sales team will travel anywhere in the world to deploy the app in a mobile version. But it's the showroom that has the real wow factor. The display wall forms one

entire side of the main meeting space. The ACJ fuselage alongside offers a more informal environment. These two areas front on to the street and are in full public view, though the windows can be blacked out at the press of a key on the iPad.

Behind this are a boardroom and a private meeting room (there is a secret rear entrance for those requiring total anonymity). The company's sales team operate nearby at individual desks modelled on corporate jet cockpits in carbon fibre, with the dashboards and seats upholstered in luxury leather.

Five years ago, Varsano says he might have done all this in his native New York. The US business environment is "not as conducive as it was," he says, but he plans to roll out the brand in North America as well as Asia and the Middle East.

More immediately, he plans to expand his jet listings to include helicopters in the next month or so, while later this year an evolution of the app is on the way that will further supplement the system's current functionality. Buyers can already see what pre-owned aircraft are out there and how their interiors look. Soon, Varsano will be able to show clients swatches as a designer would, then allow them to move the seats around and formulate their own shapes, finish and stitching. The end results will be rendered in 3D on the display wall within an hour, short-circuiting a process that in the past has taken weeks.

One man's vision looks like becoming a genuine game-changer. ●



Clients can discuss their requirements in an informal meeting space fitted out like an ACJ fuselage

Meet Euro 2012's winning team

Ground handling is in good hands at Poland's largest ever sports event



A Polish-owned ground handling operation that provides top-tier VIP support right across the country, excel handling, is gearing up for the UEFA European Football Championship that take place in Poland and Ukraine from June 6 to July 1.

With its headquarters and 24/7 operations centre based in Warsaw, FBOs in Warsaw (WAW) and Krakow (KRK) and a robust network of aviation ground support professionals at every major Polish airport, excel offers a wide range of services to suit the needs of its discerning clients. The company takes care of hundreds of flights all across Poland every week – from small private business jets to the largest military or cargo charters.

Slot allocations for general aviation flights in and out of Warsaw, Wroclaw, Gdansk and Poznan during the tournament are now open. "To meet slot requests effectively, we need to have aircraft data: registration, type, seating capacity and flight schedule - with no overnight stops," says excel's CEO, Borys Slawomirski.

"Due to limited ramp space at the airports, only short turnarounds are available. Time availability and parking positions are very limited now on match days, so we encourage operators to send us their flight schedules as soon as possible," he adds.

At times of peak demand, these four main airports may even be closed completely to GA

traffic, though alternatives have been designated (see chart). With has agents in place at each location, excel says there will be no service disruption.

Slot requests by GA operators must be made by the operator's ground handling company at the relevant airport. ATC flight plans will be compared with cleared airport slots. In the event of any discrepancies, such as a flight plan with no matching airport slot, a warning message will be sent to the flight plan originator. Unresolved discrepancies may result in the suspension of the flight plan.

Due to the heavy traffic expected, ground times will be limited by aircraft type/ICAO code during Euro 2012 as follows:

- code B – 30 min maximum
- code C – 45 min
- code D – 65 min
- code E – 90 min

Crew must stay on board throughout, in order to ensure an efficient refuelling procedure and so they can change parking stand if the airport operator requests it. All requests for ground times longer than the permitted maximum must be made to the slot coordinator through the local handler in advance. If the aircraft type changes, the operator is obliged to request a new airport slot.

These restrictions do not apply to team flights, aircraft operators whose home base is the airport in question, or to HOSP, SAR, HUM, EMER and HEAD flights, excel points out. Details of such flights must be included in the "SI" field when the slot is requested.

A team flight is a flight carrying players and their substitutes, the team trainer and his assistants, the team management, and others directly linked to the relevant team, where the flight is operating from the team camp to the city where the match takes place and vice versa. Flights carrying VIPs, sponsors, management of the respective national football organisation, spouses

and relatives of the players are not considered as team flights. Requests for team flights will be cross-checked with UEFA.

The airports covered by these temporary procedures cannot be considered as alternative airports for diversions on Euro 2012 match days.

Poland never hosted an event on this scale, so there is little information to go on, but excel expects each game to generate around 80 additional charter movements through main and alternative airports. "We're receiving new requests every day, so it seems that we'll have a pretty busy summer," Slawomirski says.

He doesn't see limited availability of airport slots and parking as a particular issue for any of the airports. "There will be some inconvenience since most of the operations are planned for a short time window before and immediately after the matches. Every airport is limited by the runway capacity, so some passengers will have to wait a while or arrive much earlier than scheduled; the same considerations obviously apply to departures.

"At this stage, we are still able to book slots as requested by operators, though this slot pool will eventually run out. Limited parking time on match days may force operators to undertake a ferry operation to the alternative/GA airport and back. But if everything will be planned in advance I'm sure we'll be able to avoid such a situation."

Each match venue has access to an international airport no more than 15km from the city centre. Ground transport links depend on the decisions each city makes – for example, when Poland played Portugal in a recent friendly in Warsaw, a bridge and a number of streets were closed to traffic.

"We can arrange transport ourselves for passengers on flights that we handle," Slawomirski says. "We work with experienced drivers and have never experienced problems in the past, so we don't anticipate any ground transport delays during Euro 2012." ●

City	Main airport	Alternative	GA
Gdansk	EPGD – Lech Walesa	EPBY – Bydgoszcz	EPBY – Bydgoszcz
Poznan	EPPO – Poznan Lawica	EPZG – Zielona Gora	EPZG – Zielona Gora
Warsaw	EPWA – Warsaw Chopin	EPLL – Lodz	EPMO – Modlin
Wroclaw	EPWR – Nicolaus Copernicus	EPKT – Katowice	EPKT – Katowice

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Back from the brink?

Air Partner trains up new sales personnel in an in-house academy at its Gatwick HQ

Charter brokers and operators are seeing tentative signs of recovery – after plumbing new depths in the last four years

Private jet broking was one of the brighter spots in Air Partner Group's figures for the six months to January. The division increased its revenue from £19.0 million to £20.3 million and group CEO Mark Briffa credited "investment in specialist sales teams who can build the connections which are critical in this market".

Although the additional sales resource has begun generating extra revenues, the benefits were not yet filtering down to the bottom line as Air Partner filed its interim results. Half-year profits from private jet broking fell from £0.5 million to £0.3 million, underlining the slim margins in this sector. Nevertheless, this division managed to outperform the group's larger commercial jet broking operation, which was impacted by aircraft overcapacity. Group revenue was down 8% to £120.5 million and pre-tax profit fell by 19% to £2.3 million.

When the market is weak, there are advantages to a one-stop shop approach, according to Simon Wheatley, Air Partner's UK manager, Private Jets. "You try to close the circle as a group, so that you're in a position to help the private jet client, perhaps the CEO flying on his own, when

he wants a commercial or cargo charter. We even have a travel agency for those who are not flying privately at all."

Picking up Briffa's point about investment in specialist sales teams, Wheatley says that not all the group's worldwide locations have dedicated private jet expertise. "We have our own footprint in bigger offices in Paris, Cologne, Dubai, New York and Washington. We're looking at new markets such as Madrid, Moscow and the CIS territories by way of satellite sales operations, backed up from head office."

The appointment of new sales reps with the skills and knowledge to work in Ukraine and Russia led to a near-doubling of revenues in the last year from this region, but some mature western European markets are growing too. Air Partner's opening of a Monaco office in September has resulted in 10% growth for its pre-paid JetCard programme from the south of France.

Meanwhile, the company has strengthened both the ad hoc and JetCard sales teams at its London Gatwick head office. It recruits on the basis of problem-solving skills and is happy to teach the specifics of sales and private aviation over a period of several weeks in its own

in-house "academy", Wheatley says.

