November 2012

Executive & VIP Aviation International

London 2012: Olympic champagne lacks sparkle

Fractional ownership, financial sense

Performance paints maintain the image

MROs broaden their service offer

Atlantic wave

Fuel start-up plans move into business aviation

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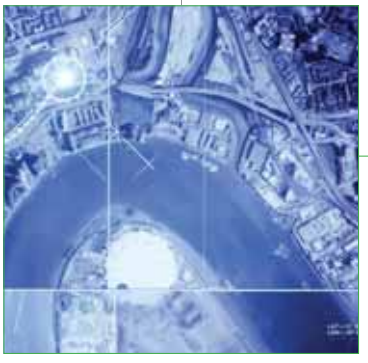

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first thought

Changing of the guard

I am delighted to be taking over as Editor of Executive & VIP Aviation International. Martin Roebuck has done a splendid job as editor to this point and I look forward to taking the journal to new heights – no pun intended – through 2013 and beyond. Advanced economies are at last starting (one hopes!) to gather momentum after the greatest financial crash since the Great Depression of the 1930s and that will be welcomed by all. Having charted a course through the difficult years since the collapse of Lehman Brothers, the business and private aviation sector is well positioned to benefit from any upturn in Western economies. Emerging markets hold out exciting prospects as well as challenges for the sector and we will be following developments in Asia and Latin America with great interest in the year ahead. As always, we welcome your views and ideas regarding content and coverage. Drop me an email or call me at your convenience..

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Rani Awad, founder and chief executive of Atlantic FuelEx with Mr. Takeshi Numoto, corporate vice president, Office Product Management Group, Microsoft

Atlantic makes waves in Dubai

Rani Awad's fuel start-up has made rapid progress in its first year, establishing relationships in some difficult operating environments and now he is targeting the business aviation market, reports Anthony Harrington

Launching a new fuels company is not for the faint-hearted. This is a tremendously competitive space, selling a commodity product that is highly price sensitive. A new jet fuels supplier needs good partners and it needs to get some scale fast. It also needs to find some unique selling points and add value to win new business. Rani Awad, founder and chief executive of Dubai-headquartered Atlantic FuelEx, has managed to tick all these boxes and a few more since launching his company in July 2011.

With commercial airlines his mainstay, he is now making inroads with business jets. Already he can cite Kuwait Amari with the presidential fleet and NetJets Middle East as customers. In the world of FBOs, Harrods Aviation, Sky Services, Rus Aero and Signature Flight Support all benefit from his assistance.

Awad already had deep experience of the jet fuel sector before setting up Atlantic. Formerly European manager with Jetex Flight Support, he was able to draw on a network of relationships across the industry that stood him in great stead in winning initial contracts for his business. He reckons that being based in Dubai is also a huge positive for the new start-up.

"Getting a new business off the ground is difficult anywhere, but you would be hard pressed to find a more supportive environment than Dubai. One of the great things about Dubai is that you have ready access as a new business to all the sources you need to set up your operation," he says. The venture was well supported from the start by the Emirates National Bank, and the business had a good credit line from its major business partners, such as Chemoil.

From the outset, Awad's aim was to build a fuels company that could provide a wide range of solutions for customers, rather than simply on fuel sales.

"My vision for the company from its inception has been to sell solutions rather than a product. The essence of what we do is to buy fuel from A and sell it to B. That doesn't give you a lot of

margin, so value-added services are absolutely key to this business," he says. "We are focused on helping the suppliers at some 3,600 airports worldwide to get the product quickly when they need it. Plus we provide them with a range of services to analyse their fuel usage and costs as well as with credit services."

Of particular importance to customer growth is the company's position as the first supplier in the Middle East to use the Microsoft Office 365 online system which permits customers to monitor prices, manage accounts and place orders.

Also key to Atlantic Fuel's growth through its first year of business has been scale. This meant being prepared to supply into difficult markets, a challenge Awad relished. Atlantic FuelEx owns 500 fuel trucks fulfilling the logistics of aviation fuelling from the borders of Afghanistan to all the country's airports and military bases.

The company has also moved swiftly to build an extensive network of relationships across Africa. "We now have direct contact with 80% of the suppliers in Africa, plus the military bases there," Awad says. Atlantic FuelEx provides military bases across the globe with about 80% of their requirements for JP 45, a high-performance jet fuel mainly used by the military. "Our relationship with military bases has grown extremely rapidly. For example, Atlantic FuelEx recently set up an agreement with the US Government to supply fuel to all the military bases outside the US," he says.

One of the major value adds that Awad looks to provide in Africa, for example, is to facilitate the use of fuel card schemes across Africa. "If you hold a fuel card as a pilot at London Heathrow, you will have no problems getting the job done. But at many African bases, and at numerous other places around the world, fuel sales are done on a strictly cash basis. We are working very hard with FBOs and incumbent fuel services companies to get them to accept cards from our major fuel partners," he says. Awad is looking to get the cards accepted on military bases.

Atlantic FuelEx has also struck a deal with AeroCard, which specialises in the design, implementation and management of commercial billing and payment systems, and which entered the aviation market back in 1980. Atlantic FuelEx will be partnering with AeroCard for a programme to the Middle East.

Awad says that he has been delighted with the successes the company has achieved in its first full year of business. This November the company will inaugurate a new operational centre in Dubai and plans are already well in hand to add three more representative offices, in Miami, Istanbul and Stuttgart. "We are underscoring the fact that we are truly a worldwide fuels service company with a dedicated 24x7 team well able to support our customers wherever they happen to be," he says.

Contract agreement with Mr. Jag Kambo , Event Director for Business Airport World Expo 2013 in UK

Atlantic has also forged a strategic partnership with IATA to provide the organisation with its fuel tendering menus. "We analyse the tender and look to offer them a comprehensive fuel package at selected airports," Awad says.

In the tendering process, Atlantic's reach in Africa, Russia and the Middle East gives mainstream fuel partners more options to provide complete packages to their large carrier clients. "For example, BA might have a tender in Kisumu and Nairobi in Kenya, and a fuel supplier might only have the ability to supply in Kisumu. We can provide facilities in Nairobi and the joint package can win the contract," he explains.

Another major plus is the ability to settle in local currency. "Take an airline that has to settle in dollars. We have a network in most African countries that enables us to settle in the local currency. By using us, the airline can then settle in local currency and avoid some very painful foreign exchange losses. The currency difference can amount to as much as 17 or 18 cents on the dollar and total annual savings for one of our carrier clients has already reached in excess of $2 million in the course of a year," he says. The FX risk in fuel is huge and in the majority of countries across Africa paying in local currency will generate substantial savings, providing Atlantic with yet another value add service to provide to clients.

"We are growing at a very brisk pace and our global reach is winning us contracts around the world. However, we are also very tightly focused on maintaining the highest possible standards of service for clients and at developing the breadth and depth of our service offering. 2013 promises to be at least as exciting as 2012 as we continue to win customers and extend our global network in this extremely challenging market," Awad concludes. ●

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Economies of scale are important in the jet fuels market, but effective competition is about breadth of services, say leading suppliers

Added value fuels demand

As any salesman dealing with jet fuel knows, fuel is fuel. Competing on the basis of a homogenous commodity is a sure fire way to find yourself trapped in an endless cycle of margin squeezing.

There are a number of ways that fuel suppliers can look to differentiate themselves and they all come down to "added value" in some shape or form. James Wiskin, a director at Flightworx Aviation UK, which provides flight planning and flight support services for corporate and private aircraft, points out that price itself can be a value-add. This is particularly true if you have a large enough business to give you leverage with fuel suppliers like Exxon and Total. But securing the best price can also mean knowing the local territory and players better than the competition.

"One of the ways we add value is by sourcing the cheapest refuelling option for our clients at their destination, wherever that may be," Wiskin says. "We have excellent relationships with the major fuel suppliers and the fuel handlers, and negotiate deals for our clients. Most airfields will have between three and 10 fuel suppliers who provide fuel services to the airport and it is all about negotiating for the best price."

Fuel prices, of course, are highly dynamic, increasing the complexity of being a fuel services provider. "The price of the underlying fuel changes daily and the big suppliers will update at least weekly. Usually the price delta is a couple of cents, but in September we saw a change as high as 20 cents per gallon, so we really can save the client a significant sum over the course of a year," Wiskin says.

Sincock: Avfuel customers have four ways of accessing fuel planning and obtaining credit pre-authorisation

The average light jet will probably require about 300 US gallons, but how much the pilot will be paying per gallon depends hugely on location. In Dubai the price might be as low as $3.30 a gallon, since the fuel comes without additional charges for VAT and other taxes, while in Berlin on the same day it might cost $10 per gallon including fees and taxes.

While the basic cost per gallon might be only $3.50 in Europe, not vastly higher than in Dubai, you have to add on some $3.30 in tax plus the service charge to get the fuel to the aircraft, which can bring it up to $9-10 per gallon. A complication from the corporate or private owner's point of view is whether handling and airport fees are bundled in with fuel costs or not.

"In the US, the FBOs will provide a fuel price with no handling fees, but their fuel price is a lot higher because it in effect includes handling. The rest of the world tends to separate out handling fees and airport taxes from the price of fuel," Wiskin says.

"One of the services we provide is that we will give clients a quote in advance when they know their destination, or destinations. It will itemise each line of expense so that they don't get any surprises. We give them a very accurate guide as to the fuel prices, handling prices and fees at the destination airport. That way they can get a full breakdown of their likely costs and can ensure that the trip makes sense in the light of what they want to do or who it is they are flying out to meet," he says.

Another thing larger service providers bring to the table is the strength of their relations with fuel suppliers around the world, compared with individual operators. Fuel suppliers that are offering credit will want a substantial deposit, and

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if you are flying to multiple different destinations, deposits can soon stack up with several different fuel suppliers.

"We have a relationship with about 30 to 40 different fuel suppliers. We operate some 350 aircraft around the world. This gives us a great deal more leverage than an individual corporate, which may have one to three planes, or a private owner with a single aircraft. So we get smaller deposits and better prices on fuel," Wiskin says.

Craig Sincock, president and CEO at Avfuel, one of the leading independent fuel suppliers in the US, takes much the same view, but on a larger scale, and confirms that added value is what makes the difference. For example, Avfuel's flight planning company, Avplan Trip Support, recently teamed up with Jet Support Services Inc (JSSI), which provides cost maintenance programmes for the business aviation industry, to provide clients with a resource to manage any unexpected maintenance issues that might crop up while clients are travelling.

"Simply by contacting their Avplan agent, customers will have access to a JSSI technical advisor wherever the aircraft is located. JSSI have a large technical team worldwide to support their own hourly cost maintenance clients and that is now on call for our clients," Sincock says.

Avfuel's proposition for flight departments and private owners rests on the fact that it has more than 600 branded dealers around the world. The bulk of these are in North America, but it has made strides in building a dealer network in the UK and Europe, with dealerships from Belfast to Luton and London City.

Outside of its branded dealer network, Sincock points out, Avfuel customers have access globally to some 2,500 locations. "There are not many spots on the planet where we cannot provide services to our clients," he says. In places the company does not cover directly, Avfuel will try to assist via its extensive network of contacts.

"What this means for flight departments is that they are covered by our pre-authorised credit arrangements, plus 24x7 support. When pilots land they have a tremendous amount to do on the flight deck. It is nice that ground services know that they are coming and that everything is taken care of," he says.

The company's trip planning service is a huge value-add in its own right. "We have a complete trip planning department which operates in two ways. We can do your entire trip support or you can pick various support items off a menu and have us do some while your own flight department does some," Sincock says. The great advantage here is where a corporate customer's plans change en route they can simply call AvPlan's team and have them work out the new details.

"As a pilot you may have the whole trip worked out but as you are running for the plane you get a call that throws everything up in the air. Suddenly you need ground and fuel support services in Hong Kong and you want to know the weather on your new route. Plus some of the international destinations require permits or time planning and coordination with air traffic control. It is a tremendous advantage to be able to simply delegate all that to our trip planning service. So what we are saying is, yes, we are a fuel company and can provide you with great access to fuel, but we can also do trip support and flight planning on demand," he says.

Another big value-add for flight departments and corporate accounts departments is the ability to provide online billing. "We do a complete synchronised service with the customer's IT so that everything from yesterday is already in your system and available for viewing," Sincock says.

There are at least four channels for customers to get access to fuel planning and to ensure that they are pre-authorised for fuel credit services. "They can pick up the phone and talk to a real person. They can use our fuel card at any of a large number of locations. They can go on the web and arrange pricing, or they can email our support services. Many pilots these days are using the Apple iPad and that links in well with our services," he says.

Sincock points out that a number of advantages to customers flow from the relationship that Avfuel has with some 600 FBOs. "We supply a whole range of things to FBOs, including credit facilities and fuel cards. We do quality assurance and insurance, and we have a division that provides assistance with investing in and developing infrastructure such as fuel tank facilities for large international airports.

"AvInsurance provides aircraft insurance, but it also provides FBOs with a whole range of insurance services. In short, value-add is absolutely the name of the game when it comes to being at the forefront of the fuel services market," he concludes. ●

A trip planning service backs Avfuel's comprehensive global fuel dealer network

Buying a part share of an aircraft makes financial sense unless you're planning to fly hundreds of hours a year, explains Anthony Harrington

Fractional advantage

The correlation between demand for business jets and the health or otherwise of the global economy is well documented. Once the recovery from the 2008 crash began to splutter in mid-2011, demand once again fell back and operators specialising in fractional jet ownership propositions have had to take their share of the pain. But there is finally some optimism in the sector that 2013 could see a turnaround both in the global economy and in enthusiasm for private jet ownership.

Chris Moody, chief executive of consultancy Fractional Jet Europe, points out that market downturns also inevitably hit the residual values of pre-owned aircraft, making the cost of ownership that much greater. In particular, the residual values of light jets and very light jets (VLJs) has plummeted over the last five years, so the amount having to be written off becomes markedly higher.

This has hampered fractional sales since light jets constitute a significant part of the fractional market. Purchasers know there will be some value left in the aircraft – or their share of it – but have no real way of knowing exactly what that value is going to be five years hence. With the global market going through a protracted recession, part-owners are likely to get anything from 20% to 40% less than they may have expected. Because anxieties over the stability of resale values play a role in the initial decision process, fractional providers have to work hard to address the residual value problem if they want to get potential buyers over the line.

Providers such as NetJets Europe, or Bombardier subsidiary Flexjet in the US, solve the residual problem by building into the contract a promise to buy the fractional owner's share of the jet back at the end of a standard five-year contract "at fair market value". This promise addresses part of the problem, since it guarantees the owner an immediate end-of-contract exit with some cash for their share, but leaves open the question of what constitutes fair market value.

The same point can be made for the standard break clause in a five-year fractional contract. This gives the owner the option of exiting the contract after three years at a penalty, but in accordance with the same fair market value buy-back clause. Again, you don't know what the market is going to be doing at that time so you are still shouldering the residual risk. Fair market value can mean different things to buyers and sellers.

"In essence, the fair market price is set by whatever the market value is for that class and age of jet at the time, but the fractional provider is going to sell that jet at a mark-up," Moody says. "The mark-up has to be at a level that the market will bear, so the seller, by definition, is going to get less than the value of that particular jet on the open market."

Part of Fractional Jet Europe's *raison d'etre* is that Moody provides a broking service to fractional owners who want to exit their contract irrespective of where they are in the life of the contract. He claims to be able to do deals at significantly better prices than the seller would get from, say, NetJets at the approved three-year break point.

However, it should be noted that any transfer of contract needs to be conducted with the consent of the aircraft operator, as would

be expected in such a highly regulated industry.

"If you have a contract on a mid-range jet, that contract could be costing you a million euros a year in maintenance costs and you are tied in for a minimum of three years. If economic conditions change, for example, and you want to exit the contract early, that's where a broking service like ours comes in. You can't terminate your contract, but you can sell your contract on and we operate as a broker to find you a buyer," he says.

Many buyers, whether outright purchasers or fractional purchasers, are not in the kind of financial position where they would be particularly hurt by a standard break clause or greatly benefited by shaving a few hundred thousand euros off a contract. However, as Moody points out, people tend to work hard for their money and while they don't mind paying for what they want, there is an inherent reluctance to squander cash needlessly.

300-hour tipping point

The fractional jet market only exists because it makes financial sense for someone who is not going to be flying their aircraft for hundreds of hours a year to think in terms of a part share, rather than a whole aircraft.

Bruce Peddle, VP of sales and marketing at Flexjet, which specialises in fractional sales of Bombardier aircraft, puts the cut-off point at which fractional ownership becomes a more cost-effective option than outright ownership at around 300 hours a year. If you fly less than that, then fractional is sensible, unless you really want to own your own jet for purely personal reasons. Clearly, if you have your own dedicated plane, no one else has any say over it. The 300-hour cut-off point generally holds good for corporate buyers and private individuals alike.

About 95% of Flexjet's customer base is US-based and a good deal of their flying is point-to-point within the US. "Basically, the fractional jet market is Europe and the US, with NetJets Europe being the dominant player in Europe and ourselves and NetJets Inc dominating the US market. As the fractional model evolves, however, and we see more geographical acceptance of this mode of ownership, we will see the fractional fleet expanding to emerging markets in something other than its current form," Peddle says.

With the Cessa subsidiary CitationAir announcing back in February that it would not be offering new fractional ownership contracts and would instead concentrate on its jet card services, Flexjet is now the only major manufacturer-owned provider. NetJets Europe is backed by Warren Buffett's Berkshire Hathaway and its sister company, NetJets Inc, is a Berkshire Hathaway subsidiary. Both companies source their aircraft from Bombardier, Cessna, Hawker Beechcraft, Gulfstream and Dassault.

NetJets Inc recently placed the largest order in the history of private jet ownership. The firm order is for 100 Bombardier and 25 Cessna aircraft, but the total rises to 425 aircraft, worth some $9.6 billion, if NetJets decides to take up all its options. Either way, the order represents a huge vote of confidence by Berkshire Hathaway in the future of fractional jet ownership.

