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SPRING 2015



Christopher R. King

founder of Cruzach, Inc

Special Reports: The EVAA Future of Business Aviation Conference and Exhibition highlights • Engines • Paints • EVAA's MEBA Beach Party

Company Profiles: James Raisbeck, CEO Raisbeck Engineering • John Wade, executive VP Gogo Business Aviation
Shawn Vick, Chairman, Global Jet Capital • Marc Foulkrod, Chairman & CEO Avjet

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first thought

China slowdown might have its up-side

At EVAA's February Future of Business Aviation Conference (see the special report in this issue) EJM President Robert Molsbergen talked about how EJM and NetJets were approaching their recently launched China operation. "We're in it for the long term," he told delegates, while acknowledging that the government's crackdown on corruption was already chilling not just business aviation, but business in general in China. Some economists are starting to speculate that Xi Jinping's purge of corrupt officials will knock two percentage points off China's GDP by the end of 2015.

That would still leave China with what, by advanced market standards, would be spectacular 5% year on year growth, but a drop of 2% in the growth rate of the world's second largest economy will have a serious impact on many countries, particularly on commodity exporting nations such as Brazil, Australia and Russia (as if the latter did not have enough problems, most of which seem self inflicted). Still, getting rid of blatant corruption and shifting China's focus away from a near exclusive reliance on exports to a more consumer orientated economy capable of sustaining moderate single digit growth, may well be a good thing in the end - assuming the wheels don't come off first.

Fortunately the US economy is now picking up the pace, as they say in the marines, and US charter hours and flight movements are all moving in the right direction. Then too, the low oil price might be playing havoc with the US oil industry but it is an undoubted boon to both consumers and business aviation, lowering costs for the latter and increasing the surplus spending power of the former. On the bright side, this issue profiles the recently launched business jets financing house, Global Jet Capital, which aims to put some \$2 billion to work on new and pre-owned aircraft financing. Potential corporate and private owners now have a potent new source of funding to tap for their next aircraft upgrade.

Our cover story this issue feature's Margie Goldsmith talking to Christopher R King, entrepreneur extraordinary, with a passion for Gulfstream's latest offerings. We also have some great CEO interviews. We profile James Raisbeck, the legendary CEO of Raisbeck Engineering, which has had a string of innovative "firsts" to its name down the years and continues to make good aircraft even better with one new after-market product after another. Marc Foulkrod, CEO of Avjet talks about the company's continued expansion and his frustration with the regulatory torrent pouring out of Washington, while John Wade, Executive VP and General Manager of Gogo Business Aviation explains the rationale behind the decision to fade out the Aircell name and replace it with the more dominant Gogo brand.

We have a detailed Special Report, featuring some of the key "take-aways" from all 11 sessions of EVAA's second annual two-day Future of Business Aviation Conference, while those readers fortunate enough to attend EVAA's MEBA beach party at the iconic Atlantis Hotel in Dubai will enjoy our photo montage of the event. Next up, after ABACE, of course is EBACE, when all eyes turn to Geneva. We are delighted to announce here that EVAA will be hosting "the greatest party ever" at EBACE. Invitations will be going out shortly!

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COVER IMAGE:
 Christopher R King, founder of Cruzach, Inc
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Sponsored by Rani Awad, CEO of one of the world's fastest-growing aero-fuel companies, Atlantic FuelEx, and held at Dubai's iconic Atlantis Hotel (Nasimi Beach Bar), the party was the most talked-about event at MEBA 2014. Some 729 invited guests from across the business aviation sector enjoyed an open bar till the small hours, a DJ, dance floor and a vast selection of buffet food, thanks to Rani's generosity.

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Special Report on EVAA's second Future of Business Aviation Conference, held at the Heathrow Hilton Hotel on 19-20 February. We feature the key takeaways and highlights from every session.