Summarising current trading patterns as "inconsistent" in its interim report, Air Partner said: "Lead times across the business remain short, meaning that visibility of forward bookings is limited, even for the major sporting and cultural events expected this summer."

Wheatley points out that private jet charter has always been a last-minute business, but concedes that Air Partner "still has ground to make up with corporate users and business flyers" after traffic halved between 2007 and 2009.

"There was a knee-jerk reaction during the credit crunch from those with the greatest need to fly private jets. Our corporate business is driven by events such as financial road shows, where you need to be in three cities in one day. When these companies try to fly scheduled services, we often find ourselves patching things up when they find they can't get where they need to be," Wheatley says.

The key to attracting corporate clients back into the market is to demonstrate return on investment, he points out. "What are the consequences if you lose a \$1 million deal by trying to go scheduled?"

Perceptions are everything, and it is important for the broker to understand the client's purpose in buying the flight. Does he want to entertain lavishly, and might it therefore be necessary to transport a special whisky across town? Or does he prefer to be seen as frugal? Wheatley recalls one client who requested only hot water and noodles for his in-flight service.

In such price-sensitive times, is chartering viewed merely as a commodity, and does that still leave room for the middle man?

"The passenger experience is different if you don't have the support of a charter broker," Wheatley insists. "But users will look at a few dollars on the bill, and you do have to work harder to justify your profit.

"A lot of operators have entered the market with a business model where they seek to earn a living through charter, unlike business owners who regard it as nice to have top-up revenue. This means there's a lot more competition out there, in a lightly regulated industry with no defined standard or kitemark. You've got to differentiate and add value; otherwise you're just an aircraft-finding service.

"Probably 50% of our work is with the top 20 or 30 operators, but we have a diverse mix of suppliers and we want people to use us as consultants. There's something of us invested in the business. If a plane goes technical or a supplier becomes insolvent, it's important to have adequate insurance and a replacement aircraft guarantee. There are not many barriers to entry, especially for internet-based services."

However, sourcing aircraft is all that some clients may want in the first instance and Air Partner last year unveiled the first multilingual iPhone app showing global private jet availability in real time. The app is free to download and is available in English, French, Russian, German, Spanish, Italian and Portuguese, with the language determined by the settings on the user's phone.

Based on their chosen one-way or return routing, the number of passengers and travel dates, app users can obtain an estimated price (choosing from 36 currencies in the cost calculator option). They can see images and details of the aircraft available, from very light jets (VLJs) to 16-seaters.

The entry of VLJs has helped redefine the overall market and opened up new people to the potential of private jet charter, Wheatley says. Air Partner has seen the strongest growth here and in the midsize category.

Patrick Margetson-Rushmore, chief executive of London Executive Aviation (LEA), sees things slightly differently. His company, which owns nine of its own aircraft and manages a much larger fleet, was the first to introduce the Citation II and Mustang. He expected Excel clients to trade down to a Citation II Bravo in response to the recession, and Citation users in turn migrate to the Mustang.



Khalek: limited scope to reduce cost base in a down market

"That didn't happen. People stopped flying," he told the Corporate Jet Finance conference in February. Prices fell as a result. "We saw a lot of competitors operating on a cost basis, and had to follow suit."

Demand for LEA's smaller aircraft fell by 60% to 300-350 hours per year at the bottom of the recession, well below the break-even figure of 500 hours, Margetson-Rushmore said. The Excels, which had flown 800-plus hours and had a 440-hour break-even point, saw combined demand from their owners and from charter clients shrink to 350-400 hours.

LEA went through three rounds of redundancies, mainly pilots, in response to the downturn. Summer 2011 saw some recovery in bookings from the arts, entertainment and media sectors. The European Football Championships and the Olympics will provide additional traffic this year and LEA has taken back on a number of those

it previously laid off. "But this growth is coming from a low base, and while 2012 will be better than 2011, the question is by how much?" Margetson-Rushmore said.

Speaking at the same event, Marwan Khalek, founder and CEO of Gama Group, said charter revenues were recovering, but still far below their best. In good years, charter utilisation for Gama's own fleet was 650-750 hours, which had dropped to around 500 hours in previous recessions. In 2009, however, Gama plumbed new depths of 300 hours, which meant it now needed a 100% increase to get back close to peak market conditions.

"We live in a highly regulated industry trying to deliver service at the top end of the market. You can't do it on the cheap. A lot of costs are fixed and not scaleable. Regulatory pressures and customers' high service expectation mean you have limited scope to reduce your cost base," Khalek said.

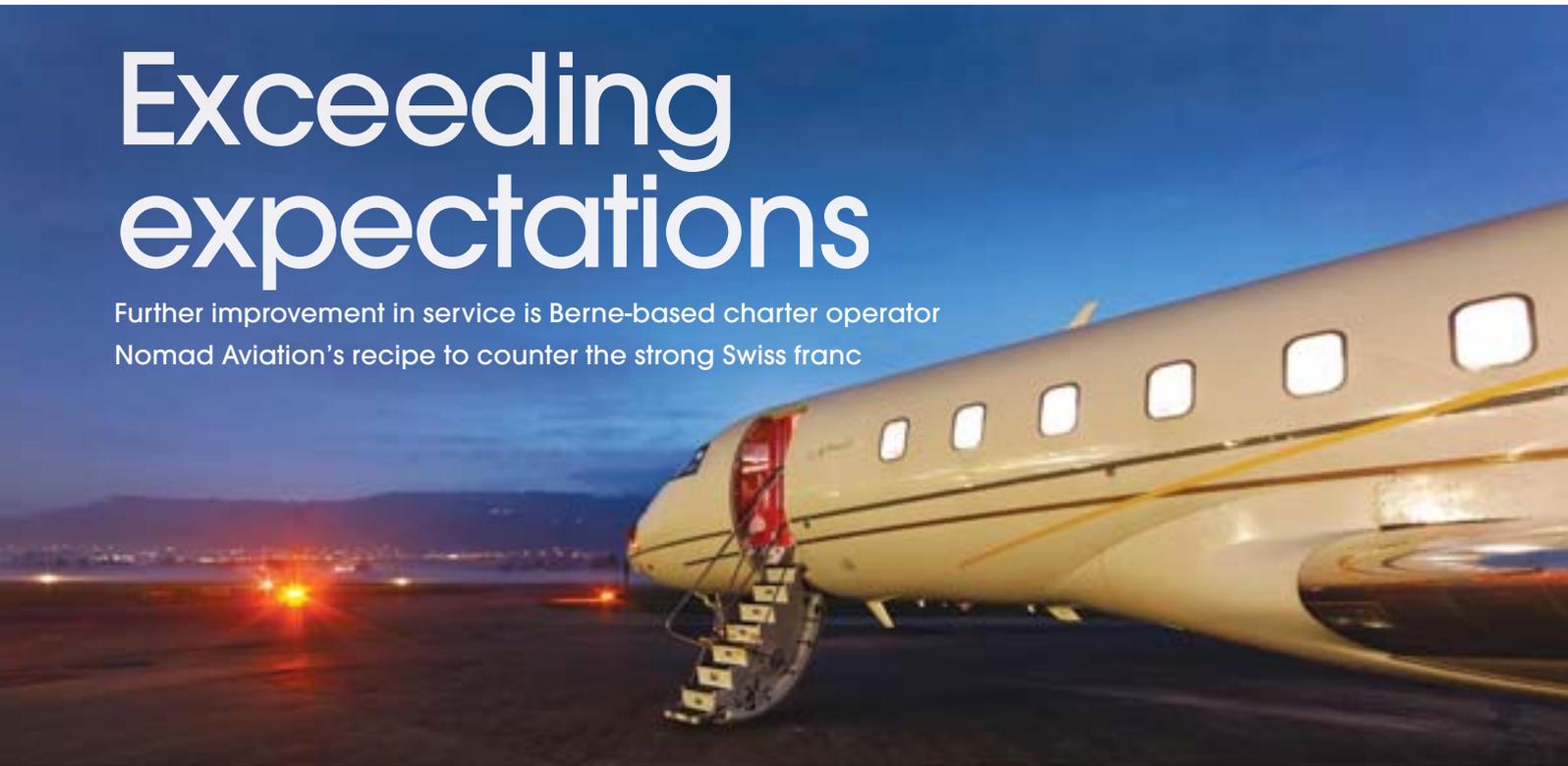
"In terms of the industry sustaining itself, this has got to come from people using aircraft, buying fuel, employing pilots, and using handling and catering services. Everyone expects more for less, but it's very difficult to do in aviation. We have to focus on getting people to better appreciate what we're delivering for them and encourage them to pay the market price for it. The customer is using a \$5-10 million asset with two skilled people overnight and is paying \$5,000 to \$10,000 for it. They're probably paying half that just for the hotel – and more per hour to get their car fixed."