The benefits of fractional ownership over both outright ownership and the charter option are well understood and the market leaders lose no opportunity to hammer them home. Setting aside the cost savings, which will be more important to some clients than others, the clincher is that the aircraft (or one that is similar or better) is readily available.

Even with a third-party management contract which takes the hassle out of maintaining a wholly owned aircraft, there is always going to be a time when it is "in the garage" and unavailable. With fractional ownership you are guaranteed availability of your chosen class of jet with as little as 10 hours' notice.

An entry figure for an acquisition through NetJets would be $125,000 for a 1/32nd share of a jet. This represents 25 hours of flight time per year, but the actual cost will vary depending on the size of the share purchased, the age of the aircraft and the aircraft type. For example, a 1/4 share of a mid-sized jet such as an Excel will cost $850,000, representing 100 hours of flying time per year.

To this you have to add a monthly management fee to cover fixed operating costs such as pilot salaries, training and insurance. A third charge is the "occupied hourly rate", which covers the variable operating costs of flying the plane, such as fuel, landing fees, handling, catering and cleaning. For NetJets Europe, this ranges from €4,500 to €12,000 per hour depending on the aircraft type.

This fixed fee takes out of the equation "surprise" maintenance bills, which, of course, any corporation or individual who owns their own plane will face from time to time. Predictable pricing is one of the big attractions of fractional ownership for corporates.

Chartered represents a key alternative to fractional ownership but is only a worthwhile option if you fly less than 10 hours a year, argues Eric Connor, chairman and CEO of NetJets Europe. More than this and the 1/32nd fractional ownership option comes into play. It is hard to conceive of anyone contemplating a jet purchase, fractional or otherwise, who flies less than 10 hours a year. Why would you bother? So Connor is setting the entry level very low indeed.

Peddle: bullish about the next 10 years as previous owners of their own aircraft decide to scale back

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With NetJets Europe, the contract provides an actual physical asset, a share of a particular, named plane, but in reality it gives the buyer access to the provider's entire fleet of aircraft of a particular chosen type, with the option of upgrading as needed to a larger or smaller plane. The buyer's chances of actually flying every journey on their "own" plane are actually quite slight, since it is part of such a large fleet and may be positioned elsewhere.

Connor adds that another upside for the fractional model in general, and for NetJets Europe in particular, is that if you have a schedule that is likely to change, a company with a large fleet is much better placed than a regular management company. "If you are flying Paris to Munich, for example, and the night before you find out that you need to go to Amsterdam first, that is something we can accommodate very easily, but it is not something many of our competitors have much practice at doing," he says.

NetJets Europe considers an aircraft to have a potential 800 hours' flying time a year, and likes to sell 1/8th shares, so a corporate who buys 300 hours can have three planes in a day on their standard contract. That is generally enough to get a sizeable project team to a client site somewhere in Europe. Or the requirement might be to fly various groups of people, from different departure points, to a central location.

Again, all this is very achievable with a fractional contract. However, corporates who have their own jet will need to look to the charter market to supplement their jet's seating capacity - which means they are paying, say, 5/8ths more than the corporate that is using fractional ownership, plus having to bear additional charter costs.

Fractional providers can also make an excellent case against competition from scheduled airlines, mostly along the lines of convenience, confidentiality through the flight, and the ability to connect city pairs serviced by no convenient scheduled carrier.

"We had a Scandinavian client who had a large project in Russia and needed to fly various groups in to a meeting with the Russian client. If they had tried to do that with a scheduled airline, it would have taken them a week to get there and back. Using their fractional contract they were able to do the meeting in a day," Connor says.

NetJets sources from five of the major OEMs including Dassault Falcon, whose 7X is favoured for long-range travel

The Russian promise

NetJets Europe's operational focus during its growth period from the 1990s through to 2007 was on the UK, France, Switzerland, Germany and Italy. Then Russia, or more specifically, Moscow, appeared on the agenda, and continues to be a growth opportunity, according to Connor.

"The market in Russia is predominantly for large cabins, flying to Europe but also in other directions," he says. North Africa, particularly Morocco, was a growth opportunity until the Arab Spring, which muted demand for a while. However, as things quieten down again, Connor sees signs of growth in demand from North Africa for the fractional market – though largely as a destination from Europe.

Demand in the Middle East again focuses on large-cabin aircraft. NetJets Europe has just extended its "principal operating area" to incorporate the region, meaning there are no ferry charges for client pick-ups and drop-offs.

"If someone wants to go to Cairo, say, from Geneva, then we would have them pay part of the ferry charge to return the aircraft to the nearest principal operating area," Connor explains. So the inclusion of the Middle East benefits all customers flying to adjacent markets.

NetJets Europe is keeping an eye on India as a possible fractional market, but at present, Connor feels that infrastructure, both in terms of airports and air traffic control, remains an issue and that the licensing situation is not developed to the point where the country can support a fractional model. Much the same can be said of Africa.

"We will look for solutions to operate in these areas but we will not compromise on safety or service, so we are in a watch-and-wait position with respect to these potential markets," Connor says.

Peddle says that intercontinental travel probably makes up no more than 20% of total hours flown among Flexjet's collection of aircraft, excluding trips to Hawaii and the Caribbean.

"We have looked at international expansion and so far our conclusion is very firmly that we should stay focused on the US and consider partnerships as a way of developing into new markets. There are some players who are

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looking to develop fractional models in China and India, but this is still very much in its infancy and we are not attracted to it as yet," he says.

Flexjet's Bombardier aircraft profile highlights this North American focus. Ultra-long range aircraft make up only 1% and long-range a further 12% of the fleet. Demand for the super-midsize fleet, which operates coast to coast across the US and into Canada, constitutes about 45% of business.

"We are pretty bullish about the prospects over the next 10 years," Peddle says. "Virtually all the wholly owned private jet market flies under 300 hours a year, so they are all potential customers for the fractional ownership model. We see a very encouraging flow through of new customers from the ranks of those who have owned their own plane."

Of course, moving to the fractional model rules out piloting your own plane. The fractional operator has its own codes and rules to follow on pilot hours and training, so fractional owners can't expect to go and sit at the controls.

"The key point is that the model has changed over the last 10 years to become very client-centric. For every contract we write, we need to understand the client's requirements in depth, along with their interests and expectations. We then design a bespoke contract that reflects that understanding," Peddle says.

Fly less than 300 hours a year and you're in the market for fractional ownership, says Flexjet

A different model

Ian Moore, chief commercial officer at VistaJet, points out that his company's ownership model is significantly different from that of the big two fractional operators. "Where we differ is on the financial side. There is no asset exposure for 'owners' in our business," he says.

VistaJet sidesteps the residuals problem by offering an operating lease rather than a fractional share. The lease offers the same "number of hours flying" model as a fractional jet lease, and is priced according to the capacity of the jet type on which the lease is written, but there is no "buy back" element, so the client gets what they pay for.

Of course, the residuals problem does not vanish, but the risk simply lies with VistaJet rather than with the client. It prices the contract based on its view of the jet's likely value at the end, while seeking to offer the client the most attractive price possible.

There are some similarities here to the vehicle fleet leasing market, where price is critical and operators are tempted to gamble on residual values. Some companies have had to endure steep losses three or four years after a boom period in sales, when residual values have failed to match the optimistic level assumed when the contracts were written.

The private jet market is less cost-sensitive, but the risk remains. Despite VistaJet's success so far, only time will tell if it is pricing wisely. What it is doing, which benefits customers directly, is ensuring that it has one of the youngest fleets in the market.

"One of the biggest challenges any fractional operator has is in refreshing its fleet. Because we own our fleet 100%, we can continually upgrade it," Moore says. A fractional operator, by definition, must wait until all the five-year contracts on a plane have run their course before it can sell on and replace it with a new model.

"Our big selling point for corporates is that with us they know exactly what a contract is going to cost them and how many hours they can fly with that contract. There is no mysterious asset exposure for them to worry about," he says. This contrasts with the fate of customers who bought a share of a Hawker Beechcraft 800 SP, many of whom saw residual values fall by 40% when Hawker ran into difficulties. A leasing contract holds no such anxieties.

VistaJet currently operates in Asia, the Middle East, Russia and Europe, and has a partnering agreement with Flexjet that gives it access to the US market as well. "We've been going great guns in India and China. Because we fully control the fleet, we can deploy aircraft rapidly and efficiently to locations like that as demand arises," Moore says.

The statistics on average hours flown annually in private jets suggests to Chris Moody at Fractional Jet Europe that almost everyone would fit inside a fractional contract. Only dedicated owner pilots who love flying would have a reason to prefer outright ownership.

On the other hand, Moody believes charter would represent a more logical option for many fractional jet owners. "If you can fly for roughly the same cost on charter as on fractional, but without the need to put up, say, £3.8 million for a fractional share, why would you not do it? You might get half that sum back at the end of the contract, or you might get less, but that is still £1.9 million or so that you are spending unnecessarily," he says.

Fractional operators would naturally disagree. The fractional market seems set for slow but improved growth over the next two to three years if the global economy picks up, and we could see a more dramatic ramp-up as emerging markets put private aviation infrastructure in place. There will be challenges ahead, but operators feel the worst of the downturn is behind them. ●

Powerhouses take off

Business jet sales to China and India are set to surge as corporate and private wealth increases and bureaucracy is lifted, reports Martin Roebuck

Investment bank Goldman Sachs defines a growth market as any country outside the developed world accounting for at least 1% of global GDP. The short list unsurprisingly includes five Asian countries – Russia, India, China, South Korea and Indonesia.

Where economies are growing, business aircraft sooner or later follow. Bombardier says China has suffered from restrictive airspace access, hefty taxation of imported aircraft and high user fees, leaving it with a very small number of business jets relative to the size of its economy.

However, increasing personal wealth, increased cultural acceptance of business aviation and the liberalisation of airspace and flight planning are heralding rapid change. In its latest Business Aircraft Market Forecast, Bombardier says that China's business jet fleet penetration will grow from 16 to 195 per 100 million of population by 2031, translating into 2,420 deliveries. China will become the third largest region for business jet deliveries and its fleet will grow from 210 aircraft at the end of 2011 to 2,590, a compound annual growth rate of 13% over 20 years.

Despite the recent slowdown in its economy, analyst IHS Global Insight believes China will record annual average GDP growth of 6.3% for the next 20 years, with India likely to expand even faster at 7.4% per year.

Similar issues to those in China, including lack of aviation infrastructure, government bureaucracy and high import duties have prevented India's business aviation sector from realising its full potential. But Bombardier is encouraged by plans to bring more than 30 currently unused airports into operation and modernise many more. It expects the bizjet fleet to grow from 12 to 121 per 100 million people over the next 20 years. The fleet of 115 business jets in India in 2011 will grow to 1,420 by 2031, with a CAGR equalling China's at 13%.

Embraer has delivered its first Lineage 1000 aircraft to customers in mainland China this year

Other economies in Asia, such as South Korea, Thailand, Vietnam, Singapore and Indonesia, have industrialised rapidly over the last 10 years, growing at an average of 4.8% annually. Although export activity has recently softened, Bombardier says emerging Asian economies' real GDP growth should average 4.1% annually for the next 20 years.

Michael Han, regional VP sales, China, for Bombardier Business Aircraft, says: "Traditionally the market in China has favoured larger aircraft. Long-range travel remains a key requirement, but as domestic travel needs within China and across Asia increases, there is also a growing need for smaller aircraft. The installed base is still relatively small but it is growing at a fast pace."

Bombardier sells to both private individuals and companies in China, and increasingly to a new generation of locally based charter companies such as Donghai Jet in Shenzhen.

Embraer says less than 4% of the active global business jet fleet is currently based in Asia, but expects this to change rapidly. The company puts Chinese demand at 635 executive jets over the next 10 years, rather lower than Bombardier. But it agrees on where demand will be strongest, with 40% of orders predicted to be in the super-midsize, large and super-large categories. This year Embraer delivered its first Lineage 1000 to a mainland China customer, investment group Xinjiang Guanghui.

Crucial to Chinese sales, Embraer believes, is the increasing involvement of Chinese banks in aircraft financing and leasing. Minsheng Financial Leasing officially acepted delivery of the first of 13 Legacy 650 aircraft at this year's ABACE exhibition, where MSFL chairman Kong Linshan said the company – which has also ordered three Lineage 1000s – aimed to become one of the world's top leasing companies.

Another local lessor, ICBC, will be the launch customer for Chinese-built Legacy 650s, which Embraer is to start building in Harbin through HEAI, its existing joint venture with Aviation Industry Corporation of China (AVIC).

A former ERJ145 regional jet assembly line, currently being converted, expects to roll out its first Legacies by the end of 2013. Annual production will be around six aircraft per year, mainly for the China market, but a spokesman says Embraer is not ruling out exports to the rest of Asia.

Embraer faces competition in the Chinese market from its own joint-venture partner, AVIC. In March, Cessna signed an agreement with AVIC to develop and produce medium and large-sized business jets in China.

The country's wealthiest entrepreneurs prefer to flaunt their success via large-cabin jets and bizliners, according to Steve Taylor, president of Boeing Business Jets. Speaking at ABACE, he said that 55% of Chinese orders were at this top end of the market, compared with just 21% worldwide.

Boeing has sold 10 BBJs to China, including three to Beijing-based charter operator Deer Jet. Airbus has done similar high-end business, selling 20 ACJ aircraft in China. ●

Beijing offers a smoother ride

Restricted airspace, poor airport infrastructure and a lack of FBOs has held back China's business aviation development, but the environment is improving fast

China's central government has set itself the goal in the current Five-Year Plan of promoting the development of the general aviation industry and reforming airspace management. And local operators say they are beginning to see the results.

Li Tan, business development manager at Hong Kong-based Sino Jet Management, says: "In 2008, when the market in the Greater China region barely existed, there were many obstacles. Things are slowly changing and CAAC [the Civil Aviation Administration of China] is making it easier for operators."

Three or four years ago, Li says it took a long time to be granted permits – a critical obstacle to business aviation, with its need for last-minute flexibility. It was difficult to get routing information and a navigator might have to accompany the flight. Slots at small airports were not readily available. But all a non-Chinese registered aircraft now needs, to fly into an airport that is open to commercial services, is a permit to overfly and a landing slot.

In the case of a "non-open" airport, the operator needs military approval as well as a sponsorship letter from the city or provincial government, in effect inviting the visit. Aircraft on the B register don't even need this.

Li says Sino Jet's initial mission, when it began operations in September 2011, was to provide management services for owners who wanted to preserve their aircraft for their own personal use.

Chinese buyers are mostly first-time owners don't want other people to "test drive" their new aircraft, Li says, but a charter market is opening up as the experience of aircraft ownership grows more familiar. Owners of multiple aircraft, especially, are seeking to reduce their fixed costs by offering charter availability, and charter rates have come down as more players enter the market.

Sino Jet approached this new business opportunity by entering into a strategic alliance with US-based TWC Aviation, which has 15 years of experience operating large-cabin aircraft worldwide. Under the terms of the agreement, Sino Jet is marketing management, charter and brokerage services to clients who need the geographical and cultural know-how of a locally based company but the reassurance of a US operator behind it. All aircraft in the Sino Jet VIP charter fleet will be US-registered, maintained to US standards on TWC's AOC, and flown by US-trained pilots with knowledge of the specific aircraft makes and models.

Scott Cutshall, VP marketing of TWC Aviation, says: "What's unusual in this market is that the owners of the first two planes available for charter, a Global Express and Gulfstream 200, were actively desiring this."

Most of the city pairs required by Chinese clients are in the four to six-hour range, and as

On board the Global Express operated by TWC and marketed out of Hong Kong by Sino Jet. The Asia service culture is very different from that in the US

a result "98% of the business jets you can see on the ramp at Hong Kong airport are large-cabin models," Cutshall explains.

The Global is in demand for business flights to the Middle East and North America, though leisure trips to locations such as Hawaii will enter the mix as the charter concept becomes better established, he believes. The G200 is better equipped for intra-Asia service, and he predicts a higher proportion of leisure use.

TWC has based three Global and two Gulfstream pilots in Hong Kong, backed up by a US labour pool as required. "The initial focus is on building charter activity, but we're in conversation with more owners and a second Gobal will join the fleet by year-end," Cutshall says.

More than 50 business aircraft are under TWC's management throughout the US and abroad, including Bombardier, Dassault, Cessna, Embraer, Gulfstream, Hawker Beechcraft and Boeing Business Jets.

"This is the first venture of its kind for TWC," Cutshall says. "In the mid-2000s, we had two aircraft available for charter in Japan, but we were managing and despatching them remotely. You can't manage an operation like that from 6,000 miles away."

Li sees two main charter scenarios emerging. Many smaller airports in less developed parts of China require a private flight because the scheduled capacity isn't there. "If you're travelling to Inner Mongolia, it's not like Hong Kong to Beijing, where there is a commercial departure every hour."

There is also good potential traffic to developing countries in south-east Asia, such as Vietnam and Cambodia, as clients come to recognise the benefits. "It's a productivity tool and they can do business on board the aircraft in complete privacy," she says.

While 80% of the aircraft managed by Sino Jet are based in Hong Kong, the company also works on behalf of owners based in Beijing, Hangzhou and Shenzhen, and is already doing some brokerage out of its branch office in Beijing.

"Business aviation starts in any emerging market with the more affluent early adopters," Cutshall observes. "They require the space that a large cabin affords – and luxury amenities including in-flight service, in contrast to many US flights, where the customer may not even want attendants on board."

The Asian service ethic is a point Chris Buchholz, CEO of Hongkong Jet, also picks

up on. You notice the difference on scheduled carriers such as Cathay Pacific and Singapore Airlines, which he contrasts favourably with North American airlines.