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Christopher R. King

Interview by Margie Goldsmith



Christopher R King, a Beverly Hills, California-based 36-year-old self-made millionaire entrepreneur, never went to business school or college and doesn't even have a high school diploma; yet this feisty investor created his first company when he was 17 years old and by the time he was 26 had made his first million dollars. Since then, King has created Cruzach Inc, a holding company worth multiple millions of dollars and encompassing nine companies in industries including films, pharmaceuticals, and a partnership with Robert Mondavi, Jr for a wine that retails at US\$800 per bottle.

King is known for taking calculated, carefully planned risks resulting in greater earnings for those companies and industries in which he invests. In 2008 during the economic crash, King lost his fortune. His response was to move from Atlanta to Los Angeles and reinvent himself.

King is involved with many philanthropic endeavours including working with inner city youth and supporting international foundations such as amFAR. He is an avid arts patron, is on the Board of Directors of the Art of Elysium, and is presently the subject of a book about his life, written by famous Scottish author Kenny Kemp. We caught up with him in Los Angeles, between trips.

Q: You dropped out of school at 17 years old and started your own landscaping company. Only six months later, you landed your first client, a fitness club, but you didn't have the money up front for supplies so the deal fell apart. What did you learn from that?

A: One of the biggest things that I learned was reading the fine print in contracts.

Q: You next entered the music industry, became highly successful, and then decided you wanted a business in which you didn't have to rely on other people. So you moved to Atlanta and pursued a career in real estate?

A: Yes. The thing I loved about real estate was it was cards face up and I felt the real estate business would allow me to work more like nine to five. I was approaching my 30s and I wanted to establish a very large corporation that would allow me a stable foundation for my future.

Q: I understand you flipped your first house seven weeks after buying it and made a profit of \$70,000?

A: Correct.

Q: In 2007 when you were 26 you became a millionaire and then came the real estate crash. What happened?

A: I lost everything. I basically took my last dollar and moved to LA to reinvent myself.



Q: And as what did you plan to reinvent yourself?

A: I didn't know. I just knew I needed to be in a city that would bounce back fast, New York or Los Angeles. I chose Los Angeles: the weather was warm, there were palm trees, so I made the move even though I had no idea what I was going to do.

Q: In 2009 you founded Monarch Medical Group in LA. Was that your first business there?

A: It was not my first, but it was one of my brightest. I still own and operate it and continue to expand it on a day-to-day basis.

Q: And then what?

A: I started building other business and making smart investments in art and real estate and doing deals to accumulate wealth. I wanted to have a company under which I could diversify and build an umbrella of companies to hopefully one day leave to my children. I created Cruzach Inc, named after my two sons

Cruz and Zachary. Cruzach is all the companies I own including my newest venture, Zurc Pharmaceuticals, which will develop, research and create drugs throughout the country.

Q: You have said that the biggest deals are still to come. What do you have in mind?

A: I haven't made the billionaire list on Forbes yet so I definitely need to get that going. Money is on my mind but it is never in my heart; for me, it's the excitement of building something and seeing how big can you go. There are things I want to do to change this world just as Steve Jobs or Elon Musk or Richard Branson have done. I want to be able to help more and I want to be able to set my family up in a way that will allow them to do anything they choose to do in life and not have to make decisions based on money.

Q: You collect cars. You own a 2013 Rolls-Royce Phantom Drophead, a 2014 Aston Martin Vanquish, a 2014 Ferrari 458, a 2014 Maserati GranTurismo, a 2013 Rolls-Royce Ghost, a 2013 Cadillac Escalade Platinum and a 2014 Custom Rolls-Royce Phantom Sedan. What is it about these cars that you love so much - or is this part of your insistence that you don't want all your eggs in one basket?

A: Cars are definitely not an investment. To me, cars should never be talked about as an investment. Cars are the joy of life. I also





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believe that you should be able to have the very best of anything you want. When you get into luxurious things such as cars and planes, it's exciting and makes you want to work hard.

Q: Do you fly private exclusively?
A: I fly probably 95% private.