Jetbrokers' Brendan Lodge asked the conference why charter operators were not charging owners more consistent management fees. Some were asking \$1,000 a month while others were charging no fee at all. This had resulted in a merry-go-round, with light jet owners in particular more prepared to change management companies if they were not getting the charter hours they were promised.

Khalek said charter management companies should not engage in this type of barter. "Compliance doesn't get any cheaper. We're trying to sell a dollar for 90 cents and we must stop beating each other up. The industry needs good operators who are not going to cut corners. Then the people who use them have a good experience and will come back for more." ●

Exceeding expectations

Further improvement in service is Berne-based charter operator Nomad Aviation's recipe to counter the strong Swiss franc



Nomad Aviation's first ultra-long range aircraft significantly expands the Swiss operator's VIP and executive charter offer. A Bombardier Global 5000 started service in November with an initial flight from Switzerland to Siberia.

The Nomad fleet extends from light jets (Cessna CJ1+ and CJ3) to super-midsize (Gulfstream 200, Cessna Citation X) and heavy jets (Challenger 604, Embraer Legacy), now supplemented by a Challenger 605 that started service in February and the Global 5000.

With a range exceeding 4,700nm, the Global offers 13 VIP seats in day configuration, two king-size and three single beds and bed in night configuration, and a large cargo compartment. "Our advertising message - St Petersburg-Male and London-Washington non-stop - underlines our step up," says Nomad CEO Claude Neumeyer.

An additional G200, currently being refurbished, will be ready in June or July for summer charter and will take the available fleet to 15. "We don't want to have too much of a mixed fleet in terms of manufacturers," Neumeyer adds. "So we won't be adding Falcons, for example."

A new Global 5000 was "a big step up" for Nomad

Nomad's aircraft are nominally based in Russia (Moscow, St Petersburg), the UK (London), France (Paris, Nice) and Switzerland (Zurich, Geneva, Basel and the company's Berne headquarters). The sales team will look for charters from wherever the aircraft terminate, which increases hotel and crew costs but reduces fuel consumption. However, Neumeyer accepts that the chance to sell - and control - charters from some of those locations is limited, so ferry flights are inevitable.

Demand for larger jets is up on 2009-10 levels. "Our focus is on eastern Europe, central Asia and the Far East, but not so much the Middle East, where the clientele is different," Neumeyer says. "We're not big in the transatlantic market, where there is a lot of competition from US operators flying older aircraft. There's not such a big market in Europe for smaller jets such as the CJ3 and it's very much price driven."

The exchange rate has penalised Nomad in recent times, as a lot of its costs are in the strong Swiss franc but its charter rates are quoted in euros.

"We have to meet the competition by being more efficient and improving our service," Neu-

meyer says. "That means working with customers individually - there are no standard solutions. Japanese and Russian clients will want food they are familiar with. It's more work for the company and for cabin attendants, but we have to meet or exceed client expectations."

Other issues that concern him are Europe-wide rather than specifically Swiss, including the Emissions Trading Scheme. "The US, Asian and many other countries are opposed to it, and the problem is that Europe ends up paying unilaterally. International aviation regulation should be driven by ICAO, not the EU," he says.

Neumeyer is looking for more focus on airports if aviation is serious about trying to reduce its emissions. "We should focus on things that are easier to control. If you're waiting in line for 30 minutes, you're also emitting. I don't see why the industry could not set a target time of 15 minutes from start-up to getting airborne."

A streamlined slot allocation process would also help business aviation especially, Neumeyer argues. "Airports such as Geneva operate efficiently but at many airports you have to file your request before they allocate you a slot, so it's difficult to pre-plan. The system of booking slots via a website is too easily abused." ●

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Ireland defies the euro crisis

Recent years have been hard going at Shannon, but it hopes to succeed by offering services that are unique in Europe



Competitive fuel is part of an FBO package JetEx Shannon claims is unmatched in Ireland

Ireland's exposure to the recession and the Eurozone crisis has seen inward investment slow, and local entrepreneurs getting their fingers burned. Yet despite the problems, general aviation traffic at Shannon Airport in the west of Ireland grew by 3% in 2011 after a 7% increase the year before.

The property developers who were cashing in during the boom years were based mainly on the other side of the country around Dublin, but Joe Buckley, cargo and technical traffic manager at Shannon, says horse breeders and, more recently, biotech companies are more strongly represented in the south and west.

Mike Ryan, general manager Ireland at FBO Signature Flight Support, confirms that the horse racing industry remains prominent in this region. Foreign owners regularly fly in to visit their trainers, while the more successful local owners and breeders charter their aircraft out commercially as well as using them personally.

Signature, with bases at both Shannon and Dublin, offered hangarage to five corporate jets in Shannon at the peak of the market. "Only one of those owners survives, but we diversified and now work to meet the requirements of leasing companies and the military, for example," Ryan says. "We purchased our own fuel truck three years ago and fuel sales are now an important part of what we do."

Dublin is a similar sized but more clearly de-

finer market, Ryan says. Although the general aviation market there has suffered, multinational manufacturers and financial services companies still need to move executives in and out of Dublin. The customer base is bigger, there are more locally based aircraft and the charter market is livelier thanks to the city's sporting and concert venues.

For its part, Shannon, which has no curfews or slot restrictions, offers benefits as a tech stop for transatlantic flights but Buckley admits: "We've been dependent on the fact that aircraft didn't have such a great range in the past."

The airport is trying to carve out a new niche and set itself up in 2010 as the only airport in Europe at which passengers on private aircraft can pre-clear US immigration. One or two flights a week, mainly from the Middle East, Turkey, Russia and eastern Europe, make use of the facility, a lower take-up than Buckley had hoped. "We've got to make people aware of what exists here, but it's a question of whether the time and cost of diverting is worth it," he says.

Frank Moloney, who heads up the new JetEx Shannon FBO, believes pre-clearance is a useful time-saver for operators flying from Moscow to New York. "You only need 20 or 30 minutes for paperwork on touchdown, but it's so much easier if it's all pre-done," he says. "And Teterboro is not the only international point of entry, as previously domestic airports have opened up."

Moloney says Shannon was taking 90 minutes to process passengers in the beginning but

has now streamlined this to 30 or 40 minutes, which can be accomplished while the aircraft is refuelling.

A charter operator at Shannon for 30 years, latterly as CEO of Westair, Moloney decided in 2008 to focus on management and logistics services. "I could see the downturn looming and we were lucky to exit the charter market when we did," he confesses.