"Everyone talks about service excellence. All the tycoons know one another. If a customer is happy, he'll tell his friends. This makes you protective of your reputation."

Buchholz says the competitive landscape in China has changed beyond recognition in less than 10 years. "In 2004 there were two business jets based in Hong Kong. Today there are 70, and in mainland China it's grown from single figures to around 100," he says.

Hongkong Jet, which received its AOC towards the end of 2011, is one of three companies in the business aviation sector owned by the HNA Group. It also owns Deer Jet in Beijing, founded in 1995, and Deer Jet Shanghai. The three businesses together operate and manage 60 aircraft.

HNA also launched the first private sector commercial airlines in mainland China and now has 16 of them, along with travel agency, freight and property interests. The group moved its international headquarters to Hong Kong last year – part of an interesting trend, Buchholz says.

"Previously, Hong Kong was a base for international companies looking to move into China. Now, it's also for Chinese companies that want to internationalise," he says. "They like Hong Kong because of the greater freedom here – for example, copyright protection for any research you do."

Hongkong Jet has three ACJs, two BBJs with a third coming soon, five Gulfstreams, again with more on the way, two Global Expresses and a Challenger. The company also has its own G550, claimed to be the only aircraft in Hong Kong dedicated to charter.

The Chinese market is still characterised by complex bureaucracy, says Hongkong Jet – but word about good service spreads fast

It is still rare for local owners to ask about charter opportunities, Buchholz says. "The vast majority of owners in north Asia want the aircraft for themselves, for friends and colleagues. They don't want to hire it out." Even if owners accept the principle of defraying their costs, the fact that they are business leaders who may need their plane at short notice means they cannot easily commit it for charter.

He identifies two types of entrants into aircraft management: indigenous companies that own their own aircraft and see an opportunity to turn it into a business, but don't know too much about aviation; and a second group comprising US and European players that, conversely, know aviation but are unfamiliar with China.

This matters, because he says "you have to know how to fly" to negotiate China's airspace limitations and permit requirements. With fewer freedoms, crossing borders can be an issue. And operators have to know how to serve locations without FBOs.

The main demand, however, is for long-haul travel. "Clients are more and more acquiring businesses in the US and Europe, even Africa. The currency is strong and valuations are low – it's a good time to globalise," Buchholz says.

"For that reason, the smallest category we have in north Asia is super-midsize jets like the Challenger 605, Hawker 4000 and Falcon 2000. Clients want world-class catering and large cabins – and they get better value from our extremely high landing fees using larger aircraft."

There is only one FBO at Hong Kong International. Buchholz would welcome competition on service quality and fuel prices, and says HNA would be happy to bid if a tender was offered to potential second providers to break the monopoly.

The FBO is also "way too small" and this constrains parking, he claims. "You can only park there 30% of the time, and otherwise you have to be towed by a vendor, who charges an arm and a leg." This can eat into a pilot's duty time, he says.

Hongkong Jet has a bilateral agreement with Deer Jet, allowing owners with aircraft based in Shanghai to "take advantage of the Hong Kong style of management and interface with us," Buchholz says. "You can be Chinese registered but not have to deal with the Chinese authorities." He describes this as a unique model that can suit customers from the US, Europe, Taiwan or elsewhere. ●

India a market in waiting

Air Partner is pioneering a new approach by working alongside a local luxury travel specialist to meet the needs of prospective charter clients

Charter broker Air Partner may use a strategic partnership, established in India earlier this year, as a template for other developing private aviation markets if the model proves successful.

In June, UK-based Air Partner announced it was joining forces with India's InterGlobe Enterprises, a specialist in corporate and luxury travel. The broker aims to serve the growing number of private aviation users on the Subcontinent through InterGlobe's recently relaunched business aviation subsidiary, which trades as THE ESTD ("the established") and markets luxury yachts, sports cars and aircraft to high net worth individuals and corporate clients.

Air Partner already has 20 offices in 17 countries, but has previously pushed into new areas through standard agency agreements or by putting in its own people. CEO Mark Briffa says: "India has a large population with a rapidly expanding economy. THE ESTD is an ideal partner, with its strong brand, knowledge and understanding of India's corporate and luxury travel sectors. This partnership gives Air Partner a great platform from which to launch services and products into a growing and lucrative marketplace."

Among many other activities, THE ESTD sells LET turboprops on an exclusive basis in south Asia. Last March, it sold India's first LET 410s to Asia Aviation and Turbo Aviation, the customers respectively taking three and one of the 19-seat aircraft. THE ESTD also markets Hawker Beechcraft, Pacific Aerospace and Dornier Seaplane aircraft, together with Sikorsky helicopters.

The agreement with Air Partner enabled THE ESTD to achieve its objective of expanding into the charter sector. Nigel Harwood, president and CEO, says: "With the Indian economy on a growth trajectory, there has been an increase in corporate travel needs and hence the demand for private air charter is expected to grow. The partnership will enable us to meet this demand in the most effective way, as customers will have access to the broadest range of aviation services and operators backed by logistical excellence, value for money and dependability".

Warren Chester, a former Deloitte consultant brought in by Air Partner as director of international strategy, admits the company has had a mixed track record in new markets. It has been pretty successful in Russia but perhaps could have tackled eastern Europe differently, he says. "If you don't understand the local politics and culture, it's harder to identify and hire the right people."

Going solo into India would have been the wrong approach, Chester says. "Our connections in the market were poor. THE ESTD has a high-quality database of 15,000 names. It is selling these individuals and companies other things, scheduling phone calls and making face-to-face visits on a scale that would be impossible for a foreign company setting upon its own. We might have reached the same end point, but we would have been on a longer learning curve."

THE ESTD has put in place a dedicated charter resource, helped in the formative stages by Air Partner personnel from the company's Dubai operation who are attending client meetings and training the local team to bring them up to speed on the logistics of air charter.

"They do the front end and pass leads to us if the client is going outside the country. Internationally, we do the broking, but for a local flight, they would source the capacity," Chester says. "They have sold a lot of aircraft. They know the owners and where the planes are."

Air Partner has secured only a handful of international charters, from India to the US and Europe, since entering the partnership. "We have had high volumes of enquiries but low levels of conversion. Some were 'fluff' and some were no doubt competitors, but this is what we expected. It's a long-term investment," Chester says.

Although pre-paid jet cards could have potential in the longer term as a convenience, lifestyle product, he comments that India is a price-driven market and clients like to negotiate. However, the market is definitely ripe for Air Partner's parallel Commercial Jets service, through which customers needing to move larger groups can charter airliners from 20 up to 500 seats.

The partnership model is unique in Air Partner at the moment. "But it's a way that we could explore other developing markets in Asia, and possibly Africa and Latin America, where there can be high barriers to entry," Chester says.

The company's next step will most likely be further east. "China is the top of everybody's list, but is still an embryonic private charter market with a shortage of good quality supply except in Hong Kong, which is a more highly developed, mature market.

"We have GSA-style agency relationships there, as have had for some years in Japan and Singapore," he says. "We could consider acquisitions or put our own people on the ground in those markets, but we're not in a desperate hurry. The markets are still evolving from a very low base and we don't see too many of our competitors making very much money." ●

Civil Aviation Authority of the Cayman Islands

The Civil Aviation Authority of the Cayman Islands (CAACI) is the authority responsible for the regulation of aviation throughout the Cayman Islands and for aircraft entered on the Cayman Islands Aircraft Registry, wherever they are based and operated. The Cayman Islands are a UK Overseas Territory and is therefore committed to the obligations of the Convention on Aviation signed by the United Kingdom. The CAACI's regulatory obligations are based on the standards and recommended practices of the International Civil Aviation Organisation (ICAO) for effective safety oversight to ensure the safe, regular and efficient operation of domestic and international air transport. The "Air Navigation (Overseas Territory) Order" (the Order) is the statutory instrument that details the legislative provisions for all the UK Overseas Territories. Additionally, Overseas Territories Aviation Requirements (OTARs) are provided as a means of compliance with the Order.

Aircraft Registry in the Cayman Islands

The Cayman Islands Aircraft Registry is the registry of choice for many owners and management companies with corporate aircraft. The CAACI proudly maintains a reputation of providing a safe, stable and credible flag for registration of an aircraft. Standards are rigid and specifications exact to qualify, but this has led to the register being highly respected and recognised throughout the aviation industry internationally.

P. H. Richard Smith, MBE FRAeS Director-General of Civil Aviation

The CAACI works in close partnership with a specialised group of legal and financial firms and Cayman Islands Government authorities to ensure that clients have the most comprehensive counsel on every avenue of law, custom law, tax and insurance.

Once an aircraft is accepted onto the registry, a registration mark prefixed with VP-C plus two other letters will be assigned. Highly qualified CAACI staff will then conduct thorough inspections of the aircraft at the home base or the designated maintenance facility for ease and convenience for their clients. This entire registration process normally takes four to six weeks. All aircraft on the register are re-inspected annually to ensure compliance with regulatory safety requirements. The CAACI dispatches its surveyors and inspectors based on client preference and works to meet the needs and time demands of the aircraft owners and operators.

C.I. registered aircraft are based globally in countries throughout Europe, Middle East, South America, Asia, North America and South Africa. ●

For more information pertaining to aircraft registration, including the process, listing of our partners, forms and a schedule of fees can be downloaded from the CAACI website at www.caacayman.com

Tom Wells, general manager of Gama Aviation, with commercial manager Paul Cremer and the Challenger 850 the company is managing on behalf of a Russia-based customer

Dormant market set to flourish again

Despite poor infrastructure and continuing problems of illegal charters, Eugene Gerden sees a promising future for Russian business aviation

The Russian business aviation outlook is steadily improving as domestic demand for business jets recovers and a better infrastructure develops. Russia first woke up to business aviation in the early 1990s, and saw annual growth of about 10% per year during the years to 2000.

The largest local corporations, such as Gazprom, Lukoil and Rosneft, which had extensive operations in Russia as well as interests abroad, became the first buyers of business jets during this period, but business aviation made up only a small part of the overall air transport market, totalling no more than a dozen companies.

Rapid growth in the Russian economy in the early 2000s brought a boom in the domestic business aviation market. The number of business jets owned by Russian companies and private citizens increased almost tenfold, reaching about 300 units, and the number of flights was growing at some 30% per year.

Industry experts estimate that before 2008 the Russian business aviation market was worth $2.5 to $3 billion, with local operators typically turning over in the range of $30 to $100 million a year.

The global economic crisis led to a sharp decline of the market, in Russia as everywhere else, with aircraft sales and flying activity decreasing. Indeed the industry has not yet fully recovered from the downturn and is currently valued at just $1 billion.

A growth rate estimated at about 10% in 2011 looks set to be repeated in 2012). Evgeniy

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Bakhtin, VP of the Russian United Business Aviation Association, says the country's fleet of business jets is currently almost at a standstill, with the majority of large companies and business people buying new jets simply to replace older ones.

Bakhtin estimates there are now around 350-370 business jets in operation, but says that in recent years, many users prefer to charter aircraft rather than operating their own. One factor is the high cost of management and maintenance at Russian airports. Renting a hangar at Moscow's Vnukovo airport can cost as much as €1 million per year.

The Russian business aviation market is traditionally secretive. Owners and operators are reluctant to disclose details of what they do and where they fly. Local business jet operators are not publicly registered with the Transport Clearing Company, the executive arm of Russia's Air Transport Settlement System.

The Infomost consultancy says the business aviation market mainly comprises the senior management of large companies – especially those with subsidiaries located in remote areas of the country, often more than 1,500km from headquarters.

Almost the whole sector is concentrated in Moscow and St Petersburg airports, and Infomost says that because of this long-distance requirement, the Russian business fleet is largely made up of models such as Gulfstream, Embraer Legacy and Bombardier Challenger and Global jets.

According to Igor Chunikhin, CEO of Jetallians, a joint venture between Jet Alliance and Aeroflot, the market is mainly served by foreign operators and smaller domestic companies that fly re-equipped Russian and former Soviet-built aircraft such as the Tu-134, An-24, Yak-40 and Yak-42.

Analysts say the economic crisis resulted in only limited market consolidation. Some smaller operators withdrew, however, opening the way for foreign operators to gain a foothold.

Among the leading foreign operators in the Russian market are Swiss-owned VistaJet, whose large fleet makes carries out up to 100 flights to and from Russia per month, NetJets and Finland's Airfix Aviation. Global Jet Concept, another Swiss company, is said to be the largest operator of jets owned by Russians.

In September, Gama Aviation announced the addition of two new aircraft, a Bombardier Challenger 850 and a Boeing BBJ2, to those it is already managing on behalf of Russia-based customers. Gama Aviation's worldwide portfolio now exceeds 80 aircraft and includes a number of Boeing, Bombardier, Falcon and Gulfstream aircraft based in Moscow. The company was one of the first business aviation service providers to support Russian customers in the 1990s.

The leading locally owned business aircraft owner and management company is RusJet. Its commercial director, Maya Szyszko, says the monthly number of business flights is now up to about 100, of which 60% are international. Not far behind among Russian operators is Jet-2000, whose 60 monthly flights are 80% are international.

Among the main destinations within the country are Novosibirsk, Surgut and Noyabrsky, centres of Russia's oil and gas production. The UK

RusJet stretches its wings

RusJet Aircompany, established in 2005 and today one of the largest domestic players in the business aviation market, operates a fleet of 10 Russian aircraft, five Yak-42s and five Tu-134s.

The company, based at Moscow's Vnukovo-3 business aviation terminal, also manages a number of Learjets, Challengers and Hawkers on behalf of private clients based in Russia, and is a strategic partner of Irish-headquartered VipJet, which manages 15 private aircraft.

RusJet received the Wings of Russia Award, presented to the country's best business aviation operator, in 2010 and 2011, and is now expanding its horizons by acquiring foreign-manufactured aircraft for charter for the first time.

An Embraer Legacy 600 aircraft, which arrived last June following almost a year's preparatory work, has been undertaking commercial flights within Russia and the common Customs Union, which includes Kazakhstan and Belarus. Natalia Tretyakova, head of RusJet's aircraft management department, says charter utilisation is averaging 60 flight hours per month so far.

The Bermuda-registered Legacy (pictured) operates on RusJet's AOC under article 83 *bis* of the Chicago Convention, which provides for the transfer of certain safety oversight responsibilities, including rules of the air, radio licensing, certificates of airworthiness, and personnel licences, from the state of registry to the operator's state.

This scrupulous approach to Russian Customs and civil aviation regulations allows the aircraft to perform domestic flights without straying into "grey charter" territory, which Tretyakova says can cause such problems for foreign operators.

A second Legacy, with Russian registration, was scheduled to join RusJet's fleet in October, followed by a Bermuda-registered Embraer CRJ200ER. The company plans to be operating a fleet of five Legacy 600s by the end of 2013.

is the main destination for Russian business flights abroad by a significant margin, with an estimated 20% share, perhaps reflecting the number of oligarchs that have homes there. In second place is Italy, followed by France and Switzerland.

Grey market dominates

The majority of the foreign operators that are active in the Russian business aviation market work illegally through so-called "grey" cabotage, conducting flights on aircraft that are not registered in Russia and thus able to escape liability for their operations.

One explanation is that business jets can lose a lot of money for their owners. Registering your aircraft there attracts 18% VAT, and the large luxury types that are traditionally in demand incur additional customs duties which apply to all imported aircraft with a dry weight of more than 20 tonnes. Furthermore, Russian-registered aircraft automatically have a lower resale value, on account of the unfortunate image Russian business aviation has in the eyes of the rest of the world.

VistaJet claims to be one of the few foreign operators that conducts its flights in Russia fully legally. Last June, the company set up a joint venture with the Russian air taxi operator Dexter, under the terms of which several of its aircraft became locally registered.

Most of VistaJet's competitors are in no hurry to follow its lead by opening JVs with local carriers, or setting up their own subsidiaries, to move part of their fleets on to the local aviation registry. They prefer instead to exploit the weakness of Russian regulation to continue with cabotage flights.

Probably the main obstacle to the development of the Russian business aviation market is the lack of modern infrastructure.

The business terminal at Vnukovo may be the largest in Russia, and one of the largest in Europe, but has become critically overloaded despite the slower pace of growth in recent years. The same problem is evident at Moscow's other major airports, Sheremetyevo and Domodedovo. They have business terminals but must also accommodate scheduled commercial flights, which are usually given priority.

It is possible this may change thanks to the efforts of businessman Suleiman Kerimov, who recently announced plans to build the first Russian airport dedicated exclusively to business aviation.

Despite strong opposition from the Russian Ministry of Defence, Kerimov has taken ownership of a large chunk of Kubinka, a military airfield west of Moscow.

At an estimated cost of only $7 million, he has acquired 46ha of the facility, including 24 buildings covering an area of 7,000sq metres, though that is only a fraction of the ultimate project cost of $1 billion. In the first stage, Kerimov will build the business terminal itself, later developing a parking area and either constructing new service hangars or modernising some of the structures that already exist. According to preliminary plans, the new airport could go into operation by 2018.

Future prospects

Despite its numerous problems, analysts predict a bright future for the Russian business aviation market. The country's vast territory and the lack of a well-developed network of ground transportation makes Russia an attractive prospect, especially as the number of wealthy people is steadily growing – and hence the demand for business jets. It is forecast there could be more than 2,000 of these by 2020.

Local airport infrastructure should have markedly improved in that time. For example, a new business terminal is expected to be built soon in the historical building at terminal two of St Petersburg's Pulkovo airport.

Leonid Shcherbakov, chief inspector of civil aviation service provider Aerotrans, reports there were more than 14,000 business aviation flights in Russia in 2011.

Mikhail Titov, CEO of RusJet, says this exceeded the total in the previous record year of 2008. He believes Russia stands to benefit strongly as the world regains its economic stability, and says the market can continue to grow by 10% per year. ●

Catering to a discerning palate

London-based Alison Price On Air, the provider of executive jet in-flight dining, has seen rapid growth in demand from clients travelling to Russia this year. The market, chiefly focused on Moscow, accounted for just 3% of APOA's business two years ago but is now nearer 20%. Clients include wealthy Russian individuals as well as corporations expanding their businesses in western Europe.