Q: And you've taken 50 private flights just this last year?
A: Probably more than that. I was on 13 private flights just last month.

Q: What percentage of your flights would you say are personal and what percentage are business flights?

A: Everything I do is business, my whole life is consumed by my businesses and I love everything that I do. I recently chartered a brand new G450 to go to Aspen with my family.

Q: How does flying privately save you time?
A: If I have to rush to try to make a commercial flight, there are time constraints on when flights leave and return. Flying privately, I get everything I need to get done and can still be home in time for dinner.

Q: Do you charter or use fractional ownership or jet cards or do you just hitch rides with friends?
A: No I definitely don't hitch rides, but

friends hitch rides with me. I don't think I have ever actually hitched a ride with anybody – that's going to go on my bucket list. I need to get better friends! I use a charter company, Michael Babil with BJETS, with whom I am extremely comfortable.

Q: Which FBOs do you frequently fly from?
A: Living in Beverly Hills, I always use Van Nuys. Some of my favourites to fly into are Teeterboro (New Jersey), Toussus-le-Noble (France) and of course, Aspen (Colorado).

Q: Do you pick the FBO you want to use at the departure and destination airports or do you leave that to the operator?



I haven't made the billionaire list on *Forbes* yet so I definitely need to get that going. Money is on my mind but it is never in my heart



A: I always choose them unless they have a suggestion due to weather or an issue I am unaware of.

Q: Has your private flying changed in the last year compared with the year before?

A: Yes, I'm doing 300% more flights.

Q: What about next year? How do you think it will change?

A: I think it's going to get even bigger and if I continue to expand internationally, I think it's going to be time to buy a plane.

Q: What would you buy?

A: I'm a big fan of Gulfstream. I find it to be the most comfortable plane to fly. I'm 6 foot 2 so I can't stand up in most cabins and I really enjoy the cabin height along with the safety rating on these planes. They are by far one of my favourites and I charter them frequently. But if I was going to be given a gift and I had to choose between a G450 or a Global Express, I'd pick the Global Express every day and twice on Sundays.

Q: If you were to buy your own plane, would you have it managed by an aircraft management company?

A: Yes, it makes perfect sense to do that. Let the people who are good at what they do handle that. This would also allow for supreme maintenance and upkeep.

Q: If you owned, would you put the plane out to charter with that company?

A: Yes, but I would be very selective.

Q: Which aircraft do you use now?

A: Depends on the trip, to get around California I usually use Hawker 800XP, G200, or a Lear 60 if flying alone. For all trips over two hours I use a Challenger 604, 300 or the Gulfstream IV, 450 or 550.

Q: How much thought have you given to catering on flights, specifying requirements, as opposed to leaving it to the operator?

A: I am very selective when it comes to eating. If time permits, I will usually have my personal chef prepare something and have him deliver to the aircraft. I have also ordered my own meals through Nobu or Mastro's and had it delivered. Otherwise, I just insist on specific foods and keep it organic and grass fed. I will only drink Acqua Panna water from glass bottles.

Q: What type of engine do you like your aircraft to have?

A: Rolls-Royce, of course!

Q: You also collect fine wines?

A: I've been told I have wines that would make Bacchus jealous. I had a red obsession and it became an addiction not because of the alcohol, but an addiction to learn that every bottle that I opened up was a different year,

different vintage in a different part of the country. I've enjoyed some of the finest wines in the world. I have wines that I drink and wines that I collect. My philosophy is you buy a case, you drink six and you store six. We are expanding on King of Clubs in 2015 and in 2016 into champagne and other brands under the King of Clubs entity, a project I developed along with winemaker Robert Mondavi, Jr and restaurateur Justin Anthony.

Q: What's the most significant bottle you've collected?

A: I own some DRC, Domaine de la Romanée-Conti, which averages about \$10,000 a bottle. I also own a lot of Petrus and a lot of old Bordeaux Château Lafite Rothschild.

Q: You collect fine watches. How many would you say you have?