Last October, JetEx Flight Support entered into a joint venture with Westair and Moloney says the enhanced operation is already delivering new traffic to Shannon. "We're not in the business of swapping chairs on the Titanic," he says. "We expected the first few months would be slow burn for us, but we've been pleasantly surprised and saw 90 movements in our first quarter. G550s and Global Expresses may be able to go direct from the Middle East to the US, but smaller aircraft need the stop and we're a realistic alternative to Prestwick [Scotland]."

"We had never marketed our FBO - it was previously there to service our own fleet. But JetEx was looking to expand and it gave us a one-stop shop - overflight permits, flight planning and so on. We wanted to provide a bespoke VIP-level service, which lots of people promise but can't deliver."

JetEx Shannon offers competitive fuel leveraged on the back of the company's global fuel buying activity. "We're the only true FBO here with airside and landside lounges hangars, fuel and part 151 maintenance services - it's unmatched in Ireland," Moloney says.

The maintenance facility has Gulfstream, Hawker Beechcraft, Bombardier, Challenger 605 and Learjet approvals. "We can get a plane underway in minutes. We can provide an engineer on the ramp at every turnaround, which makes us unique in the UK and Ireland. Technical support issues that arise in flight can often be dealt with without a large parts store.

"We've shown there is an opportunity to grow business in a recession when you fully understand the mindset of operators and I'm quietly proud about it. We will be adding to our facilities in the next couple of years," Moloney concludes. ●



Differing fortunes on France's "glamour coast"

No fewer than 10 airports in south-east France, less than 80km apart, are able to accommodate business aviation traffic, but the two that jointly promote themselves as Aeroports de la Côte d'Azur, Nice and Cannes, dominate the scene owing to the many special events on their regular social calendar.

Together, Nice and Cannes recorded more than 43,000 biz av movements in 2011 to account for 72% of the region's total. However, the two airports have had contrasting fortunes during the last five years, explains Umberto Vallino, marketing and statistics manager for Aeroports de la Côte d'Azur, highlighting dramatic shifts in client behaviour during the recession.

Nice, a fully coordinated airport that is open to commercial and scheduled aviation, can take all sizes of aircraft and operates round the clock. Biz av grew to represent 23% of aircraft operations at Nice last year, up from just 10% in 2002. The main peak is from May to September, when two-thirds of business jet users visit because of the Monte Carlo Grand Prix, the Cannes Film Festival

and the holiday season.

With a record 30,400 business movements last year, Nice nudged 1% above its previous busiest year in 2007. Cannes Mandelieu, France's second largest dedicated business aviation airport after Paris Le Bourget, saw 11,300 movements in 2011, which leaves it still 16% below the traffic levels of four years ago.

Cannes is restricted to aircraft of 22 tonnes MTOW and is closed at night. Its core traffic of small and medium-range aircraft has been hardest hit during the downturn and slower to recover.

Nice attracts 51% of the short-range biz av traffic calling at the two airports to Cannes' 49% but in all other categories, Nice predominates. This is because, even for relatively short-range destinations, operators appear to prefer the larger aircraft that only Nice can accept.

Some 31% of biz av flights from Nice to Moscow and 29% of those to London in 2011 were in large aircraft. These two cities were among the fastest growers overall, increasing by 13% and 16% respectively over 2010. But even much shorter routes to Olbia in Sardinia (with a 25% large aircraft share), Milan (22%), Geneva (20%),

Paris (20%) and Zurich (19%) are now attracting more "heavy metal".

Cannes serves a more limited range of destinations. Although domestic services within France (up 30% in 2011) and flights to Russia/CIS (+18%) and Switzerland (+9%) grew strongly, Germany was static while Italian and UK traffic decreased.

The trend is set to continue, Vallino believes. "We expect around 5-6% business aviation growth in Nice this year and for Cannes we expect a very low growth of 1% due to some runway and airspace capacity restrictions (IFR approach is controlled by Nice). We are working to improve our capacity and attract more biz av traffic," he says.

Nice opened a dedicated general aviation terminal in 2010 (pictured), but has no hangars owing to space limitations and therefore prioritises externally based operators. However, it is building new long-term parking stands, and will have increased from 51 in 2010 to 72 by 2014.

Cannes, with a single GA terminal, 14 hangars and more than 100 stands, targets "based" operators. The airport is set to complete three new hangars by 2013, the last it can develop because of space constraints. ●



Sci-fi enters the real world

Cabin design had not changed much in 50 years – until Portugal's LIFE consortium set to work

LIFE, a futuristic idea of how executive aircraft cabins may one day look, won the Visionary Concepts category in the Crystal Cabin Awards presented during the Aircraft Interiors Expo in Hamburg in March.

The five-way Portuguese consortium behind LIFE – an acronym for Lighter, Integrated, eco-Friendly and Efficient – first unveiled a mock-up of its cabin at last year's Paris Air Show. Some of the ideas seem to belong on the wilder shores of science fiction, but José Rui Marcelino, design manager at the Almadesign consultancy which leads the project, says the group has identified four areas with a high "technological readiness level" (TRL) that could become commercial reality within two years.

The mock-up showed how panels and coatings, lighting and ventilation systems, seats and galleys could evolve, but the most striking innovation was the Sphere, conceived as a private "cocoon" for work or relaxation.

"Why do you have to sit in a square room or work at a desk when travelling? All you need is a place to work. Screens for example won't be as they are today – they will just be transparent surfaces," Marcelino says. "Some show visitors said the Sphere was 10 years in the future, but we've seen things like this already in other industries."

Almadesign consciously looked beyond exist-

ing aircraft design to rail and road transport designs in drawing up the new cabin. "If you don't push, as the automotive industry does, you continue to do the same thing," Marcelino says. "Current expertise in composites makes new window shapes possible, for example, but in 50 years of metal forming, little has changed in aircraft cabins except the electronics."

Marcelino is a researcher in aerodynamics, but appreciates that specialists in one area cannot clearly see the whole picture. Hence Almadesign, back in 2007, sought out other parties to add more substance to the LIFE project, recruiting Amorim Cork Composites; Couro Azul, a supplier of leather to carmakers; Inegi, the mechanical engineering research arm of the University of Porto with particular expertise in composite structures; and SET, a computer simulation, prototyping and toolmaking specialist.

"The idea was to develop competencies, transfer knowledge between the partners and foster innovation, so we were not just building the same thing again and again," Marcelino says.

A particular focus was to use materials such as leather, cork and natural fibres to reduce passengers' direct contact with plastics or metal, he points out. "We used the properties of each not just for decorative purposes but for their acoustic, thermal and fire-retardant qualities."

Importantly, Embraer also got involved. The

consortium tapped into the Brazilian aircraft manufacturer's database to determine whether passengers were looking for "nice trim" or something more revolutionary, Marcelino says. Later in the process, the complex fabrications that would be needed were first worked up using Embraer virtual reality software to give a better sense of how the LIFE cabin would work in a genuine aircraft cross-section.

The other "high TRL" products alongside the Sphere are cork sandwich panels that are now being tested and should be certified for the aviation industry soon; floating seats that absorb vibration and turn through 180 degrees; and interior panels that promise new sophistication in cabin lighting.

"These are one-piece constructions, responsive to distance and movement," Marcelino says. "You light the ceiling by passing your hand across it. There's no switching, or visible bulbs."