Daniel Hulme MD of APOA (pictured), comments: "We're delighted that discerning Russian business clients are repeatedly choosing us to handle their catering needs and we continue to see an upward trend in this market. Typically, orders will include special requests for caviar, sushi, smoked fish and freshly cooked eel, served buffet-style to cater for our Russian clients' preferred style of dining."

APOA typically caters for between one and three clients per Russian flight, aboard aircraft ranging in size from heavy jets such as the Airbus ACJ through to the mid-size category such as the Hawker 750.

The company is also hoping that its new large group catering service, launched in June, will interest the Russian market. "Sports groups, music tours and orchestras frequently fly in and out of the region, so we are hoping to capture some of this market with our new offering," Hulme says.

Is automation keeping us safe?

Accident rates are down – but there are fears that pilots' lack of stick-and-rudder training could lead to problems when the unexpected happens. Ian Putzger investigates

The tragic losses of Colgan Air flight 3407, which crashed on 12 February 2009, and Air France flight 447, which plunged into the Atlantic on 1 June of the same year, have raised worrying questions about pilots' abilities to cope with unstable flight situations as well as the regulatory and training framework.

"There is less and less time to hand-fly an aircraft. There is less awareness on the pilot's part what the plane is doing and is going to do next," warns Bill Voss, president and CEO of the Flight Safety Foundation (FSF). Perhaps it is time to start asking questions about automation – and to change pilot training, he suggests.

For Voss, the writing was on the wall a long time before these accidents that sparked off the public debate about pilots' skills. In his words, the issue had "all the stealth of a freight train".

Recent accident statistics indicate no obvious problem. Numbers compiled by Robert E Breiling Associates in Boca Raton, Florida, show zero fatalities for business jets and turboprops flown by paid flight crews in the US in the first half of this year. Over this period, there were 11 accidents involving US business jets, down from 14 a year ago. For US turboprops, the number of accidents was down from 24 to 15.

Neither is this an isolated lucky period. According to Ascend, the data and consultancy division of Flightglobal, there has been a consistent trend towards fewer business jet fatalities over the past two decades. For the 1990s, Ascend recorded one fatal accident per 600 aircraft, which had improved to one per 900 aircraft in the following decade. By 2010 the rate was down to one fatal accident per 3,300 aircraft, and 2011 showed one per 5,000.

Voss is pleased at this. "In the last decade we had 10 major accidents a year on average. Now it is seven or eight," he comments, adding that the downward trend has continued for enough years to make it significant.

Interestingly, the business jet segment shows greater improvement than the turboprop sector. According to Ascend data, over the last 20 years the fatality rate for business jets has been twice as good, and in 2011 it actually was four times as good as the rate for turboprops.

Not only have turboprops shown less improvement, but the fatality rate per seat remains considerably higher. Last year it stood at one fatality per 2,300 seats, whereas the rate in business jets was one per 11,100 seats. Major accidents involving commercial turboprops averaged 23.4 over the past five years, according to the FSF, well above the 10 per year for business jets in the 2000-11 period.

According to Ascend, the improvement in accident and fatality rates for business jets does not extend to airframes. The present number of airframe losses registered for 2011 stands at 11 worldwide. This is down from the previous year, but past experience suggests that some of the damages sustained in 2011 that have been assessed as "major partial losses" may turn out to be total losses after all. The longer-term trend is not showing any improvement in hull loss accident frequency.

As with jets, turboprops have not seen a significant reduction in total losses over the past two decades.

Still running off the runway

Runway excursions remain one of the biggest headaches for the industry, as they accounted for a growing number of accidents in recent years.

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FlightSafety: Enhancing Safety for Generations

Matt Simpson
Chief Pilot

Mr. Bruce Whitman
President & CEO
FlightSafety International

Dear Bruce,

From my early days in middle school, I remember going through the flight training advertisements in aviation magazines. Your academy in Vero Beach always caught my attention and my imagination would soar. In 1984, I upgraded to Captain on a King Air 200 while working for Sprite-Flite Jets in Lexington, Kentucky. Training was conducted in Wichita at your FlightSafety campus across from the Beechcraft plant. It was a proud moment when I returned home and could tell my family and friends that I was now FlightSafety trained.

Since then, I have trained at FlightSafety at least every six months and sometimes more frequently. I earned five type ratings at FlightSafety, including two Cessna Citation types, a Learjet and two Bombardier Challenger types. Your Global Express simulator was not yet in place when I earned that type rating. Glad that FlightSafety now offers that training. I have logged over 16,000 accident-free hours and operate around the world.

My son Patrick just completed his second tour serving as a military contractor Emergency Medical Technician on U.S. bases in Kuwait. He obtained his Private and Instrument Ratings at a local Part 141 school, and now I am pleased to tell you that he has decided this week to complete his aeronautical education at FlightSafety Academy in Vero Beach.

The benefits of being a FlightSafety rated and trained pilot have provided a unique network of contacts and opportunities for me. I am indeed happy that he has made this important decision in favor of your academy. I hope you will share this with Al Ueltschi and keep up the good work. The philosophy and high standards that you both have driven into your organization have resulted in the strong safety culture that exists today. I am proud to be a part of it, not only for my safety, but now for my son's.

Sincerely,

Matt Simpson
Chief Pilot, Flight Management Services, Naples, Florida

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"Business aviation is not doing well on runway excursions," Voss says. "There is no change in the runway excursion rate. It is still significant."

Statistics from the FSF show that jets and turboprops with an MTOW of over 12,500lbs (5,670kg) suffered over 650 runway excursion accidents worldwide between 1995 and 2010, including 65 fatal crashes that claimed the lives of 1,121 people.

This can partially be attributed to short runways or airports that are unfamiliar to operators. An additional factor is that ATC and airspace design tend to favour large hub airports rather than small airports. Nevertheless, the issue remains a major headache for the FSF, which has been working with ICAO on runway safety initiatives and has also addressed the issue in its recently updated toolkit with a template for pilots on what to do and what not to do in unstable flight situations during the landing phase.

The emphasis on runway excursions should not distract from runway incursions, which have been much deadlier. As many as 55% of all incursion accidents between 1995 and 2010 had fatal outcomes.

Data from the fatal accident database of the UK CAA and Ascend show that between 2002 and 2011, 51% of the fatal business jet accidents worldwide happened during approach, landing or go-around phases. Approach turned out to be the most ominous stage, accounting for 31% of the fatal accidents, ahead of take-offs with 19%. Climb and landing phases followed with 15% each.

"What bothers us is the CFIT problem [controlled flight into terrain]," remarks Voss, pointing to 50 such accidents in the turboprop segment over five years. TAWS, or terrain awareness warning system, has been widely recognised and embraced as a major part of the safety equation, but it has not been completely adopted yet, either among turboprop or business jet operators, Voss points out.

The numbers from the UK CAA and Ascend indicate that go-around accounted for 5% of fatal business jet accidents between 2002 and 2011, the same share as the descent phase. Most likely this number would be significantly higher if pilots were more inclined to pull out of unstable descent situations and perform go-arounds. The FSF has conducted surveys of over 1,000 pilots, operators and manufacturers and found that very few of them go around because of an unstable approach. Only in 17% of the situations that dictate a go-around do pilots actually abort the landing process and do so.

"Go-around is a challenging manoeuvre. Pilots often perceive as much risk in a go-around as in an unstable approach," says Voss.

Flight schools point out that go-around is part of the curriculum. "We provide training in the simulator that helps the pilots with their decision-making skills such as deciding early on when to go around," comments Steve Phillips, VP of communications at FlightSafety International.

Yet pilots' hesitation as regards go-arounds appears well-founded. The FSF found that up to 90% of go-arounds result in undesired aircraft states. This is partly due to lack of training, partly because of the power and level of automation of modern business jets, Voss finds. Used to simulator situations for a go-around with one engine, pilots are having a hard time trying to cope with the thrust of both engines.

Voss argues that fundamental changes in the operation of commercial aircraft require a fresh look to be taken at training. "We've been a little too fixated on the DC-3 days and Cary Grant taking off in a DC-6 with one engine on fire," he says. "We have not addressed issues of automation and done two-engine go-around."

Doug Carr, VP for safety, security, operations and regulation at the National Business Aviation Association, agrees that there is a need for changes to the curriculum to address issues arising from accidents such as those involving AF447 and Colgan Air 3407.

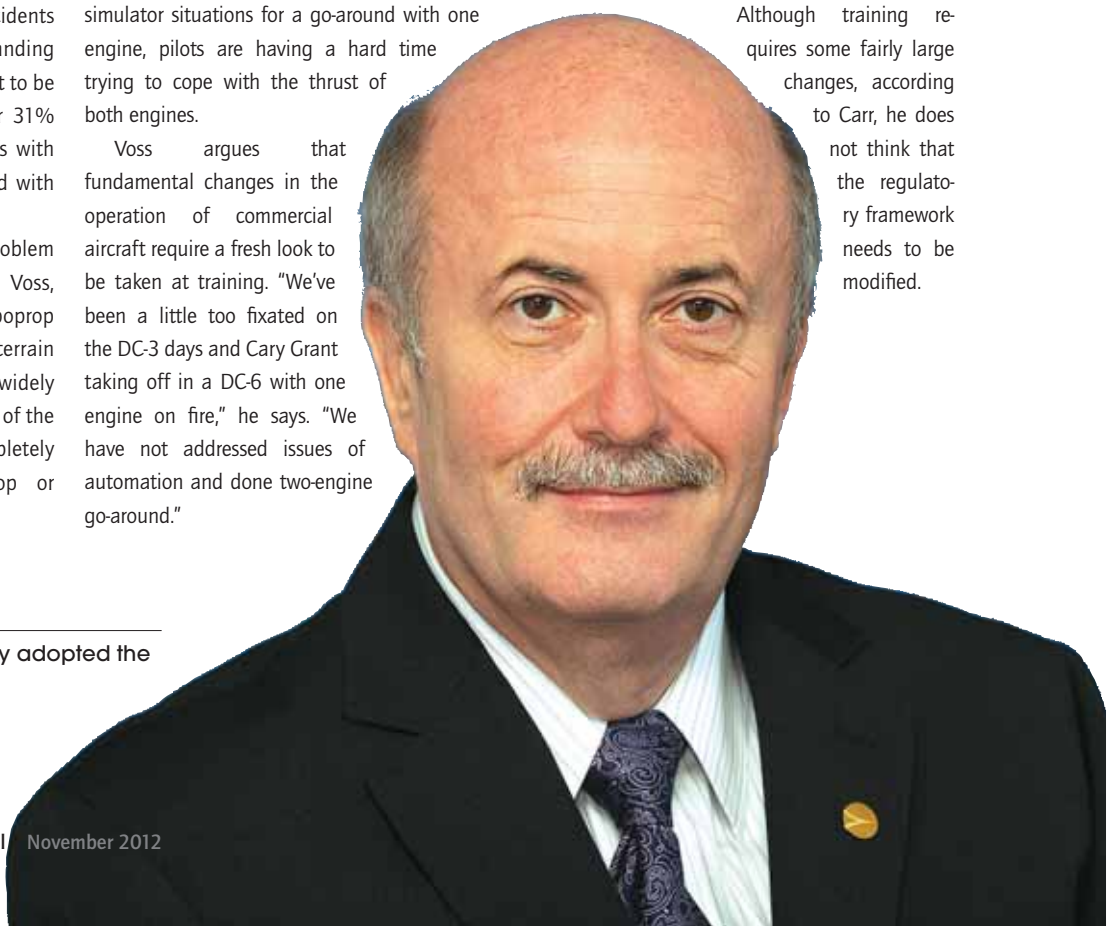
"We've got to do better as an industry as relates to training," he comments. Currently, when a pilot goes to a training facility, the emphasis is more on ticking off a checklist than on learning, he adds, though he stresses that the objective should not be to make training harder for pilots – nor to make life more difficult for training centres.

Ongoing training is key

Phillips emphasises the need for regular simulator training. "FlightSafety strongly believes that training twice a year in a simulator enhances safety and helps pilots to remain proficient," he states. "The vast majority of our customers understand the importance of regular training and do it twice a year."

One carrier that has made major changes to its training programme in the wake of the Colgan Air and Air France tragedies is Emirates Airline. It has inserted two days of manual simulator flying into its pilots' recurrent training, a bold move and an expensive one, given the charges involved.

Although training requires some fairly large changes, according to Carr, he does not think that the regulatory framework needs to be modified.



Voss: business aviation has not fully adopted the terrain awareness warning system

Europe saw a large regulatory change this past April, when new regulations for pilot training and issuance of European pilot licences, ratings and certificates under the aegis of the European Aviation Safety Agency came into effect. However, there is scope for confusion, according to the European Business Aviation Association (EBAA).

"You would assume that the new rules apply across the board, but that is not the case," says Fabio Gamba, CEO of the EBAA. Several countries have asked for a grace period for their existing regulations, which means the new regime will not be fully in place across the region before 2014 at the earliest.

"Some countries adopt and implement new regulations more rapidly, which creates a differential between different countries. You may be operating under one regime in one country and under a different one in the next," he warns.

By the same token, the International Federation of Air Line Pilots Associations (IFALPA) was concerned about the implementation of new SID/STAR phraseology in Canada in February of this year. Although about 70% of ICAO contracting states have implemented procedures to comply with its provisions, a significant number of countries have yet to do so.

Gamba: illegal flights still a "huge headache" in Europe

Pilots are concerned about differences between the Canadian and US regimes, which they have claimed will create confusion in cross-border operations.

In the US, changes in procedures and phraseology governing standard instrument departures have also created concern. On 15 August, the new Climb Via instruction for SIDs was scheduled to go live. It mirrored the similar Descend Via instruction issued earlier for standard terminal arrival route procedures.

Pilots would have had to remember the new terminology as well as all the restrictions on altitude and speed, lest they risk separation losses, pilot deviations and potentially tense moments

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in the cockpit. Shortly before the planned implementation date, the FAA cancelled Climb Via and Descend Via procedures and phraseology, citing concerns over coordination of pilot and controller briefing material.

"The FAA erred on the side of caution," comments Carr. "Climb Via brings a lot of new elements to the system."

The FAA has been pushing for the creation of data-driven safety improvement plans. The objective is to reproduce the improvements made in airline safety through the Civil Aviation Safety Team, which examined accident and incident data to identify risk areas and developed programmes to address these problems. The FAA hopes that business aviation operators will sign up to the voluntary aviation safety information analysis and sharing (ASIAS) programme, which the FAA intends to use as the vehicle for gathering data.

Carr: critical of industry trainers' tick-box mentality

Voss welcomes the plan, pointing out that ATC surveillance data can provide powerful insights. "The FAA has done a stunning job with ASIAS. The richness of the data is extraordinary," he says.

Data protection, on the other hand, is a problem. "The Comair case ruling made it clear that there is no protection," says Voss. "The industry needs to do a better job in a unified effort to put protection into law."

Criminalisation is a big issue, agrees Carr. Instead of leading to changes in rules that would improve safety, investigations are more geared towards filing criminal charges, he laments. "Accidents should be an opportunity to learn as opposed to an opportunity to blame."

Illegal flights headache

Ironically, it seems harder to apply the letter of the law when it comes to illegal flights. The EBAA estimates that these make up 6-8% of total movements.

"Today in Europe we are not tooled in a way that allows member states to eradicate illegal flights – not only to spot illegal flights but also repress them," comments Gamba. "This is a huge headache for the industry, forcing prices down unfairly. It creates a comparative disadvantage for operators who respect the legal requirements."

He adds that the safety regime in Europe is more stringent than those in most other areas, which creates a high degree of safety – but at a cost that threatens the survival of smaller players. "Because of cost and time constraints, it will be more and more difficult for a small operator with one or two aircraft. The inherent costs of running an operation are higher in Europe than elsewhere," he says.

From EBAA's vantage point, one promising development on the regulatory side has been the agreement reached last year to create specific rules for flight time limitations under the aegis of the European Aviation Safety Agency. EBAA will be participating in the working group on FTL in a dialogue that Gamba expects to last into 2014.

The association hopes that this will lead to the development of more frameworks geared specifically to business aviation. "In Europe, business aviation is largely considered as an extension of commercial aviation. It is not regarded as a specific element," Gamba says.

The safety regulations implemented by EASA in April are a case in point, as they do not reflect the specific needs of the business aviation sector. "What we have done with FTL, we would like to replicate with other things," Gamba says.

FTL is also high on the agenda in North America. Carr alleges that efforts to improve aviation safety have aimed for the low-hanging fruit. "Now we should focus on areas like fatigue awareness and management," he says.

For the Canadian Business Aviation Association, fatigue management has been the second big issue besides the implementation of a new regulatory framework based on ICAO's SMS, notes Sam Barone, the organisation's president and CEO. "There is concern with fatigue over long distances. We need to manage that in terms of risk, but also mindful of the fact that our missions are different from those of a 777 pilot," he says.

The FSF has identified another area that requires attention. There is no guidance for functional check flights, Voss points out. This is despite an extraordinarily high accident rate in non-revenue and non-mission flights.

In June, ICAO signed a memorandum of co-operation with the Airports Council International to jointly pursue the highest possible levels of safety at airports worldwide. At the centre of this will be the ACI's Airport Excellence in Safety programme.