A: I had about 25 watches but I just got rid of some because I wasn't wearing them. I think I probably have 11 or 12.

Q: What's your most precious watch?

A: A Greubel Forsey, considered one of the most expensive watches in the world. The average Greubel starts at about \$350,000. My other favourite is a special Hublot diamond

I just knew I needed to be in a city that would bounce back fast, New York or Los Angeles. I chose Los Angeles

Tourbillon watch worth \$170,000 that I purchased from a friend of mine, Rick, who is an owner in Hublot.

Q: What makes you so good in business?

A: You have to be passionate about what you are doing. If you are not excited to do something, there's no sense in doing it at all. I consider myself a successful businessman because I pay extreme attention to detail and I work really, really hard!

Q: You support many charities and you're on the Board of Directors of Art of Elysium?

A: Children are a huge passion for me and I wanted to see my money put to good use. And if I am able to help bring smiles or make dreams come true or provide hope to them, to me that's a no-brainer. I am extremely excited to be part of the Art of Elysium.

Q: I hear you are launching a company soon that will have offices in both Dubai and London?

A: I find Dubai and London two of the most fascinating cities. I always wanted an office in London, and I think what's going on Dubai is incredible, it's just such a growing city, and it's phenomenal what they've done. In 2003 it was just a big sand dune and now it's just this huge city with one of the tallest buildings in the world. My objective is to put offices in London and Dubai and in China so that I can expand my love for travelling in international business. Right now, the majority of my business outside of the wine is US-based. I want something where I can really get out and visit more and interact and build relationships in businesses with people in other countries.

Q: What do you want your legacy to be?

A: I would want to be known as a great father, a great friend and I would want people to know that I had vision and determination to go for boundaries that others didn't want to go. I would like for people to say that this man has really inspired people and has allowed more people to believe in themselves and realise that you can achieve anything in this world that you want to. ■

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MACRO Economic Window

China: one step backwards now for two forward later? By Anthony Harrington

One of the necessities when looking at the prospects for a particular region is to be clear about your time frame. With ABACE coming up, the key point for many is not what China might be delivering in 10 or 20 years, but whether 2015 is likely to be a tough year or a prosperous one. Right now, all the signs favour the former, rather than the latter.

For those interested in the prospects for growth in business aircraft movements and sales across Asia for 2015 and into 2016, the key factors right now are the slowdown in the Chinese

economy and President Xi Jinping's crackdown on corruption. In the past year, according to the *New York Times*, some 68 provincial or ministerial-level officials and 71,000 lower-level officials have been caught up in President Xi's net and punished. The favourite tactic of the investigating teams spearheading the crackdown on graft has been to threaten minor officials with severe penalties, up to and including facing a firing squad, unless they come clean on the misdeeds of their superiors. Every 'tiger' or high ranking official is always surrounded by a cloud of 'flies', they say. Squeeze the flies and you bag the tiger.

It is working like a charm, apparently. But it is creating an atmosphere of unease across the whole of the upper echelons of the Chinese civil service, party apparatchiks and even among China's high net worth individuals and top executives. In that atmosphere, no one wants to attract attention to the fact that they are unusually wealthy, so there is some nervousness about owning and using private jets and sales of new jets have slumped. 'Some nervousness' is probably a massive understatement. According to recent press reports (*Financial Times*, *New York Times*) the Chinese government has just launched a survey trying to tally up the number



Richard Koe at EVAA's Future of Business Aviation Conference

of civil servants, aka apparatchiks, who have died 'unnatural' deaths (a pseudonym for suicide). They don't know the result yet, but they know the number is worryingly high.

Richard Koe, joint managing director of WINGX Advance, points out that despite the favourable references to business aviation in China's latest five year plan, private jets now have a taint about them. "They are seen as an indulgence and possibly as being somehow linked to corruption. Anything that smacks of undue wealth at the moment is seen as a negative," he comments. However, Koe notes that in the medium term this could force a change in the way the industry is perceived in China.