An intellectual property agreement gives Embraer initial exclusive rights to LIFE's ideas, but Marcelino expects eventually to involve other OEMs and completion centres. Business jet manufacturers will take some years to adopt these new concepts fully, but the cork panels, for example, could be supplied on a customised basis to begin with, and he hopes could gradually become a standard specification as their benefits are understood. ●



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A new world in top-end completion

A bumpy road lies ahead with more fit-out capacity coming on stream, just as bizjet buyers are cancelling orders and deferring completions

The bizliner sector has been fertile ground for completion centres ever since its emergence in the mid-1990s, when Boeing and Airbus first realised the potential demand from heads of state and ultra-high net worth individuals for the luxury fitting out of larger aircraft.

The two manufacturers enjoyed tremendous success for 15 years, selling 380 of these aircraft. For widebodies in particular, with a price tag of \$125 to \$250 million, completion is a lucrative business. Around 20 established businesses worldwide, including the likes of Lufthansa Technik, Amac Aerospace, Gore Design Completions and L-3, have traditionally shared the majority of the contracts.

Jean Sémiramoth, Paris-based chief operating officer of turnkey aviation project management specialist Altair, says the result of this – at least up to 2011 – was a shortage of capacity for narrowbody bizliner completion.

Demand stayed high from governments, heads of state and the wealthiest private buyers, who did not suffer from the financing issues experienced by charter companies and corporate buyers as the economic crisis took hold in 2007-08. A new line of business in refurbishing 10 to 15-year-old Boeing business jets and Airbus corporate jets has also emerged.

“Not many completion centres can do the fitting out. It’s a craftsman’s job. The quality and kind of work required is more familiar to operators who work on a smaller scale,” Sémiramoth points out.

This past lack of capacity and the long turnaround cycle of bizliner completions – typically 18 to 36 months for a widebody

and nine to 15 months for a narrowbody – means legacy outfitters have full order books for the next two to four years and appear relatively immune to the downturn.

Delays in new aircraft programmes ironically have added to the pressure. Boeing’s 787 and 747-8 and the Airbus A350 (and to a lesser extent for this market the A380) have all run behind schedule, meaning that as and when they do become available, VIPs at the front of the queue demand rapid delivery. The first business 747-8, for a VIP customer with one of the early production slots, was delivered only a few weeks ago.

“Not many completion centres can do the fitting out. It’s a craftsman’s job. The quality and kind of work required is more familiar to operators who work on a smaller scale”

A number of recent developments are changing the landscape. The Eurozone crisis and social unrest in North Africa and the Middle East have led to cancellations of bizliner orders, including A350s and B787s, and the deferment or cancellation of completions. Although China, and the Asian market generally, remains buoyant, Sémiramoth predicts a bumpier road ahead.

Completion centres that have traditionally specialised in widebody business have seen capacity free up, while new entrants to the game are trawling for business.

Aggressive expansion, especially in the Middle East and Asia, over the last three or four years has allowed manufacturers to expand their networks of authorised completion centres and the newcomers have a cost advantage. TAECO, based

Sémiramoth: new entrants and order cancellations could force completion prices down



at Xiamen in China, was last year appointed as an Airbus cabin outfitter. Meanwhile ST Aerospace, through its affiliate company in the US, has unveiled the Aeria Luxury Interiors brand in the VIP completions and refurbishment business.

The likes of Altitude in New Zealand, Sabena Technics in France and Comlux in the US are increasing their profile in the completions and refurbishment market.

Sémiramoth suspects that rates may come down as a result of all this new activity. "The most successful operators are not yet feeling price pressure, but the new entrants eager to get business could affect this," he says. Ultimately, he believes completion centres could merge or withdraw from the market.

While some buyers have long recognised the need to outsource aircraft acquisition and completion, aware of the complexities and difficulties involved, Sémiramoth says turnkey project management services are relatively new. "For totally independent companies like us, there is no conflict of interest – we're not into operations, management, charter, manufacture or completion."

Understanding the objectives and lifestyle of the client is important, even though Altaïr doesn't get directly involved in design. "The key priority is to deliver what they wanted. Projects can overrun by months or years if you're not careful, and the cost can be enormous," he says.

"Each job is unique and these are high-stakes projects presenting major challenges and pitfalls," Sémiramoth comments, recalling the leading completion centre that lost more than \$180 million following delays and losses on three complex contracts.

A capable project management team must take full control of technical, regulatory, legal and financial issues, he adds. "If you haven't made the correct assumptions right at the beginning as to the resources required, projects can quickly become a nightmare."

Altaïr tends to specify completion centres with as much core expertise as possible. "The more they have in-house, generally the better. Otherwise you're relying on external suppliers of furniture, for example, and then you still have to make everything fit. Certification can also be an issue, because in every case it's like building a certified prototype." ●

Must-ask questions for the charter sector

Designing an interior for an aircraft that is to go out on charter involves some very different principles than designing for exclusively private use – or at least involves a long list of questions, according to Tim Callies, head of Comlux Creatives.

Speaking at the Business Jet Interiors conference in Cannes last February, Callies said obvious variables include the size of plane, range, number of passengers and flight attendants, but owners may have widely differing budgets and different ideas about their target customers.

Where will the aircraft operate from and what certification is required? Will it be an all-public operation, or will the aircraft also have to meet the owner's private needs? Should the interior have a classical look, still the predominant Russian taste, or more modern as Middle Eastern clients increasingly prefer?

Trade-offs between comfort and durability are inevitable when an aircraft is going to be used intensively, Callies warned. Flooring is the most sensitive area, especially in the entrance. Hard surfaces are easier to clean but noisier, and provide a less comfortable feel. The choice of real or faux marble affects both price and weight.

A standard ceiling comes in at lower cost but will be noisier, or the designer may have the freedom to customise it. Any system aimed at damping noise is likely to add weight, however, as could the provision of internet access or a satcom phone facility.

In terms of décor, dark interiors makes cabins look smaller, but lighter materials can be more difficult to clean. A possible compromise is to design a wall in two halves, with a softer, lighter appearance up high, even bringing in fabrics such as satin, and something harder-wearing at lower level. Fabric seats are warmer, but some clients will prefer leather, which is also easier to clean. Likewise, satin-veneered furniture is more durable, while gloss gives a



This Comlux ACJ320 cabin features a dividing wall that combines a softer, lighter appearance above with durability below

luxury finish but will show fingerprints and scratches.

The client's chosen seat design and level of comfort may depend on the typical length of trip they envisage, while full-flat or reclining sleeping positions – or maybe the opportunity to switch sleeping configuration between charters – is also relevant. Humidification may be more important to some charterers than others. Some clients will need security, or may specify an air gasper for each passenger, or even specialist equipment such as a stretcher.

The list of choices extends to stowage/cargo space versus an aft galley. Without a good-sized galley, issues such as cutlery and crockery storage may arise.

Electric doors to subdivide compartments may be perceived as adding extra style to the flying experience, but can require more maintenance, Callies said. Depending on where the aircraft is likely to be deployed, switch controls for lighting or cabin management may be preferred in English or another language, with diagrams or touch screens.

Once the main structures and furnishings are in place, there is still scope for the designer to influence the "soul" of the aircraft through decorative elements such as pillows, blankets and washrooms fittings, Callies concluded.



Flying Colours fitted out this cabin for a Chinese buyer of a Challenger 850

Chinese clients demand the very best

Flying Colours Corp has carried out three more interior completions of Bombardier Challenger 850 aircraft for Chinese clients, taking its total delivered into Asia, Russia and the Middle East to 10.

In eight months of work at the company's Canadian and US facilities, each 13 to 15-seat aircraft was fitted out with complex communications systems, state-of-the-art in-flight entertainment, leather furnishings and exotic wood veneers with a high gloss. In one case, vacuum waste and smoke extraction systems, custom designed by Flying Colours for the 850, were also incorporated.

The aircraft, destined for private clients in

mainland China and Hong Kong, will be operated by three separate operators and certified on the CAAC or Isle of Man registers. Five further 850 completions are in the pipeline for Chinese-based clients.