Carr welcomes the collaboration, but has reservations about its benefits to business aviation. "I think their focus is more on large airports," he says. ●

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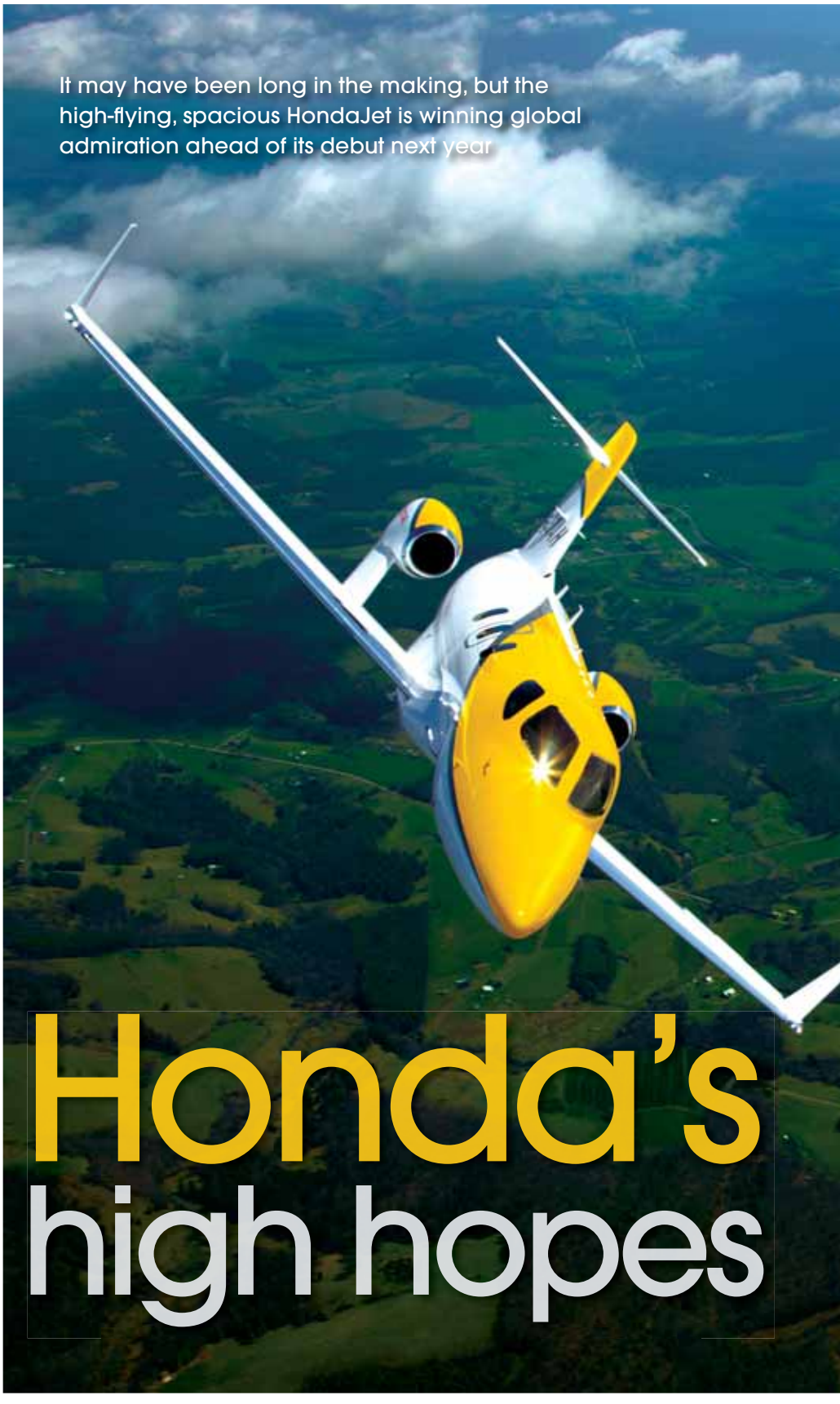


It may have been long in the making, but the high-flying, spacious HondaJet is winning global admiration ahead of its debut next year

Honda's high hopes

Even in an era of instant communication, it is possible to develop an aircraft in total secrecy and announce it with a flourish just two or three years before entry into service. The most prominent example at EBACE last May was admittedly a remodelling of an existing design, but showed how far down the track you can go before pulling back the curtain for the waiting media.

Honda has taken the very opposite approach with its debut aircraft, whose gestation period has already been more than 25 years. The company's entry-level business jet is not expected to receive FAA certification (followed by EASA) before the second half of 2013, with deliveries beginning shortly afterwards.

Seasoned observers have commented that such a slow path to commercial operation is possible only because the project has had the financial backing of one of the world's leading carmakers. The HondaJet represents such a radical departure from conventional aeronautical design thinking, however, that most believe it will have been worth the long wait.

Honda began research into bizjets in 1986 as a sideline to its automotive business and built an all-composite aircraft, the MH02, to test out its ideas. Michimasa Fujino, who had joined Honda in 1984 with a degree in aeronautical engineering, spent several years with the group's R&D team in the Americas and in 1997 became large-project leader for the HondaJet programme.

It was Fujino who was responsible for the aircraft's revolutionary over-wing engine mounting. He led the research into composite construction and also helped design an airfoil and nose using natural laminar flow techniques to increase speed without creating turbulence.

An engine, the then HF118, was developed in collaboration with GE in 1999. It was test-flown on a Cessna Citation and the HF120 that will be fitted to production aircraft evolved from it. The HondaJet itself made a proof-of-concept flight in 2003. Yet even at this stage, Honda was not ready to commit to commercialisation, Fujino told *EVA* in an exclusive interview.

Honda Aircraft Co was founded only in 2006, with Fujino as its founding president and CEO. Explaining the long timeline, he said: "It was the

end of that year, almost into 2007, before the project went commercial, so five years since then is not untypical."

Fujino: Aircraft manufacturers can learn from the automotive industry

Engineering challenge

The HondaJet will typically accommodate five passengers, with a club four plus an optional side-facing fifth seat. Mounting the engines on pylons over the wing, a feature Honda patented in 2000, maximises space inside the cabin as well as providing more externally accessible cargo space – a total of almost 1.87cu metres (66 cu ft) in the nose and aft.

Aircraft engines in their normal position require structures that "eat up" space within the fuselage, Fujino says. Relocating them over the wing was a difficult engineering challenge that initially looked likely to increase the weight and create problems with vibration and flutter – until Honda found what he describes as the "sweet spot".

The design that has emerged is claimed to be the fastest, highest-flying, most fuel-efficient and most spacious jet in its class, with the bonus of offering a quiet ride. And the engine placement not only displaces noise away from the cabin, but also reduces ground-detected noise when the aircraft flies overhead.

Although Honda has never openly discussed the matter, the current spec sheet suggests some subtle dimensional changes over the last five years. The HondaJet in its final form is longer than before at 12.99 metres, almost identical to the Citation CJ1, but has a slightly reduced wingspan than in the original specification, 12.12 metres. The cabin interior is 1.46 metres high and 1.52 metres wide, giving 30% more internal space than Cessna's soon-to-be-replaced CJ1.

The carbon fibre fuselage is around 10% lighter than the usual aluminium, though Honda changed its mind and opted for strengthened aluminium sheet for the wings, a decision Fujino says was based on manufacturability and ease of maintenance. "Composite is light and strong, but the cost of fabrication was an issue for this size of aircraft. Impact damage from stones and hail – which is less critical on the fuselage – was also a consideration."

The light weight and powerful twin engines, each with a thrust of 2050lbf, are responsible for some impressive performance figures. The aircraft's takeoff distance is less than 4,000ft and landing distance less than 3,000ft. It climbs at a rapid 3,990ft per min and has a maximum cruise speed of 420 knots at 30,000ft. That's around 30-40 knots faster than other aircraft in its class despite a similarly sized engine, thanks mainly to clean aerodynamics, Fujino says.

Another factor is the HondaJet's maximum cruise altitude of 43,000ft. "That gets you above the traffic, there is less effect from the weather and you save fuel," he says.

The HondaJet's range with four occupants is quoted at 1,180nm (2,185km) and tests have shown that it typically consumes 165 gallons (750 litres) of fuel on a flight of 600nm (1,111km), a claimed improvement of 15-20% on the class average.

High pilot awareness

Honda revealed enhanced avionics and cabin management systems at EBACE. The flight deck includes a customised Garmin G3000 all-glass avionics system with three 14in landscape format displays and dual touch-screen controllers for avionics control and flight plan entries.

In a new split-screen format, 60% of the primary flight displays are allocated to flight information including synthetic vision, and 40% to pilot-selectable features such as system data and maps. This provides a level of situational awareness unique in a light jet, Fujino says.

Back in the cabin, Honda has adapted to the rapid changes in cabin electronics by removing the planned pull-down display units above each seat. Instead, passengers can use their mobile devices to access entertainment (there are three available tiers of audio, video and IFE), view real-time flight information, and control lighting, temperature and electrochromatic window shades.

The company is aiming squarely at the owner-operator and specifically the owner-pilot, for whom the quality of the flying experience is important. In this level of aircraft the cockpit is part of the interior space, so maximum space is the first thing potential owners look at. A close second comes cabin comfort, and with this in mind Honda has built in some unusual features.

For example, the four main seats move on a multiple axis, so can slide inboard, creating extra elbow room, as well as forward and back. "You don't need an aisle in mid-flight," Fujino points out.

The flight deck includes a customised Garmin G3000 all-glass avionics system

A well appointed, fully private aft lavatory has a hard surface vanity unit and a patented solid door, with panels that drop down to the centre floor level on locking. This is much more than an emergency facility and recognises what can be an emotive issue especially for female travellers, Fujino says. He feels designers of aircraft flying two to three-hour segments have not paid sufficient attention to this area in the past.

The proof-of-concept aircraft had flown more than 500 hours as of May 2012, and six test planes have been built in all. Honda would have got its regulatory approvals this year if an engine had not suffered minor damage during an on-ground ice ingestion test, the company admitted at last year's NBAA.

This setback meant the one-piece blisk, which incorporates rotor disc and blades, had to be redesigned. Fujino emphasises that the local reinforcement that was needed did not add significant weight and created no performance issues, merely delaying certification.

Honda is now receiving production parts into its manufacturing facility at Piedmont-Triad International Airport in Greensboro, North Carolina, ready to begin assembly of the first production models. There is a suggestion that the aircraft may receive interim certification, with engine icing performance still awaiting final approval, depending on how soon it can complete tests.

A full-motion flight simulator being developed by FlightSafety International will be installed on the HondaJet campus in the first half of 2013, and an MRO facility is also being built alongside the production line and R&D centre.

Long-term value

The HondaJet's $4.5 million price tag makes it a good deal more expensive than the Phenom 100 or Citation Mustang, though below the M2. Operating cost will be in line with its rivals, says Fujino. "But we feel our aircraft could hold its value better." He believes the level of product support from Honda could also be a clincher for many prospective owners.

The aircraft will be sold via a dealer network, a route Honda is familiar with from the car industry. The company has appointed five dealers in the US, one in Mexico and three in Europe.

Of 100-plus orders to date, more than 60% are from the US and 35% from Europe, though Fujino expects European customers ultimately to account for half of sales. Although the main target is the owner-operator, he feels there is potential for fleet operators and the charter sector. The operating efficiency and environmental credentials of the HondaJet will appeal especially in Europe, where he is encouraged that overall fleet growth is still in double digits.

Fujino anticipates 50 aircraft will roll off the production line in the first year, then between 75 and 90 in year two before Honda ramps up to full capacity of 100 in year three.

Only when US and European orders have been delivered, in two to three years, will Honda start to look at markets such as China and Brazil, where it is in preliminary discussion with potential partners.

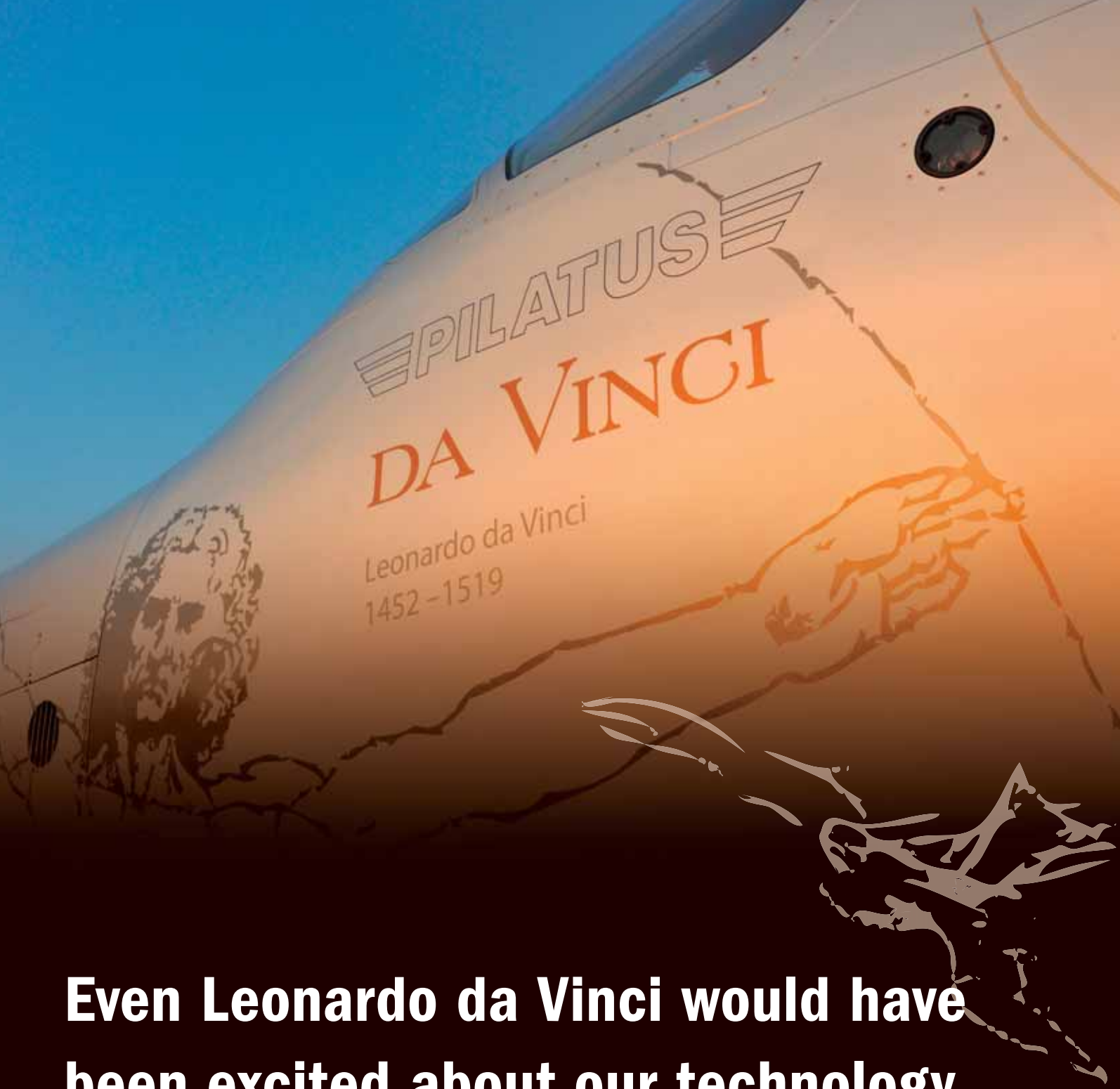
Lessons from car assembly

What can an aircraft OEM learn from its experience in the in the cutthroat motor industry? Analysts have not been slow to point up the differences between the automotive culture, with its emphasis on continuous improvement and regular changes in the supply chain, and the tightly regulated world of aircraft manufacture.

While the technology is very different and the life cycle much longer than the automotive industry's two to three years, there is room for improvement in aircraft design and fabrication techniques, Fujino says.

Carmakers work to a mantra of continuously improving part quality without increasing the cost. Honda's experience of mating parts in car cabins for a perfect fit is something it looks forward to bringing into the business jet environment.

Nor does Fujino plan to stop at his first HondaJet. "I've got one more design in me before I retire," he promises. ●



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Paint makers go the extra mile

Recent advances in paints and coatings are not only meeting the demands of aviation's most demanding clients, but are taking care of the environment – and workers' health

For many business jet owners, their aircraft is their "business card". It may be the first thing a potential client notices about them, according to RUAG Aerospace, which maintains and refurbishes aircraft at Munich's Oberpfaffenhofen Airport for OEMs including Bombardier, Gulfstream, Cessna, Dassault Falcon and Embraer.

As well as creating a good first impression, RUAG says today's paints and coatings also protect and preserve the value of the owner's asset. Clear topcoats that resist weathering and UV light keep aircraft looking "factory new" for longer.

Julie Voisin, aerospace product manager at US paint manufacturer Sherwin-Williams, says that while all sectors of the industry are looking for longer-lasting paints, the topmost priority for the business jet owner is appearance.

"The aircraft has to represent him; the finish must almost look like glass," she says. "It's important to commercial airlines too, but for them, the surface area is much larger and the time constraints tighter. They have to get back into the air as quickly as possible."

AkzoNobel, the world's largest paint and coatings company and a major producer of the speciality chemicals they contain, says the decorative finishes that are now possible, including liquid metal effects and eye-catching multi-colour effects that vary according to the angle of observation, give business jet owners the opportunity to strengthen brand identity.

"The GA (general aviation) segment generally requires the highest level of aircraft appearance and a greater level of topcoat quality than other aviation segments," comments Mark Cancilla, global director, coatings at PPG Aerospace. "While aircraft utilisation rates are not nearly as high as in the commercial segment, and the service life demands of the products not as stringent, the appearance of the topcoat must maintain very high quality levels."

Topcoats using PPG's Andaro special-effect pigments bring a new level of brilliance to exterior colour schemes and are now being used in the livery of a major global airline. Formulations are now being developed for other aviation segments, and will provide mica and metallic colour effects, Cancilla says.

'Match my plane to my shoes'

PPG is leveraging its expertise in the automotive OEM and refinishing businesses to meet the increasingly complex demands of the aviation market, Cancilla says. Vincent van der Laan, global marketing specialist for AkzoNobel Aerospace Coatings, says his company has also adapted technology from its automotive division to develop two-part basecoat/clearcoat systems for aviation.