The undue focus on business jets as the exclusive preserve of the wealthy needs to be countered by strong arguments from companies and from within business aviation itself, that business jets are vital tools that help businesses to connect both within Asia and between continents. By sounding the death knell, as it were, for large cabin jets as billionaire status symbols, and replacing this view with the kind of message that the NBAA has been taking to US politicians, namely that the business jet is a business tool, President Xi's anti-corruption campaign might well be an essential step on the road to a mature business aviation sector in China.

The other 'headwind', namely the slowdown in China's growth, is now a well-documented fact. However, speaking at the World Economic Forum in Davos, Switzerland, in January, the Chinese Premier, Li Keqiang, pointed out that this is not all bad. "It must be noted that the moderation of growth speed in China reflects both profound adjustments in the world econ-

omy as well as the laws of economics. The Chinese economy is now the second largest in the world. With a larger base figure, growth, even at 7%, will produce an annual increase (in the economy) of more than 800 billion US dollars, which is larger than (would have been generated by) a 10% rate of growth five years ago," he noted.

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All this additional wealth is also creating ever-increasing numbers of billionaires and multi-millionaires, and while some might have reason to fear President Xi's crackdown, others will feel their hands are sufficiently clean to enable them to deploy private aviation as a time saving tool for their business affairs. In its most recent forecast for the sector (June 2014) Bombardier noted that the number of China's billionaires had increased from 157 in 2012 to 186 in 2013, an increase of 18% - far faster than the country's GDP growth rate. That figure is probably now over 200 and growing. By comparison Europe had just 204 billionaires in 2012 and that number rose to 246 in 2014, an increase of 19%.

Bombardier also cites the World Ultra Wealth Report from Wealth-X, which, in 2012-13 forecast that the world's Ultra High Net Worth population would grow by an annual average of 3.9%, while the wealth attributable to these deep-pocketed folk would increase at a rate of 5.5% per annum. Why would anyone whose wealth is growing at that rate fly scheduled carrier and put up with the delays, lack of privacy and inflexible scheduling that goes with it?

It is not surprising therefore to find that despite the headwinds caused by President Xi's anti-corruption campaign and the general slowdown in economic growth, the number of aircraft movements in China grew, year over year, in 2014. Koe says that WingX has very good visibility of aircraft movements from China to Europe and North America, and flight activity has picked up 11% by comparison with 2013 as far as flights to and from Europe are concerned, while the North American routes have seen an increase of 6%.



Tom Vosa, economics commentator

I expect that the tougher economic conditions might well encourage a shift from outright purchase to a leasing model for acquiring private jets