"We continue to see strong growth in Asia, primarily for mid-large sized jets," says Flying Colours executive VP Sean Gillespie. "We are working with a number of major operators on a variety of Challenger and Gulfstream maintenance and refurbishment packages. We have already completed refurbishment of Global Express aircraft for the region."

Exhibiting at ABACE in Shanghai in March, Flying Colours discussed plans to develop a re-

gional presence with a local partner to mirror its facilities at Peterborough, Ontario and St Louis, Missouri. "Our planned facility will be the first of its kind in Asia dedicated to full refurbishment, maintenance and completions," Gillespie says.

The company is also extending its training collaboration with Canada's Fleming College. Flying Colours already offers an apprenticeship programme through the college and looks to source new employees from this pool. It plans to introduce a similar scheme in Asia.

"Developing locally skilled teams will improve efficiency, be cost-effective for clients, and will ensure we are aware of the latest trends and needs from this expanding market," Gillespie adds. ●

Stone finish is not as heavy as you think

The interiors team at Ocean Sky, the UK-based private aviation group, offers stone flooring as a hard-wearing solution for areas such as vestibules and lavatories. The thinly cut stone sheet, which can be supplied in a range of colours and patterns to complement adjoining carpeted areas, is just the visible surface of a multi-layered structure that adds little weight to the aircraft.

The brown granite floor in the foreground of our picture was installed in the galley of a Global Express that Ocean Sky refurbished over a two-week period at its Manchester interiors centre. Before starting work, the company built a 3D model of the aircraft to ensure the colours and patterns met the client's requirements. Tiles were cut from MDF board for trial fitting before the real floor was manufactured.

Ocean Sky, which also manages a wide range of aircraft and offers many of them for charter, approached the German floor manufacturer in response to the Global owner's request for a contemporary but durable finish. It is now in discussions about licensing the product to a leading completion centre."



Paul Priestman, co-founding director of aircraft interior design consultancy Priestmangoode, discusses what makes a successful business jet cabin in today's competitive travel market



On trend, but timeless

Neutral palettes with individual regional flavour won the day for Embraer's Lineage 1000

The travel industry is evolving rapidly. A range of factors, including the rise of high-speed rail, is changing the outlook of the aviation industry. In terms of design, this has been most evident on commercial aircraft, where differentiation between cabin interiors – particularly in business and first class – is used to attract passengers. Business jets have remained comparatively traditional. Fewer restrictions and regulations, however, mean there is great scope for innovation in business and private jet cabin design.

For me, one of the most important aspects of private jet design is honouring the aircraft. They are inspiring pieces of engineering, and their interior design should be as beautifully crafted. Attention to detail is key and a foundation in product design is a great asset. It gives you an understanding, beyond the way something looks, to what passengers want and how things need to work and feel.

Knowledge of the manufacturing process is important in delivering cost-effective design.

Even where private jets are concerned, efficiency and optimised use of resources must be at the heart of the design. For a luxury airline cabin as much as a budget hotel room, it is important to deliver a design that is hard-wearing, easy and cost-efficient to maintain.

Business jet owners have been known to use the interior designer of their home to design their cabin. However, this is a specialist industry and expert knowledge of the technical requirements of aircraft is essential. Weight and serviceability for instance have a huge impact on cost, so experience in this market is crucial.

It's also important to keep your audience in mind. You cannot have a "signature style" if you are designing for a wide range of markets. In 2008, we designed the cabin interiors for Embraer's Lineage 1000 jet. Embraer was targeting sales in Russia, the Middle East and Europe, markets with very different cultures, customs and tastes, so we created one modular design with three different options for trim and finish.

As a general rule, neutral palettes seem to be preferred for business jet interiors. Clients

are in a hurry, so you want to create a relaxing environment onboard. It is also important to keep in mind that trends are short-lived, while aircraft remain in service for a long time. Keeping trend elements to areas of the aircraft that can easily be changed results in a more timeless cabin design that is still adaptable to passengers' tastes and needs. Neutral palettes can be chosen for seat fabrics, carpets and other more permanent items, while trend elements are incorporated in cushions, antimacassars and attachment parts. We are also using coloured LED lighting as a tool for customisation.

Many designers are now working to incorporate standalone seats and furniture instead of traditional airline seats. They must also reflect broader social trends, in technology for example, and work with IFE suppliers to bridge the gap between products that people use in everyday life, like smartphones and tablets, and products onboard the aircraft. It's about creating an onboard environment that makes for a seamless passenger journey from home to destination.

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actually deliver a concept. The most important aspect of the relationship between design consultancy and client is honesty. Know what is achievable, and that you can deliver what you promise. Business jets differ from commercial aircraft in that customers can at times be more demanding as regards particular finishes. When you've been doing this long enough, you know when to dig your heels and when to let things slip in order to deliver a project on time and on budget.

We're firm believers in physical mock-ups. Business jets represent a significant investment, and clients must understand exactly what they will be getting. We use computer-generated imagery throughout the process, but we find that to sign things off, nothing is quite as effective as standing in the space you will ultimately end up with. We have produced high-end mock-ups notably for an A380 concept, but also many other widebody and narrowbody aircraft, including an A330 section for the recent Turkish



Priestman: know when to dig your heels and when to let things slip.

Photo by Fran Monks

Airlines/Manchester United TV advert.

The only difficulty is finding the right space to build the mock-up. At the recent Business Jet Interiors conference in Cannes, there was a lot of

talk about the shortfall in completion centre capacity. While some see this as a problem, from a designer's point of view, I think this is the result of more business jet owners seeking customised cabin designs. And surely, that's a great sign for the future. ●

Priestmangoode is a leading multidisciplinary design consultancy whose designs, from the first lie-flat airline seat for Virgin Atlantic in the early 1990s to the world's fastest trains and smallest hotel rooms, have revolutionised the aviation, transport and hospitality industries over the last 25 years. Working in the business aviation sector as well as for commercial airlines, the company has developed innovative cabin concepts for Embraer, Airbus, Lufthansa, Swiss and Qatar Airways. In 2010, Paul Priestman was one of 40 delegates on the UK's trade delegation to China. Priestmangoode recently opened its first overseas office in Qingdao.

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Don't poison the passenger

Working in cramped galleys after storing food for many hours, GA operators are claimed to be falling behind commercial aviation's safety standards

One of the scheduled speakers at the Business Airport World Expo in February was taken seriously ill on his way from New York to Cannes, and was admitted to hospital on arrival suffering from suspected food poisoning. It was an unfortunate incident that played into the hands of a fellow speaker at the event, Paula Kraft, whose theme was the need to improve catering safety management at FBOs and on board the aircraft.

One in six Americans has suffered from food-borne illness at some time in their life, Kraft says. In developing nations where food handlers are less likely to have received professional training and food sources are less well documented, that figure rises to one in three.

Airline catering can be a particular problem area, because of the long periods of time over which food is stored in less than ideal conditions. However, Kraft points out that commercial airlines have raised their game over the years, with many eliminating perceived high-risk foodstuffs such as bean sprouts – a perfect environment for bacterial growth – from their onboard meals.

Business aviation in some respects falls short, Kraft says. Yet its primary clientele includes those at highest risk from foodborne illness or allergic reactions: older passengers, with specific dietary needs or immune disorders, or perhaps on medication for heart problems or high cholesterol levels.

"We're flying the most powerful people in the world but we're not taking the precautions

commercial airlines are taking with the general public," she controversially claims. "Cases are seldom reported because no one wants to violate the privacy of the client. So you just drop the supplier and move on."