The demands of high net worth owners can be very exacting, Voisin points out. An aircraft may have to precisely match the colour of a sports car, a motorcycle or even a pair of heels. The technical issue this raises, however, is that in other applications, paints don't take such a harsh beating from their operating environment and don't, for example, expand and contract as aircraft do in flight.

Sherwin-Williams is beginning to receive more requests for chrome-look or pearlescent paintwork, but although pigment companies have products available, they are not yet consistently meeting aerospace requirements, she says.

Achieving good adhesion between the coating system and the substrate is critical because of extreme environmental conditions including wind abrasion and the need for the coating to "flex", Cancilla confirms. To cope with the various substrates found in the industry, PPG and its competitors have developed a range of specific paint removers, selectively strippable systems surface preparation materials and primers.

In the traditional single-stage (or more accurately single-product) process, the paint contains all the resins and other additives needed to make it resistant to UV light and chemicals such as hydraulic fluids and fuel.

If the paint shop is going right back to the bare substrate or shell, it first has to pre-treat the surface, providing corrosion resistance in the case of aluminium or evening out irregularities in the weave of carbon fibre. After priming, a "sacrificial" sanding surface is applied to fill in any unevenness caused by seams or rivets. This is sanded almost completely away.

Corrosion protection can now be supplied chrome-free, but for best results the paint system has to be considered in its entirety rather than as a series of individual products, says AkzoNobel

Only then is the aircraft ready for its topcoat, which in the single-stage system is applied in multiple layers. Each coat can take 10-12 hours to dry, so where additional colours, stripes, logos or special graphic effects are required, a midsized business jet could be out of action for one to two weeks.

Not only do the latest two-stage paints offer improved functionality, they also allow faster turnaround. Sherwin-Williams claims the SKYscapes basecoat/clearcoat system it launched earlier this year saves up to 30% in process time, reducing labour input as well as materials and energy.

The base coat is heavily pigmented and its improved colour hiding technology means fewer coats may be required if a previous livery is being overpainted. It flows out evenly and eliminates the sanding layer stage.

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ASK SHERWIN-WILLIAMS Aerospace Coatings

There are some similarities between the processing needs of the commercial aviation and business aviation markets, PPG's Cancilla points out. Both want to reduce process times, cut the amount of solvents used through the system and remove chromates from primers, for example.

However, resistance to hydraulic fluids such as Skydrol is a much more important requirement in the commercial sector. "Skydrol is very aggressive to paint systems and can strip some coatings if left immersed," Cancilla says. "By contrast, in business aviation a buffable clearcoat is a 'must have' while in the commercial aviation market it is hardly ever asked for."

Andrew Richardson, global market director at AkzoNobel Aerospace, also points up the differences between the general aviation and commercial markets. "While the GA aircraft needs protecting just like a commercial aircraft, there is a bigger focus on the client's image and an imperfection-free finish is a must. That means no orange peel, no runs or sags and no blemishes in the finish.

"We have developed an Alumigrip basecoat/clearcoat system that meets the individual demands of the general and business aviation market, rather than trying to take an existing 'commercial' basecoat and applying it into this niche market."

Flying Colours used Jet Glo paint from Sherwin-Williams to produce this complex patterning. Exterior painting was the final stage in the completion of a green Challenger 850, delivered to a Russian customer in 2011

A long time to market

Each OEM has its own specifications and unique demands in addition to industry-wide standards such as AMS 3095, meaning that it can take from three to five years to bring paints from the laboratory to commercial application, Voisin says.

As well as researching better-performing, more durable coatings, manufacturers have been devoting equal effort to developing systems that protect workers and safeguard the environment.

Most suppliers now offer chrome-hazard free primers alongside their regular primers, but although non-chrome is well established in Europe, Voisin says the US has lagged behind.

"Companies want to do the right thing by their employees but also for owners," she comments. "It's human nature not to embrace change if you know that what you're already doing is giving customers a good final product."

AkzoNobel pioneered chrome-free primers for aircraft exteriors back in the early 1990s with the launch of Aviox. "This was applied over a chrome-free pretreatment by a couple of airlines at the time, with KLM being the front runner," says Richardson. "KLM painted over 100 aircraft in a totally chrome-free exterior system, and in-life performance showed that the system worked as well as the chromate containing systems.

"When you replace chromate containing primers and pretreatments, you cannot look at the individual products that make up the system and puzzle together a chrome-free solution," Richardson continues. "The performance of a topcoat is reliant to some degree upon the primer or surfacer underneath, and that primer upon the pretreatment. An airline or business owner cannot hope to get superior results from a topcoat if the wrong type of system is underneath."

AkzoNobel's water-based Metaflex SP1050 is a chrome-free pretreatment that can replace Alodine 1200 chromate containing primers as well as chromated washprimers. "Not only do we

see superior corrosion performance in a number of systems but Metaflex SP helps with paint system flexibility and helps reduce process time," Richardson says.

It is often regulation rather than voluntary good practice that forces change. Thus all paint manufacturers have been working since the late 1990s to reduce volatile organic compounds (VOCs) and these formulations rapidly became standard, in part because the law demanded it.

It was more recently that hexavalent chromium came under the health and safety spotlight. Yet despite the technical advances manufacturers have made, Voisin estimates that chrome-based corrosion resistance treatments still account for more than half of the market.

Repair shops have been waiting for proof that chrome-free products can do as good a job, she says. One major OEM has conducted four years of tests but so far has not made the results public.

Likewise there is resistance, especially in smaller facilities, to the high-solids paints. The products are actually beneficial in terms of lower VOCs, and their colour retention and depth of image is at least as good Voisin says. The issue is simple lack of familiarity, and perhaps fears of cost, though she says these are unfounded.

High-solids paints may look more expensive up front, but when the on-cost of protecting workers from traditional paint types – and of responsible waste disposal – is taken account, there is little difference. Paint shops do not have to invest in new application equipment and, importantly in this global market, can apply the products with equal efficiency regardless of variations in temperature or humidity, Voisin claims.

Investment in environmentally friendly coating technology under the motto "going green" has proved cost-effective for RUAG Aerospace.

The chromate-free primers RUAG now uses contain only 7% solvent, saving three to four tonnes of solvent per year. "The new procedure

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A professional paint job not only looks good, but helps preserve the value of the owner's asset such as this Gulfstream jet, according to RUAG

better protects the health of employees as the product no longer contains carcinogenic materials. The adhesion of the primer to the substrate and protection against corrosion can also be improved," explains Hermann Bauer, head of the company's paint shop.

Just as important, RUAG has to apply less paint thanks to the improved covering power of its new paint systems, further reducing solvent emissions and the weight of the finished aircraft.

A new design of spray gun produces practically no overspray, reducing the time needed to mask areas that do not require coating. Guns with high-rotation spraying can now be used to apply special graphics.

At one time, RUAG used several tonnes of solvent per year to clean its application systems. A new cleaning procedure, in which an oxygen and solvent mixture is pumped through the devices, increases cleaning performance and reduces the amount of solvent needed.

Better still, greater paint durability has stretched the length of time before recoating is needed by one to two years – meaning less work for RUAG, but lower lifetime cost for aircraft owners and operators.

Less drag, more range

The latest generation of flexible coatings not only improve an aircraft's "slipperiness", but can do a little bit of self-repair to help executive aircraft maintain their pristine appearance.

AIRglide developed a product, initially for sports cars, boats and wind turbine blades, that uses nanotechnology to reduce wind resistance and improve performance. Now adapted for the airline sector under the name Aviation Shield, the coating reforms over minor surface damage such as chips caused by stones or hail.

"It's like a living surface," according to Mark Butler, sales director for the airlines division at the company marketing the product, Action Aviation.

First trialled by scheduled carrier easyJet in the search for fuel savings, Aviation Shield has now been developed further. Work by CSM Instruments, whose laboratory specialises in nano-testing, showed a reduction in drag of no less than 42%.

Action Aviation claims that commercial airlines can cut their fuel bills by 4% on long-haul flights and 2% on shorter trips, with payback periods of as little as six weeks.

Talking to us at EBACE earlier this year, Butler said business jet owners may be more interested in the potential for stretched range rather than fuel savings. The product represented a "new paradigm" by potentially allowing some aircraft to make transatlantic flights for the first time, he suggested.

The product, certified to AMS1650c, is applied in two stages. The aircraft is pre-treated in what is effectively an exfoliation process. A negatively charged clear coating fills in microscopic pores on the surface and then a second coating, protecting against UV and hence slowing down sun bleaching, is applied on top. A narrowbodied commercial aircraft can be treated overnight.

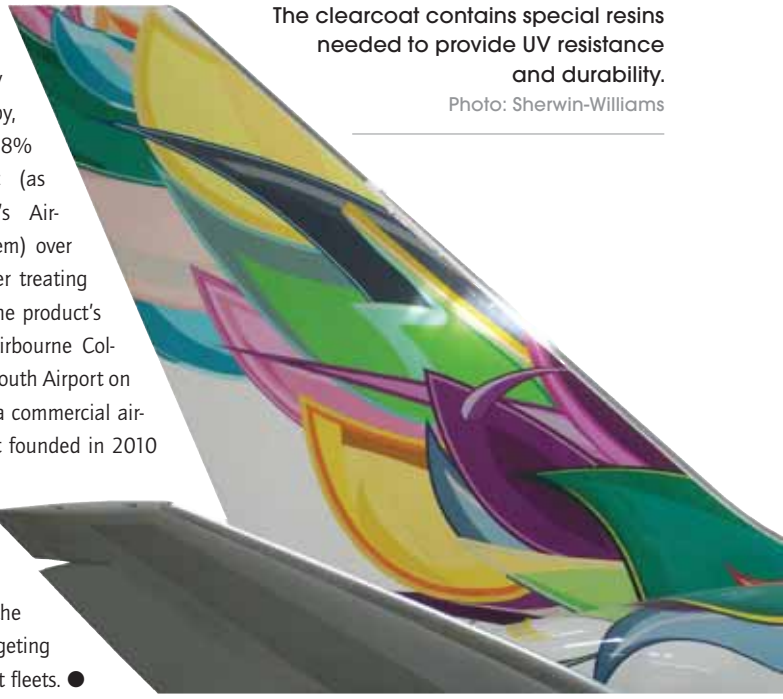
Action Aviation claims the coating protects against corrosion and reduces build-up of ice or debris on primary areas. The coating is claimed to last for five years, though leading edges may need to be re-treated after three.

Approvals by Airbus and Boeing will help the product establish itself in the business aviation sector, Butler says. The coating has already been applied on a trial basis to a Gulfstream IV-SP.

AGlaze, a sealant offering similar benefits of reduced drag, enhanced UV protection and longer paint life, has been around longer but again could start to penetrate the general aviation market after recent impressive test results.

As AGlaze cures, it bonds to the substrate, creating an ultra-thin, uniform protective layer. In wind tunnel tests carried out at the Aircraft Research Association last May, an aircraft model treated with the product showed an average reduction in profile drag of 1.3% at an airspeed of mach 0.8.

This exceeded results achieved in an in-service trial by low-cost carrier bmibaby, which achieved a 0.8% airframe improvement (as measured by Boeing's Airplane Monitoring System) over a six-month period after treating a B737 with AGlaze. The product's European distributor Airbourne Colours, based at Bournemouth Airport on the UK south coast, is a commercial aircraft painting specialist founded in 2010 and exhibited at this year's Farnborough Airshow. Andrew Tarry, sales and marketing manager, said the company is now targeting operators of business jet fleets. ●



The clearcoat contains special resins needed to provide UV resistance and durability.
Photo: Sherwin-Williams

Broadening the base

Maintenance companies have turned into providers of multiple services at multiple locations. And the market leaders have never been more in demand, reports Martin Roebuck

Arrangements for maintenance of executive aircraft are moving on to a new level as leading players expand their operations globally, seek approvals from additional registries and widen their range of activities. There is perhaps no better example than AMAC, whose competencies range from single-engine turboprops to widebodies and which has just set up outside its home base of Switzerland for the first time.

AMAC is a relatively new player in private, VIP, and corporate aviation services, established only in 2007. But its four founders – who left a rival concern to launch the business – have long expertise in aircraft maintenance and completion. The name was chosen because the same four letters stand for Aircraft Maintenance and Completion (AMAC Aerospace, based in Basel) and also, fortuitously, for Aircraft Management and Charter (AMAC Corporate Jet, in Zurich).

AMAC is an approved completion centre for Airbus and Boeing, carrying out completions on the Airbus A320 series, A330s, A340s, Airbus Corporate Jets, Boeing Business Jets, B777s and B747s. When it comes to base and line maintenance, the company covers the market virtually from top to bottom. It has part 145 approvals for Pilatus, Gulfstream and Global Express aircraft (including the XRS and Global 5000), the A320 family, A330, A340, BBJ, B777 and MD-80, with approvals pending for the B747-400 and B747-8i.

Group COO Bernd Schramm says: "We saw a new niche. The market demand was there and the timing was right. We started up six or seven months ahead of the banking crisis, so funding was still available! In Basel-Mulhouse, we found an airport where there was enough space to build a private facility.

"We took a 35-year land lease agreement

AMAC Ignaz Gretener (left), VP of the general aviation business unit at Pilatus, presented AMAC CEO Kadri Muhiddin with a traditional Swiss Cowbell at the Airex exhibition in Istanbul to commemorate the Middle East sales, distribution and maintenance agreement between the companies

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AMAC Aerospace has three hangars at Basel-Mulhouse

with the airport and built a two-bay 4,500sq metre hangar initially. Soon after we built a larger 8,400sq metre unit that can accommodate a B747, a B777 and a BBJ at the same time," Schramm says.

A third facility, also of 8,400sq metres, was inaugurated in September. It makes AMAC Aerospace the world's largest privately owned completion centre, and second among all its competitors. Completions account for around 65% of the company's work, and it has a two-year backlog on its order book, but it is looking for a 60:40 split between completions/refurbishments and maintenance.

"Most completion centres don't provide maintenance. The issue is not that there's a lack of capacity currently, but we assume there will be once the aircraft currently being completed have been handed over," Schramm says. Executive aircraft demand a different handling procedure, so a dedicated facility will be needed, he comments.

AMAC is equipped to provide simultaneous maintenance, refurbishment and aircraft modifications in a single downtime period. This requirement is nothing new, of course, and many MROs hold the respective part 145 and part 21 approvals. "It's always been the case that if an aircraft is undergoing a six or eight-week check, you look at what you should be doing in the cabin," Schramm says. The trick is to efficiently project-manage the work so the aircraft spends the minimum time on the ground.

BBJs will be a particular focus of attention as the oldest aircraft reach 12 years old, he predicts. "There will be a lot of work replacing cabin management and entertainment systems as these have evolved so fast. It falls in the grey area between maintenance and completion, and involves both design and production teams. We have full in-house capability for this refurbishment and modification work," Schramm says.

AMAC's rapid growth during a time of worldwide recession is no accident. Its co-founders were recognised industry experts with extensive networks of contacts.

"Customers, or more often their representatives, know you by name – and not just you, but the engineering director, the project management team and even the aircraft supervisors. They know you're capable and strong," Schramm says. "VIP aviation is a small market, especially where high-end projects and widebodies are involved. It's about personal relationships more than marketing or sales activity."

The reputation of AMAC's founders enabled recruitment of skilled personnel (the company today employs 550) without recourse to headhunting. Basel is well located in the so-called "three country corner", meaning AMAC could draw from France's Alsace region and south-west Germany as well as Switzerland. The area has a good pool of craftsmen and the crisis in the car industry, which is present in the locality, made for a useful source of skilled labour.

Beyond Europe, AMAC is approved by the authorities in Aruba, Bermuda, the Cayman Islands, Saudi Arabia, Qatar, Oman, the UAE, Cameroon, Nigeria and Chad to carry out maintenance operations in Switzerland. As well as developing its profile there, however, the group – which also sells aircraft – is also expanding geographically. It launched an Istanbul-based subsidiary, AMAC Turkey, in September after acquiring a sales and service centre at Ataturk Airport.

"We have good contacts in the Middle East, and the biggest part of our client base is there," Schramm says. "We signed an exclusive Middle East sales and distribution agreement with Pilatus at the beginning of this year. Part of the deal was that we would provide maintenance in Turkey, and we are seeking EASA part 145 approval for Pilatus."

Initially, Istanbul will service only Pilatus PC12-NG aircraft, but AMAC hopes quickly to build on this, avoiding the need for Middle Eastern operators to travel further into Europe for maintenance.

"We will look for different aircraft types to maintain there," Schramm says. "It's a smaller facility than we have in Basel, with just 1,500sq metres of hangarage, but we could handle small business jets up to Challenger or Dassault Falcon level. Some models have only limited coverage in the region, and we are analysing where additional support is needed."

Saudi vote of confidence

Flying Colours Corp, established in 1989, has been in existence rather longer than AMAC but is on a similar expansion path. Initially specialising in aircraft sale and lease, the company has become a global leader in all aspects of aircraft completions, refurbishment and maintenance from its base at Peterborough in Ontario, Canada. Its acquisition in 2009 of JetCorp Technical Services, based in St Louis, Missouri – which itself had been in business for more than 25 years – further cemented Flying Colours' position in the MRO sector.

The company holds maintenance approvals from Transport Canada, the FAA, EASA and the authorities for the Cayman Islands, Aruba and the Isle of Man. A prestigious new addition came in September when Saudi Arabia's General Authority of Civil Aviation (GACA) gave its approval for Flying Colours to carry out maintenance at Peterborough on aircraft registered in the Kingdom. The company is now authorised to undertake continuing airworthiness and maintenance work on a wide range of aircraft, including the full Bombardier Challenger range, the Global Express and the Dassault Falcon family, which are popular in Saudi Arabia and across the Gulf region.