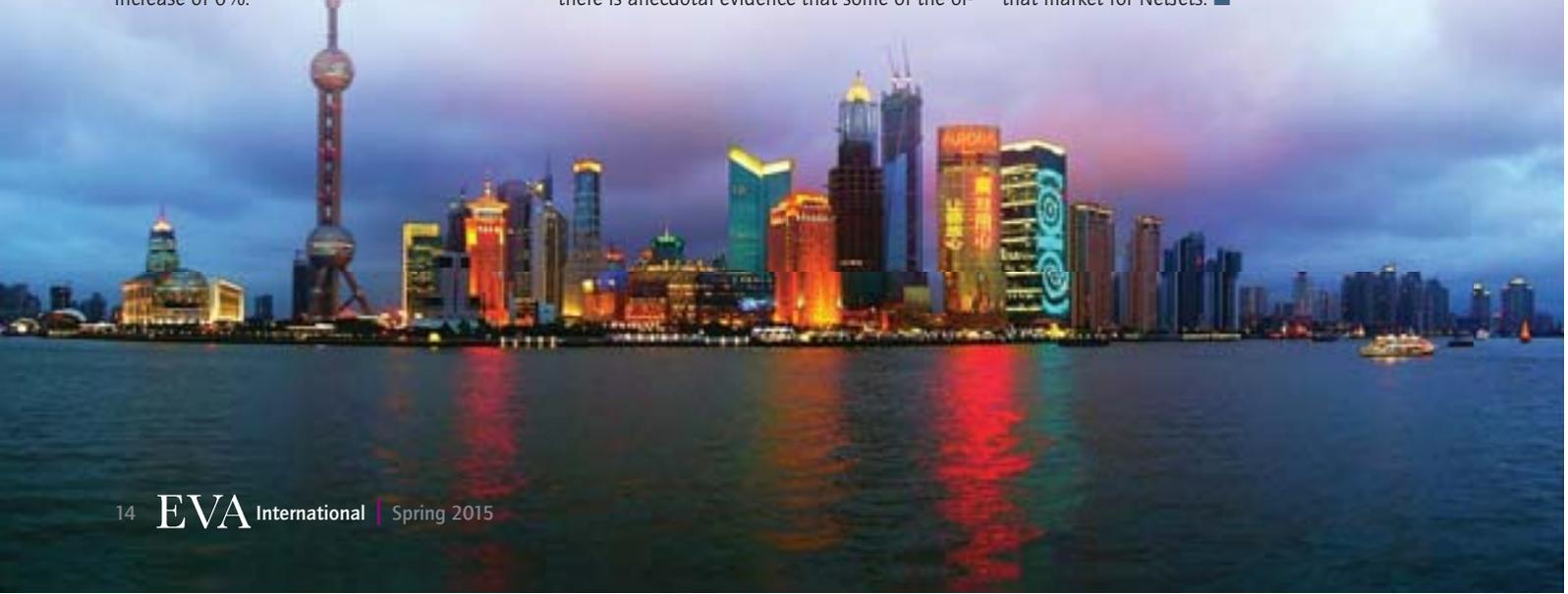
"For regional travel by private jet, we get the impression from talking to the major Chinese players that increases have been of the order of 10% to 15%," he comments. While these numbers are impressive, Koe points out that aircraft movements in and from China are still a lot softer than was being projected as little as three years ago. "By comparison with China, the US market has been very active. A lot of people were predicting last year that the North American market was the new 'emerging market' as far as business aviation is concerned, and that excitement seems to be being borne out," Koe adds. New jets are selling in America. In China there is anecdotal evidence that some of the or-

ders for new jets are already up for sale as owners try to get out of their commitments.

"The healthy figure for the inventory of pre-owned versus the active fleet is generally thought to be around 10%. In China right now the figure is nearer 25%. Several of the big companies in China that placed large orders, probably hoping to trade them on into a thriving market, have been caught out by the combination of the slowdown and the anti-corruption campaign. Nevertheless the big operators in China may well end up being in a reasonable position, within the next year or so, to pick up the pieces," he considers.

On the positive side, Chinese companies are increasingly investing in Africa and Latin America and they are going to need large body, long range private jets to pursue their business interests. So this is bound to generate some sales going forward.

Tom Vosa, an economics commentator, says that while the slowdown might actually play well for the scheduled carriers, who could see corporate executives flying scheduled a lot more over the next year, China's economy is still generating more than enough wealth to fuel demand for business travel, and any migration to scheduled airlines should reverse over time, he suggests. "I expect that the tougher economic conditions might well encourage a shift from outright purchase to a leasing model for acquiring private jets. This change in the ownership model might start playing well for fractional ownership," he notes. If it does, that will be good news for EJM, the aircraft management arm of NetJets, which is opening up an aircraft management operation in China as a lead in to that market for NetJets. ■





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Design and paint - a partnership made in heaven?