Kraft launched one of the most respected catering operations in the US, Tastefully Yours, more than 30 years ago, before going on to set up Aviation Catering Consultants with a view to implementing more rigorous safety management systems.

"Catering is hidden under the mat. It's thrown in at the end of the flight attendant's other duties," she says. "I had seen the issues every day. I felt I needed to devise training in the hope of providing the flight crew, the FBO and handler, even schedulers and dispatchers with job-specific awareness."

Galleys are extremely small environments, often designed with no consideration of safe food handling, and preparation is generally left to a crew member without adequate food safety training.



This photo, staged for Aviation Catering Consultants, is not indicative of catering practices but is meant to illustrate potential hazards

Even before the catering is delivered to the aircraft, it may have passed through an FBO with poor procedures for receiving and storing it, Kraft warns. Food that is inappropriately handled can kill, whether via salmonella, botulism, E. coli or parasites.

She charts a number of foodstuffs that can give rise to problems if not correctly handled, including animal products (meats, poultry and seafood); dairy products; raw or heat-treated foods such as rice or cooked vegetables; raw seed sprouts; cut melons; garlic or oil mixtures; and unpasteurised fruit juices. Unfortunately, this lengthy list comprises "90% of what we serve," she says.

"If you're not serving immediately after you have completed your climb, pathogens can start to multiply"

There are four main reasons why these items can become unsafe, and all four are present in general aviation.

1. *Time and temperature.* The flow of food from the catering source to the end customer can be a long one. Typically, food must be reheated to 165degF (74degC). Has the FBO or handler done this, or did the delivery company keep hot food at that temperature throughout?

Food that is not adequately refrigerated, and may then be reheated once or twice, can become a problem in as little as four hours. When you factor in how long it was worked on in the kitchen and the time it spent in delivery to the FBO, there may be a safe window of only 30 minutes once the aircraft is airborne.

"If you're not serving immediately after you have completed your climb, pathogens can start to multiply," Kraft says. Serving seafood towards the end of an eight-hour transatlantic flight may not be such a good idea. Compounding the problem, company personnel may eat food afterwards that the client didn't consume.

2. *Poor personal hygiene.* Is the person who cleaned the lavatory taking your catering out to the plane or putting food on top of the lav cart? Kraft says she's seen it happen.

3. *Food safety principles.* Food is touched with

Standalone boxes cater for the long haul

High-specification thermally insulated containers from German airline catering equipment designer and manufacturer B&W Engineering allow private airlines to present their clients with appetising food and beverages safely, even on long-haul flights.

The company believes specialist heating and chilling processes are most safely and cost-effectively carried out in professional kitchens on the ground. Sales & contracts manager Axel Scheewe explains that B&W's Magic-Box (designed for hot food and water, fresh, chilled and frozen food and chilled beverages) and Cold-Box (for fresh, chilled and frozen food and chilled beverages only) enable instant onboard service independent of the aircraft's power supply and with no pipe-work or galley interface needed.

In its basic form, the equipment consists of a series of insulated pull-out boxes, drawers and meal racks. The optional TempAccu (temperature accumulator) system, tempered before departure, provides supplementary cold or heat to extend safe operating time.

The Magic Box stores hot meals for more than 10 hours using TempAccu, and hot water to make drinks for twice as long. Depending on their make-up and density, fresh sandwiches can be held up to 17 hours in the standard



Cold-Box, and almost 23 hours using TempAccu in the Magic-Box.

Ice cream can be stored for up to 24 hours after loading, and ice cubes for more than 20 hours. If meals are to be cooked from frozen on board, for example to cater for return flights, the equipment will hold them safely for 32 hours before they go in the oven.

The boxes are EASA and FDA approved and, as ATLAS and KSSU compatible inserts, are otherwise certification-free. Scheewe says they are well suited to business jets with restricted galley space and limited built-in refrigeration. The lightweight containers, with an anti-microbial lining, are easily washed and described as virtually maintenance free.

bare hands. Hand washing must be carried out properly. Personnel should be aware that even if they wear disposable gloves and don't change them often enough, or use tongs, cross-contamination can occur. Kraft recommends that operators should not refreeze water and equipment should be sanitised after each flight. However, three-compartment wash, rinse and sanitise sinks are often not provided, and many dishwashers do not operate at a high enough temperature.

4. *Cross-contamination.* There are many issues, in addition to those outlined above. For example, cloth towels can be a breeding ground for

bacteria. In one test, more bacteria were discovered on a galley counter than on a lavatory seat.

Even trained personnel can miss some aspects as they prepare an enticing plate of food for that high net worth passenger, Kraft concludes. A knife that cuts into a melon skin will pull bacteria from the surface into the cut fruit, while one of aviation's unique characteristics, repeated hot/cold cycles on the ramp, can affect products that are not replaced for each flight. Botulism can develop in condiments, even when they are in sealed packaging.

Prawn and mayo before landing, anyone? ●

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A question of taste

Alison Price On Air has become the must-have aviation caterer by recognising the difficult conditions flight attendants often face when presenting a tempting meal on board

Alison Price On Air (APOA), the gourmet aviation caterer, has trained almost 70 flight attendants in its London kitchens since the company launched two years ago.

Demand for fine dining from the business aviation community is increasing, but suppliers are "still stuck in the 1980s" both in terms of food and presentation, according to Daniel Hulme, director of inflight services at APOA.

Hulme devised a way of blast chilling and vacuum packing the cooked food in a way that takes up little space while preserving its essential quality. The system cannot be patented and Hulme is secretive about the precise technique. Although competitors are gradually working out how it's done, he claims to have a few more tricks up his sleeve yet.

The most critical aspect of APOA's work, however, is to train those tasked with delivering high-quality meals in mid-air – a very different scale of challenge from the outside catering in which Alison Price made its name.

For events on the ground, the company cooks, cools and transports food to the venue in much the same way, but its own team will travel to the temporary on-site kitchen to reheat and serve the meals.

"In the air we have no control," Hulme says. Flight attendants will do their best in often cramped conditions, yet he knows what to expect if the quality of service falls below expectations or there is a food safety issue (though he insists the latter has not happened yet). "The supplier will always get the blame, even if the food has been badly handled on board," he says.



Flight attendants learn on a free course at Alison Price how to create a restaurant-style gourmet experience in the air

APOA's one-day course, offered free of charge to small groups of flight attendants from client companies, focuses on understanding the importance of quality produce, selecting a good, balanced menu, and developing better handling skills on board the aircraft, including hygiene and food safety.

Around 20 flight attendants have gone on to take more intensive, paid-for two-day courses. Delivered by APOA in partnership with Swiss-based flight attendant education specialist Training Solutions, these courses highlight trends in

international cuisine, explain the art of food and wine matching, and take participants through the complexities of delivery procedures and airport security.

APOA has supplied more than 70 companies, of which 40 are now regular clients, and mainly serves business airports in south-east England such as Luton, Stansted, Farnborough and Biggin Hill. Essential to its success is ease of airside access, and the company worked hard in recent months to meet the Department for Transport's stringent security requirements at these locations. "Providing the service with minimal interruption from security inspections means we can be more efficient and ensures the products are delivered at their best," Hulme says.

All catering is screened and placed in locked refrigerators with numbered security tags before leaving the company's premises. Two members of staff – all of whom undergo criminal record checks before joining APOA – accompany each delivery to the aircraft.

"It's a challenging and expensive business," Hulme says. "Top clients understand this. They're demanding, but they know you get what you pay for."

A chef since the age of 16, Hulme is now 32 and has worked around the world. It was while working for a catering company in Spain with many private clients, including yacht owners, that he saw a chance to improve standards in aviation catering. He had acted as an occasional freelance caterer for Alison Price from around 2003 and after drawing up his aviation business plan, knew the company was his best prospect as a partner. APOA finally launched in May 2010.