Eric Gillespie, executive VP, sales and marketing, says Flying Colours aims continuously to upgrade what it offers, but the process of gaining an approval can vary enormously from one jurisdiction to another.

"Aruba and the Isle of Man were relatively straightforward. They go over your facility and

manuals – sometimes remotely – but essentially they want to work with you," he says.

In other cases, it can take several months to tick all the boxes, even if all that is required is minor amendments to the content and format of existing EASA or FAA manuals. GACA "reviewed everything very strictly," Gillespie says, and the company has been in dialogue with China's CAAC for a year so far.

"Our quality assurance official was over there for a week, and there are only three or four times in the year when you can do that. Some approvals take longer than others and it's just a procedure you have to go through. But with the new Bombardier completions we have done for the Chinese market, we felt it was a good thing to have maintenance approval for Chinese-registered airplanes. I hope we will get there by the end of this year or early 2013," he says.

Flying Colours looks to act as a one-stop shop for its clients and tries to combine jobs on a single schedule as far as possible. "The longer a plane sits on the ground, the more it costs," Gillespie says. There is parallel expertise in Peterborough and St Louis when it comes to maintaining Challengers and Globals, but JetCorp takes care of heavy maintenance on Learjets while Flying Colours is more focused on refurbishment and currently carries all exterior paintwork.

This can mean occasional shuttling between the two facilities, which are 1,800km apart. For example, a Learjet 60 recently had some maintenance and interior refurbishment carried out at St Louis, was flown two hours up to Peterborough for repainting and then returned to St Louis for redelivery.

A regular two-day truck service also moves parts and fittings between the sites. "If we're full here [in Peterborough], cabinetry can be built up at JetCorp," Gillespie explains.

The key is to improve efficiency without creating too much duplication. In recent months, Flying Colours has looked at expanding hangar capacity at St Louis and incorporating a paint shop there, though Gillespie says no final decision has been made on this yet.

The company's perspective has become more international in line with the market. "Five or six years ago we were probably handling 70% North American-based aircraft. Now it's 40% North American and 60% international."

It is probably this factor that has seen an accelerating rate of consolidation in the maintenance sector as long-established "mom and pop" businesses have failed to adapt to clients' more sophisticated requirements. Gillespie observes that a number of paint shops have closed in Canada, for example. "They couldn't compete for whatever reason."

There has been a trend towards component suppliers acquiring smaller competitors in recent years in the search for increased global share and the MRO market is now mirroring those changes, he says.

Experienced maintenance workers have been back in the labour market in the US following the closure of facilities in Wichita, Little Rock and elsewhere. Meanwhile the Peterborough facility, which can draw from labour pools in Montreal and Toronto, has benefited in the same way as AMAC in Switzerland from the slowdown in the automotive sector. GM and Ford have both laid off skilled workers who may have a relevant background in upholstering or wiring.

From time to time, Flying Colours re-trains people who have lost employment elsewhere, whether in similar or entirely unrelated businesses, and Gillespie says the company is looking to restore the programme in 2013.

It's more relevant to the completions side of the business than maintenance with its higher level of technical know-how, and there's no guarantee of a job at the end of the six-month course. But he says the company has hired up to 70% of those who took previous courses, and around half of them stayed on for the long haul.

Total duplication not needed

The civil aviation authorities for Aruba and UAE approved Rizon Jet in Doha, Qatar, as a business aircraft maintenance organisation in September. The additional certifications continue the company's rapid expansion of its international capability, following the Bermuda Department of Civil Aviation's approval of the facility earlier in the year.

Rizon Jet's bases in Doha and at Biggin Hill in London now both have EASA, Qatar, Aruba, Bermuda and Cayman part 145 approvals, alongside FBO, charter and aircraft management operations.

The company is certified to maintain a range of Hawker, Bombardier Challenger and Global types at both locations, but Mike Clarke, its new Doha-based director of technical services, says complete duplication would be a wasteful strategy since fleet make-up and customer requirements differ so much between the two regions.

Mike Clarke says Rizon Jet's Doha operation is well positioned to provide clients across the Middle East and in Asia with MRO services

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For example, Rizon Jet this year added line and base maintenance for the Learjet 45 and Challenger 300 at Biggin Hill, but is unlikely to offer Learjet 45 capability in Doha.

"If a company wants to try you out on a Learjet but also has Airbuses, Challengers and Globals, you want to know if they can commit some of their other aircraft to you as well," Clarke says. "If they won't, you have to ask, what would it take for us to do one new type? Can we get the manuals and do the cross-training?

"We're a fairly new company and trying to establish ourselves in the markets we're geared for, the Challenger 604, the Global Express and Hawkers. We have a wider range of certifications in the UK than here in Doha. We did study how much the Learjet 45 would cost, but there are very few over here."

Rizon Jet's 4,000sq metre MRO facility in Doha can accommodate eight business jets in its two bays, and Clarke believes the operation is well placed geographically to exploit business opportunities across the Middle East and in nearer parts of Asia, "We should be looking for Asian registers. There's definitely a market," he says.

The company is looking to mirror its EASA part 145 approval to handle an enquiry that recently came from Pakistan for support on a Challenger.

"They would pay to come over and do the audit," Clarke says. "The customer would organise this on behalf of the Pakistani authorities. If they were happy with the customer's report, they would give temporary dispensation or just OK us on the basis that we meet European standards. We're doing the same in Bahrain and we have also had enquiries from Jordan."

Rizon Jet is seeking relevant Saudi approvals as it negotiates with a number of prospective clients there, but Clarke agrees with Flying Colours' Gillespie that the bureaucracy can be challenging there. "You need a man on the ground to pester civil aviation."

One segment the company has definitely ruled out, though not through lack of interest on its own part, is US-registered aircraft. "There's demand, but we have come up against a stumbling block because the FAA is not auditing companies any more. They haven't got the resources," Clarke says. "So when we know an aircraft is on the N register, we don't pursue it."

Discussions in SR Technics' VIP workshop. The company aims to combine cabin refurbishment with maintenance to minimise downtime

Benefits of doubling up

Like most larger completion centres and MROs, ST Aerospace aims to combine procedures at its main base in San Antonio, Texas. STA, which has FAA, EASA and Bermuda part 145 approvals, has more than 70,000sq metres of hangars, repair shops and paint facilities on San Antonio International Airport, providing maintenance and modification services across a wide range of VIP and commercial aircraft.

Ron Soret, general manager of completions, says that as BBJs from the early 2000s come in for heavy maintenance checks, STA can also schedule structural modifications, avionics upgrades, interior refit and reconfiguration.

Although STA largely works primarily with commercial airlines, Soret says business jet owners and operators increasingly value the company's competencies and experience. Not least in today's uncertain climate, it offers financial stability.

SR Technics recently carried out the complete cabin refurbishment of a VIP aircraft for a Middle Eastern customer, in parallel with a heavy maintenance C-Check. It was the company's second project for the government client, and combining the two tasks at its new VIP facilities in Zell, Zurich, allowed the downtime to be kept to a minimum. Redelivery, in mid-August, was on the exact date defined at the start of the project.

"The newly installed carpeting and flooring as well as the reupholstered seats add a luxurious modern look, touch and feel to the interior," SR Technics says. "Handcrafted new furniture and cabinets optimise cabin space and functionality, using VVIP standards and finishes.

"Behind the scenes, a full systems modification was performed, including an upgrade of the satellite communications system. At the same time, the IFE system was enhanced, replacing current equipment with industry-leading technologies and high- definition monitors."

André Wall, president of SR Technics, says the company took over the oldest hangar at Zell and renovated it to create a dedicated, isolated, secure facility, adding a lounge that the customer "owns" while work is carried out. Thus they can monitor progress at any time.

Wall predicts growing demand for high-end services and says the company's expanding MRO operation in Malta, which received FAA certification in July to go with its EASA approval, will open up additional capacity at its main Swiss base.

But where SR Technics differentiates is through its people rather than its square meterage, he emphasises. "A hangar and equipment, everyone can have. Skills, they can't. We have 200 employees going through four-year apprenticeships and we have a culture of continuous improvement here. People are not going to be saying, 'I can do this cheaper in Indonesia'.

"We don't need to have our books filled beyond two years," Wall sums up. "You run the risk that the client gets bored, or feels he is not the number one priority on a smaller job." ●

Champagne is a little flat

GA airports around London benefited from the big summer of sport, but by less than had been predicted

The surge in general aviation activity predicted by the UK Civil Aviation Authority and air traffic control agency NATS during the Olympics did not materialise. Traffic through most of the dedicated business terminals on the perimeter of London was up, but not as much as expected.

Although Heathrow was barred from accepting ad hoc flights during the slot-restricted 26 July-13 August period, a number of Olympic delegations – and one major sponsor – chose to fly via London's main hub in first class on scheduled services instead of chartering aircraft. Despite this, with many regular tourists choosing to stay away unless they had a particular interest in the sport, Heathrow's throughput was slightly down on usual for the time of year. There was one peak day when it handled almost 250,000 passengers, but the airport's temporary Olympic facility coped well enough.

Richard Koe, MD of business aviation analyst Wingx Advance, told the Business Aircraft Europe 2012 conference at Biggin Hill in September that London's GA airports managed to reverse their recent downward trend. But the year-on-year improvement of 2% in July and 13% in August fell some way short of what operators had hoped, and the figures were well below the equivalent months in the boom years of 2007 and 2008.

There were 2,468 IFR departures from 26 July to 13 August, 26% up on the same period in 2011, with the predicted large spikes coming the day before the opening and the day after the closing ceremonies. The ratio of two-thirds charter flights to one-third private was little changed from the same period in recent years, Koe said.

Biggin Hill used a subsidiary runway to park aircraft during peak periods

Heavy jets (20.5% market share, 43% up on 2011) and ultra-long range jets (17% share, +88%) were the dominant segments and saw the greatest year-on-year increase, with Citation XLS, Hawker 700/800 and Gulfstream 500 aircraft leading the way.

Stansted was the biggest beneficiary of the Olympics. During the critical 19-day period, the airport saw 261 business departures, with a sharp increase in private flights. Koe said Stansted had acted as the main gateway for North American traffic, which grew more than threefold to account for 22% of the airport's departures. Bangor International, White Plains, Teterboro and Hanscom Field were all among its top 10 destinations for the period.

Eastern European traffic jumped 12-fold to take a 9.5% share of Stansted departures, though Western Europe still accounted for more than half of Stansted's GA traffic, increasing by 76%. Luton's growth was smaller in percentage terms, but coming from a higher base, it recorded the most movements during the Olympics by a significant margin (see table).

Commenting on the Olympics overall, Koe said: "The figures were below expectations but it stopped the rot, reversing the decline seen in the first and second quarters. This applied to a lot of business expectations, not just aviation."

Air traffic management, which had been the subject of some concern in the lead-up to the Games, held up well despite the pressure on airspace over the UK south-east, suggesting that the requirement to pre-book slots had been successful.

Customer service had been good, so those who had visited the UK for the first time may return in future. The Olympics had proved that a major sports event did not guarantee success, but London would stay on the map as an attractive business and leisure destination, Koe said.

GA traffic for the UK as a whole was around 4.5% up in July and August than for the same two

months in 2011, in contrast to her near neighbours. However, business aviation traffic in France, the leading market in Europe, saw a 0.1% increase in July offset by a 1.2% fall in August. Germany, Europe's largest economy, saw respective declines of 7.7% and 2.8% in the two months.

Corporate uptake

Robert Walters, business development manager at Biggin Hill, says the airport handled far more large corporate jets than usual during the Games, including several BBJs and many Global Express and Gulfstream aircraft. Gulfstream positioned an engineering support team on site for the duration of the Olympics. The airport also handled regular corporate charters from Europe, operated by ATR-42 and -72 aircraft.

The slot system worked well and 1,300 slots were taken between 21 July and 15 August. Biggin Hill saw growth of 12.5% for the month of July compared with the previous year. "Our busiest hour was on the morning of Saturday 28 July, with 16 outbound and four inbound jets," Walters says.

During the peak period between 26 and 29 July, 80 corporate aircraft were parked on ramps around the airfield and on the airport's subsidiary runway, where a remote drop-off facility was established. The terminal hangar was full throughout the period, with types ranging from Sikorsky S-76 helicopters to BBJs.

Walters says: "We have been encouraged by the number of new customers using the airport for the first time, approximately 12% of the total. The logistics required for the Games has brought us extended capabilities and new ideas. Our task now is to build on that legacy."

London Oxford filled more than 600 business aircraft slots the slot-coordinated period. "We didn't see the Olympics-specific traffic we expected but we got volume in the two weeks beforehand, especially heavy jets, when Luton became overstretched," says business development director James Dillon-Godfray. "Luton sold out of parking space [at its FBOs] and customers had to park at the main airport at a significantly higher price or look for overspill locations."

Heavy jets, including Gulfstream IV/550, Global Express and Dassault Falcon 7X aircraft, took more than 50 slots at Oxford, compared with just 18 over the same period last year. The airport received its first BBJ following recent strengthening of the runway, and the aircraft stayed for 10 days.

"Two years ago, we all thought it was going to go crazy," Dillon-Godfray says. "We were asking whether we should recruit additional staff and bring in extra fuel bowsers for an anticipated 300% increase in traffic. When we saw the slot bookings, we could see it wasn't happening. August was relatively quiet, though we saw some outbound traffic as people left the UK."

The Barclays London Heliport, now under the single ownership of the Reuben Brothers together with London Oxford Airport, did see an Olympic dividend with bookings 160% up on a year earlier. But again, many regular users avoided the facility during the period because of their inability to file the required flight plans in advance. "The whole point of the heliport is that it gives you the flexibility to do what you want at the last minute," Dillon-Godfray says.

Brandon O'Reilly, CEO of TAG Farnborough Airport, says movements have been in line with last year, despite the double bonus of the Farnborough International Airshow ending just 12 days before the Olympic opening ceremony.

The airport strove to provide good first and last impressions of London during the Games. "We were busy, particularly with Heads of State and IOC member flights," O'Reilly says. "Our service was seamless, with much positive feedback from our VIPs. Our new infrastructure, including hangars, apron and arrivals lounge, was also well received."

Sean Raftery, UK MD for Universal Aviation, which has just rebuilt its FBO at Stansted, says: "Projections ahead of the Olympics were for a Beijing level of traffic plus a percentage, but a lot of airports were flat or down. Corporates were put off by the complexity of the slot system. Some operators tried to hedge their bets by covering multiple needs, but were found out."

Europe's overcapacity

There was a decrease of 2.2% in GA traffic across western Europe in the first quarter of 2012, steepening to a 5.8% decline in Q2. In his presentation at the BAE conference, Koe predicted a modest recovery to 678,000 IFR departures for the full year, a 1.3% fall from last year's total.

"Light and medium jets have been hit hardest," Koe said, citing a particular decline in Cessna and Hawker Beechcraft traffic. Heavy jets performed reasonably and the VLJ segment was also robust, thanks largely to Embraer's success, from a small base, with the Phenom.

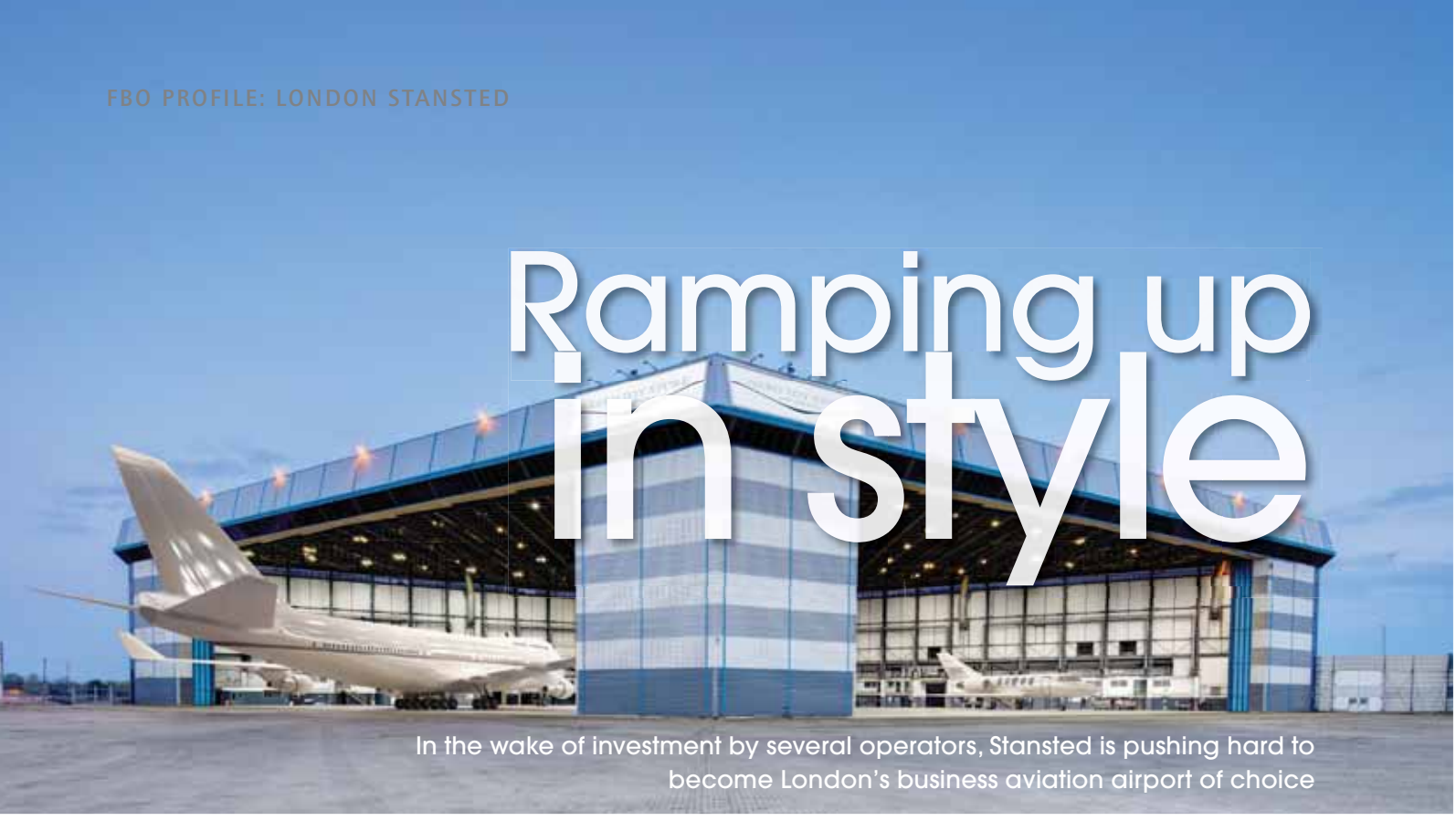
A delegate suggested that with 2,400 aircraft in the hands of 930 operators, there was enormous overcapacity in Europe and consolidation was necessary.