Aside from the practical difficulties of prepar-

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ing dishes in a compact aircraft galley, there are many other aspects of food served at altitude, and stored over long periods, that the caterer has to bear in mind if its clients are to enjoy a restaurant-style experience.

Dehydration is a factor, and APOA has come up with various ways of retaining moisture. Food also loses 50% of its taste in the air and commercial airlines tend to compensate for this by over-seasoning. Hulme prefers using sea salt to regular salt, but points out that there are other, more creative ways of retaining flavour such as incorporating wild mushrooms into stock.

Non-starters include game birds or scallops, which are easy to overcook, and APOA would even recommend against burgers, which may seem a tempting option to some customers. If they are pre-assembled back on the ground and the bread is in contact with the meat for too long, the texture will suffer.

APOA prefers to know a client's requirements

by 1700 on the day before departure. Orders can be taken up to 1900 but any later than that makes it difficult to maintain the quality on which the company trades, particularly where non-standard items are required.

The majority of clients are happy with APOA's seasonal summer and winter menus, which go through weeks of pre-testing. Hulme warns that a simplified menu will be offered for the Olympic period, when the company expects to be servicing 30 to 40 flights per day, and clients will have more limited off-menu options.

Most flights catered by APOA are from two to four hours within Europe, and typically have between two and six passengers on board. On a longer sector, such as to the US, a second serving may be required and this is where flight attendants are really tested.

The company tries to head off potential problems if items such as shellfish are requested. "We ask flight attendants where the food

will be stored, and for how long. We have to be strict with them," Hulme says. "If you're not going to store a shellfish platter in a fridge, we won't send you one. There's a fine line between giving the client what they want and protecting your own reputation."

While today's clients appreciate the importance of good food in enhancing the business or leisure experience of their guests, Hulme says his staff "very rarely serve to a full plane". He wishes owners could avoid the "design madness" of chopping the galley in half to squeeze in one more seat.

He regularly sees Challenger 300-sized galleys on long-haul aircraft, or hot meal storage arrangements more suitable for a low-cost airline squeezed in behind the luxury fittings of a BBJ or ACJ. In these situations, he concedes it is not easy for flight attendants to attain Michelin star level every time. But APOA is determined to give them the best possible tools for the job. ●

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Airbus off the blocks in Japan

■ **Airbus** has sold its first corporate jet, an ACJ318, in Japan. Relatively few corporate jets operate in this market, but Airbus believes the opening of the first dedicated business terminal in Tokyo, Premier Gate Narita, will pave the way for more of them. The company showcased an ACJ318, operated by Abu Dhabi-based Al Jaber Aviation (pictured), at a ceremony to mark the opening of the terminal. Al Jaber offers the 19-seat aircraft for VVIP charters. It features lounge-style seating for passengers in several different zones, as well as an office with ensuite bathroom, which can be converted into a bedroom.

■ The Reuben Brothers, owners of London Oxford Airport, have also purchased **London Heliport**. The facility will benefit from an exemption to London's no-fly zone during the Olympics. Oxford, now one of the UK's top five business aviation airports, saw movements grow by 12.2% in the first three months of 2012. A new £4.5 million radar system that went live in May will increase IFR throughput by reducing separation from nine minutes to less than three minutes. The runway's strength was reassessed and its licensed lengths increased last year and runway, opening Oxford up to heavier, longer-range business jets. The airport expects to see a threefold increase in business aviation traffic during peak Olympic periods and will be able to park up to 40 aircraft after doubling capacity to 3.5 hectares.

■ **Eclipse Aerospace** has received FAA certification for production of the Eclipse 550 twin-engine very light jet (VLJ). The new model is built on the proven Eclipse 500 platform, but will incorporate systems upgrades such as auto-throttles, synthetic vision, enhanced vision, and dual integrated flight management systems. First deliveries are expected in mid-2013.

■ The Central European Private Aviation organisation (**CEPA**) has appointed four leading business aviation figures to a new advisory board. CEPA, which has 80 members, aims to encourage collaborate with comple-

mentary aviation organisations and businesses in western Europe and further expand its membership. The new board comprises Oliver Stone, MD of private aircraft brokerage and asset advisory firm Colibri Aircraft; Alan Cunningham, asset finance partner at aviation legal practice DLA Piper; Philippe Liénard, founder of Bratislava-based aircraft transactions group AELIS; and Jean Michel Bonte, co-founder and shareholder of Aelia Assurances, Europe's leading GA specialist insurance broker. They join Dagmar Grossmann, founder of Grossmann Jet Service in the Czech Republic who launched CEPA in 2009, and the organisation's recently appointed chairman Brendan Lodge, business development director at JetBrokers Europe.

■ **Rizon Jet**, which recently appointed Hassan Al-Mousawi (pictured) as CEO, has inaugurated a VIP terminal in Doha. It is the first independent private jet operator in Qatar to do so. Rizon Jet also provides engineering and maintenance services in Doha and at London's Biggin Hill Airport. The company holds approvals from Qatar CAA and EASA, as well as from Aruba, Bermuda, and Cayman Islands, for the Bombardier Global and Challenger Series, Hawker 125 XP, Beech 390 Premier 1/1A and Citation 560. The company also plans to secure approvals for the Airbus A319CJ aircraft in early 2013.

■ Mexico's Dirección General de Aeronáutica Civil (DGAC) has certified **Sierra Industries** to service Mexican-registered aircraft. Under a new ruling, the Mexican government is restricting maintenance services for Mexican-registered aircraft to facilities based in the country, except for a limited number of DGAC-certified facilities beyond its borders. Sierra's Uvalde facility is located 80km from the Mexico-Texas border and less than 400km from Monterrey. A number of Mexican-registered aircraft already enjoy one or more of Sierra's well-known Citation performance modifications, such as FJ44 re-engining and Eagle/Longwing airframe upgrades.

■ **Aerion Corp** plans to fly a new test article at NASA's Dryden Flight Research Center

in June or July as it continues detailed design work in preparation for the launch of the world's first supersonic business jet. The new test article will be more representative of the aircraft's wing and will help clarify manufacturing standards for surface quality and assembly tolerances.

■ **PATS Aircraft Systems** has ordered **CTT's** Cair system to be installed on a BBJ3 VVIP narrowbody aircraft. The system humidifies aircraft cabins without causing condensation. Based on evaporative cooling technology, Cair gives a relative humidity of around 20% compared a normal figure of 3-5%, helping reduce fatigue, jet lag, red eyes, dry skin and the spread of viral diseases.

■ **NetJets Europe**, the largest business jet company in Europe, has extended its ferry waiver zone, in which fees on positioning flights are not charged, for flights between 21 business-critical airports in the Middle East and Europe. The Middle East saw 9.2% growth in business flights in 2011. Previously available for flights to Lebanon and Tel Aviv, this extension sees Jordan, Saudi Arabia, Bahrain, Qatar, the UAE and Kuwait added to the waiver. Customers receive an average effective discount of between 15% and 30% on their flights.

■ The AeroPlates iPad application from **Rocket Route**, the fast flight planning service provider, now comes with free electronic flight bag functionality. With this upgrade, the pilot receives a comprehensive briefing pack for any IFR or VFR flight, including weather and NOTAM briefings, flight plan, flight log and relevant approach plates. Rocket Route has also announced a fuel saving calculator for Europe, now included with IFR membership, which works by comparing dynamically generated routes with the standard Eurocontrol route library. The company estimates that members can save fuel on 75% of routes generated by flying a shorter route. Later this year, Fuel Save will be further expanded to adjust for winds and flight level optimisation.



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