"I can't see that many of them have a business case," Koe said. "I foresee at least two more years of severe pricing pressure. As small companies fail, the bigger ones will see economies of scale that will make their businesses viable." ●

BUSINESS DEPARTURES FROM LONDON AIRPORTS, 26 JULY-13 AUGUST 2012

AIRPORT	TOTAL	MARKET SHARE	Y-O-Y TREND	(PRIVATE)	(CHARTER)
Luton	734	29.7%	+33.7%	+36.3%	+31.4%
Farnborough	534	21.6%	+15.8%	+30.1%	+10.0%
Biggin Hill	423	17.1%	+60.2%	+38.6%	+73.5%
Oxford	300	12.1%	-9.9%	-4.3%	+19.5%
Stansted	261	10.6%	+153.4%	+260.0%	+79.1%
London City	142	5.8%	+8.4%	-35.7%	+12.3%
Blackbushe	40	1.6%	+5.3%	+20.0%	-8.7%
Gatwick	34	1.4%	-2.9%	-11.1%	+4.3%

Source: WingX Advance



Ramping up in style

In the wake of investment by several operators, Stansted is pushing hard to become London's business aviation airport of choice

This year has seen some serious FBO activity at London Stansted, with the opening of both new and refurbished facilities. Aero Toy Store, one of the best known names in business jet trading in the US, chose the airport as its entry point into Europe. Fayair, a new venture by former Harrods department store owner Mohammed Al-Fayed, has developed an FBO, available to third-party clients for the first time, at a reported cost of £12 million.

Last but not least, Universal Aviation – based for 25 years at Stansted in what was only designed as a temporary building – has inaugurated a new look, state-of-the-art FBO that it now describes as its European flagship. The three new and upgraded operations sit alongside existing FBOs Harrods Aviation, which is present at both Stansted and Luton, and Inflite the Jet Centre.

Aero Toy Store took over the massive Diamond Hangar, formerly occupied by SR Technics, and redeveloped it as a 23,000sq metre one-stop shop combining four separate functions. In addition to its role as one of the single largest VIP passenger handling facilities in the world, the site is also licensed to carry out completions and interior refits in association with Italian automotive designer Pininfarina (ATS has existing completion centres at its Fort Lauderdale headquarters and in Montreal); it further claims to be the only FBO in Europe that can handle line maintenance up to B737 size; and finally, it will sell aircraft like its US parent.

Indeed, the jet showroom could also display luxury car marques such as Lamborghinis and Ferraris alongside the aircraft, reflecting founder

ATS is targeting the VVIP and large widebody end of the market at its first European facility

Morris Shirazi's first passion. He set up Aero Toy Store in 1993 as a sideline to finance aircraft for customers of his Auto Toy Store, which deals in luxury cars. Air overtook road to become the larger part of the business and ATS now claims to be the world's largest trader in pre-owned corporate aircraft.

Industry veteran Mike Foley, MD of Aero Toy Store Europe, says: "Stansted has been a poor cousin to Farnborough and Luton and has not really promoted itself, but it offers exceptional flexibility, 24-hour operations and no congestion." He promises "a better experience than Luton".

ATS is actively targeting the VVIP and large widebody end of the market. The hangar can house two B747s alongside one another, or up to 25 smaller business jets, and there's secure ramp space for 50 more aircraft.

The facility is positioned well away from Stansted's other FBOs, on the opposite side of the airport, with onsite customs and immigration services including passenger screening as required. ATS offers a dedicated concierge service and 10-minute helicopter transfers to London.

"We have our own ramp access and it's us who man the gate," says ground operations manager Iain Fountain. "So cars can be available to pick up clients airside immediately on arrival, or they can come into the VIP area as they wish."

The deal to acquire the facility was not completed until April, and it proved impossible to complete its conversion in time for the Olympics, though ATS did receive the entire Kazakhstan delegation on the eve of the Games. The group, headed by president Nursultan Nazarbayev, arrived on an A330. "We're of a size that can cope with government departments and heads of state," Foley says.

A charter operator typically picks an FBO on price, while VIPs pay more attention to the quality of the experience, Fountain emphasises. ATS has spared no effort here, providing 1,600sq metres of main lounges plus five private lounges/meeting rooms. Amenities include five-star dining, a boutique and a fitness studio.

Pilots have the use of high-specification rest and catering facilities for short turns of up to five hours. On longer stopovers, they would normally expect to transfer to a local hotel, but the aim is to encourage them to stay on site. "We want to make this a VIP experience for them as well as for the customer," Fountain says.

Universal Aviation meanwhile officially inaugurated its completely renovated 1,000sq metre FBO in September at a celebration where clients and airport officials sampled a new Lebanese menu.

The refurbishment includes all-new crew and passenger lounges, showers and changing rooms, a state-of-the-art business centre and video conferencing facility, two client meeting rooms and private screening facilities. International designer Adriana Hoyos remodelled the interior to create a relaxed and sophisticated environment for travelling passengers and crews.

The facility was also been improved externally to complete Universal's aim of offering a seamless transition, and first-class

ground support, to all visiting aircraft.

"Unlike other European cities, operators travelling to London have many airport options," Jonathan Howells, regional VP Emea, said at the opening. "We felt it was important to upgrade our facilities to meet the changing profile of our customers, many of whom make quick short-haul flights to the London area and require more amenities for both crew and passengers.

"Having an enhanced facility at Stansted is fundamental to meeting the needs of our customers in the region and globally, as it is not only home to our ground support business, but also to our 24/7 European operations centre, which offers trip facilitation within Europe and globally," Howells added.

Universal chairman Greg Evans, who also attended the inauguration, said the project was just the latest of several major investments in Europe.

"In the last two years, we've added locations in Venice and Girona, bringing our total in Europe to 11. And, through the acquisition of Air Culinaire, we now have two owned kitchens in London and Paris to better meet the in-flight catering needs of our clients," Evans said.

Universal chairman Greg Evans (with scissors) declares the refurbished Stansted FBO officially open for business

He believed there were great opportunities in the London market and saw Universal acting in a hand-holding role. "We want to partner with our customers, not just be a vendor. And we want to make sure our customers achieve their missions," Evans said. "The wheels fall off not when you're at home, but when you're away."

Howells told *EVA* that Universal had a 40% share of the Stansted market, averaging 100 movements per month excluding based aircraft. The company took a conservative approach to the Olympics but it was "excellent for us," he said, with 130 more movements than usual during July and August ●

Fixing a broken business model

Stratajet says conventional flight quoting tools fall way short of requirements. Its new pricing engine promises a definitive rate in seconds, taking into account the 14 variables that can influence what the client pays

"Imagine that we've just invented the business jet," muses Jonathan Nicol from his office in London's Finsbury Square. "The hardware is sophisticated, sleek, loaded with technology, all manner of digital control and optimisation. But on the ground there's no technology, no software to help operators sell trips on the aircraft. They're still using the telephone and e-mail to get things done."

Like many industry realists, Nicol – an RAF and Army pilot, now on his third tech company as founder and CEO of Stratajet – believes the current charter model is broken, or at the very least has not kept up with change elsewhere: it's fragmented, it's slow (who wants to wait up to two days to get a price?), prone to error and inconsistent.

There is little choice and no transparency, he argues – something that end users now demand, because most other industries provide it willingly. And worst of all, it's inefficient – 40% of charter legs fly empty. What other industry throws away a third of what it produces?

You need only look around for the evidence of decline. Charter companies are struggling or ceasing operations, and investors are pulling support from service providers. Governments impose ever more taxes and levies. Some of the crisis relates to the recession, but it would be wrong to think that a business uptick will solve the industry's problems.

The disconnect between stunning bizjet technology and a broken, outdated business model is what drove Nicol to develop Stratajet, an integrated package of advanced software that will create an efficient market by balancing supply and demand.

Charter operators will provide the supply by committing their aircraft to the Stratajet pool. Operators are still free to set all parameters for use of their aircraft, such as additional costs and availability limitations. Demand will come from an easy-to-use website. Instead of phoning intermediaries, the travel managers, PAs, or direct customers will be able to enter all information relevant to their journey, in order to filter, search and compare combinations of airfield and aircraft options, depending on what they value: speed, comfort or price.

Sneak preview of Stratajet's booking system: bringing transparency and choice to booking private aircraft

Lots of brokers and charter companies have a flight quoting "tool" on their homepage, resembling those on airline or price-comparison websites. Where Stratajet differs is that behind its consumer-facing website is a sophisticated pricing engine that calculates the precise cost of a flight between any two airfields, in any aircraft, at any time of day, 365 days a year. The Stratajet software links 14 different variables such as landing fees, handling charges, noise and emissions levies, and of course fuel burn. A process that could currently take days is done in seconds. Now customers receive much more than a quote – they are able to book an aircraft at a fixed price.

By using an advanced routing algorithm, Stratajet will solve the problem of empty legs, which Nicol claims will give charter operators much more profit than before. Stratajet's model provides flexibility lacking in other solutions, matching aircraft movements to customer requirements rather than the other way around. For example with an empty leg from Madrid to London, and a request for a flight from San Sebastian to Paris, Stratajet combines scheduling information with the routing and pricing engine to calculate operator costs and pass on empty-leg savings.

Many other companies purport to have solved the empty-leg problem, but often their approach and limited technical capabilities have actually exacerbated the situation. Instead of fostering efficiency and transparency, their offerings narrow choice and squeeze operators. Stratajet believes its solution will save the industry time and money.

Breaking the circle

"They said building a virtually instant pricing calculator couldn't be done," Nicol says. "People with massive finances, including Virgin Charter, tried but gave up." Stratajet persevered, spending two years and committing significant resources, to develop the solution. "We have finally broken the vicious circle of 'it's hard to do, so we won't do it'."

It's clear that the industry wants a solution. When Stratajet first floated the idea to industry experts, the reaction was almost universally positive.

Nicol has a track record of bringing innovation and efficiency to organisations that urgently need both. In 2008, he convinced the Ministry of Defence to hire his small company to build a digital personnel database to replace records that had been kept on paper since well before Wellington's time.

"They told me that's the way they had always done it," he says. "I simply replied that the status quo was not the answer." Not only did the new system save massive amounts of money, but it enabled the forces to identify patterns that were invisible in a paper-based system.

One of Stratajet's unique features is that trips are planned from postcode to postcode, rather than airport to airport. How many times have charter passengers spent more time in the car, stuck in traffic to or from an airport, than in the air? The company's advanced routing techniques find the shortest overall combination of car plus jet plus car, from true origin to true destination, using real-time ground travel time, rather than actual distance. Nicol has long considered the airport focus symptomatic of an operator, not customer-centred business.

For example, during the Olympics, a traveller wanting to go from Notting Hill, just west of central London, to St Moritz received a number of quotes from Biggin Hill to Samedan, whereas Stratajet routed the passengers from Fairoaks to avoid the likelihood of heavy traffic, put them in a smaller aircraft and saved more than 150 minutes in travel time. "Isn't the whole idea of private aviation to save time? Nicol asks.

Stratajet understands that it's not just about technology. Behind its software is an experienced operations team that will collaborate with partner operators to ensure total quality and the highest standards. Stratajet's ops team will provide comprehensive support, from proactive weather monitoring (in the Samedan example above, when summer storms threatened the planned airfield, Stratajet suggested minor re-scheduling that saved the client three hours) right down to the small but vital details like the passengers' desired vintage or dietary preferences.

Charter companies invited

As an integral part of its first phase, Stratajet is selecting charter companies to provide a supply of aircraft, seeking a broad mix of equipment size and capability. It's entirely risk-free. Operators can commit some or all of their fleet, and of course retain operational control.

The information Stratajet needs is basic:

- aircraft performance, noise and emissions data;
- schedules for each aircraft; and
- desired revenue for the flights Stratajet books.

To eliminate duplication, the company will integrate with charter operators' scheduling software, to obtain schedules automatically. Two are leading the way: the link to Leon Software has already been built, and others, including Airops, are underway.

In early 2013, after aircraft supply has been built, Stratajet will begin to promote its customer-facing website, where PAs, travel managers and end users can quickly and easily book a flight. First tackling the European market, Stratajet plans to extend its coverage worldwide over the course of the year.

The company has built a phased marketing plan to ramp up demand gradually, to prevent the "swamping" problem that would damage everyone.

"Our marketing campaign will be driven as though we've just invented the private jet," Nicol explains. "If you had something as cool as that, you'd want it to be visible to the target market, and that's precisely what we plan to do. And greater visibility will mean greater revenue for our operator partners." ●

Stratajet's pricing engine calculates the precise cost of a flight between any two airfields, in any aircraft at any time of day, including the cost of operating, handling and parking any aircraft at any airfield

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Alpine gateway bucks the trend

Europe's biggest business aviation market has struggled this year, but Lyon-Bron appears to have struck a winning formula and has ramped up its investment programme

France saw a 1.7% increase in business aviation departures in the first quarter of 2012, to 24,945, but the second quarter saw a strong reversal, by 5.3% to 30,512 departures, according to figures collated by analyst WingX Advance (see also pages 46-47). This mirrored the trend, anecdotally confirmed by charter operators, of worsening Q2 levels of industry activity in Switzerland, Italy and Spain.

French remains Europe's leading business aviation market, and Paris-Geneva, Nice-Geneva and Paris-Cannes all appear in the top 10 charter routes. Analysis of private flying patterns show Paris-Geneva and Nice-Geneva again featuring in the top 10, together with Nice-Moscow, the biggest European route of all, and London Luton-Paris Le Bourget.

Overall French business aviation departures were measurably higher only in February (+2.3%) and March (+3.8%) during the first eight months of 2012, with July a whisper ahead at +0.1%. Otherwise the year-to-year trend was downward.

However, the consultant's analysis of individual airports shows significant differences among the French market leaders. Paris Le Bourget lost 5.7% of its 2011 traffic in the first half of this year and Cannes was 3.6% down, while Nice edged up by 2.6% compared with the previous year.

The big winner was Lyon-Bron Airport, which recorded an increased in business aviation traffic of 7.4% in the first half of 2012 compared with the same period last year.

This represented a welcome turnaround following a decrease of 6.1% to 6,308 business movements in full-year 2011 (counting both arrivals and departures), a reflection of less favourable conditions in the French and wider European economy. However, Lyon-Bron had recorded 68,091 overall movements in 2011 including scheduled carriers, a growth of 1% over the preceding year.

Dumas: cautiously confident about 2013 after a year of growth

The winter season is generally busier for Lyon-Bron, says airport director Eric Dumas, because of the airport's proximity to the Alps. A particular spike occurs over the Russian Orthodox Christmas period, and 4 January was the biggest single day this year so far, with 57 GA movements.

If the upturn continues, total activity through the airport this year could get back close to the record level of 69,984 movements achieved in 2008.

The top year for business movements (7,191) was 2007, so like most European airports Lyon-Bron has a little way to go to regain its pre-recession peak. But an interesting and potentially lucrative rebalancing of the airport's GA traffic has become apparent.

The top domestic French airports to and from which Lyon-Bron customers travel are Paris Le Bourget and Cannes, while in Europe the leading individual destinations are still short-haul: Geneva, Milan and Zurich. Outside the EU, Moscow and Kiev head the list.

The mix of domestic and international flights is changing, however, with international traffic reaching half of the total in 2011 compared with just 34% the year before. The share of non-EU traffic increased from 20% in 2010 to 32% in 2011.

These figures align justify the airport's effort to increase its visibility among North American operators by joining the NBAA, the first French airport to do so.

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The aircraft profile is changing in line with the longer sectors customers are now flying. Lyon-Bron recorded a sharp rise in mid-range and long-range jets (up 10.8% and 9.4% respectively) in 2011. By contrast, short-range aircraft saw a 15.9% decline.

"This trend towards large business jets confirms that we need to adapt our infrastructure to meet the requirements and expectations of our customers. That's why we have stepped up our investment programme," Dumas says.

A dedicated business aircraft maintenance facility will be completed by the end of this year and a second new hangar, designed to accommodate aircraft up to BBJ3 level, is scheduled to come into service by January 2013.

Lyon-Bron also decided to groove its runway in compliance with FAA standards – again the first French airport to do so – and plans to refit its FBO.

"Business aviation traffic remains low, reflecting the economic situation. However, with all our investments this year we are confident for 2013," Dumas says.

The Lyon-Bron team are focused on meeting passengers' service expectations

"Our positioning as the only business airport in the Rhône-Alpes region sets us at an advantage. Our professional and efficient team and cutting-edge facilities meet both passengers' service expectations and and the most demanding safety requirements."

Italy's new taxation policy on aircraft parking is also likely to increase Lyon-Bron's appeal this winter, Dumas concludes. "We are more than ever an alternative platform for customers who wish to park for a long period, and will be pleased to host them during their vacation in the Alps." ●

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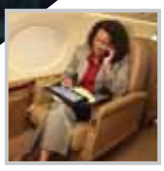

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