At first sight it might look as if manufacturing paint is one kind of activity and designing the paint job for an aircraft or helicopter is something completely different. And of course, from most perspectives, it is. But that doesn't mean that paint manufacturers can neglect designers and focus exclusively on building relationships with aircraft paint companies. And it certainly doesn't mean that designers don't have to bother building their relationships with paint manufacturers. As Julie Voisin, Global Aerospace Coatings Product Manager at Sherwin-Williams explains, there is an enormous amount that the paint manufacturer can do to support designers, helping to ensure that their vision translates perfectly to produce the owner's dream aircraft as the end result. EVA talked to Voisin and to Craig Barnett, the founder and CEO of Scheme Designers.

Voisin points out that Sherwin-Williams goes out of its way to support designers, even though they are not direct buyers of its products. This support goes way beyond simply providing technical advice on products and col-

ours. The company will fly technical staff out to meet with the designer and the paint shop, and will provide applications expertise on difficult jobs to ensure that the final results are as perfect as possible. Barnett says that this level of support is invaluable for him and his team.

Since 1997, Scheme Designers has specialised in the business of exterior design for aircraft of all types, sizes and models, from airline fleets to business jets, piston aircraft and helicopters. According to Barnett, around the globe, there are now well over 11,000 unique aircraft wearing a Scheme Designers paint scheme. "Over half of the OEMs delivering new aircraft work with us to develop the exterior styling for their factory new models, which means that we are setting the standard for the industry as a whole," he says.

"We get a lot of inquiries over the internet, which has helped us to build a strong global client base, with clients on every continent. Some of our largest markets outside of the US, which is, of course, our strongest market, are Germany, the UK, Australia and Canada," Barnett notes.

He points out that Scheme Designers is a technical as well as a design company. "We

engineer each and every scheme that we produce, generating detailed drawings and technical specifications down to an eighth of an inch for the paint shops involved," he comments. "When we design complex schemes, we will design and cut the complex paint masks required to accurately replicate the design on the aircraft, which helps the paint company's applicators enormously. All they have to do is apply the mask to the aircraft and paint. We also have a strong relationship with the best airbrush artist in the world, and we fly him all over to do complex airbrush work, ensuring the best possible job for the client," he says.

Barnett likens his approach to that of a fashion design house, setting many of the trends that the market is going to want in the year ahead. "When we work for manufacturers, they want the aircraft to have general mass appeal – it will set the trend for what many people want to do with their own aircraft," he notes.

Other clients do not want to follow any trend. "They phone up and describe how everything in their life is unique and interesting, and for those clients, we will do a design that is very personal. In some cases it is so unique



that it virtually only has appeal to that individual aircraft owner, and that owner will come back to us for the paint design on his next jet and the one after that. We build long-term relationships," he explains.

So how does the paint manufacturer help a design house like Barnett's? "We have worked very closely with Sherwin-Williams Aerospace for almost all of the 18 years that we have been in business. I had no idea when I started out designing who even made aviation paints. However, the paint shop I worked with on my first job was a Sherwin-Williams user. They put me in touch with their distributor, a New Jersey-based company, and they led me to Sherwin-Williams Aerospace. Since then, I have never failed to be impressed by the level of support that Sherwin-Williams provide for even the smallest project," Barnett comments.

This kind of support is invaluable for a designer, particularly when they get a client that has a very specific colour requirement and are accustomed to getting exactly what they want in their lives, whoever they are dealing with. "Business jet owners are used to a level of service and a degree of detail that is without compromise. If they say they want a particular colour to be matched, be it the colour of their favourite car or their beloved pet dog, that's the colour they want," Barnett says.

He recalled the case of an owner of a Piper Aztec that Scheme Designers worked on for a family. "The aircraft was 30 years old, and was purchased new by the father. He had earlier bought a Corvette in special anniversary colours. They sent the fuel cap of the Corvette to us, and Sherwin-Williams was able to match the colour directly from the example we provided. Now when you see the car and the aircraft on the ramp together, there is no doubt

that they are from the same family!" Barnett comments.

Another instance was a client who wanted a yellow metallic paint but wasn't sure what shade of yellow, exactly, he wanted. Sherwin-Williams Aerospace helped Barnett to solve this problem by providing him with 20 different versions of metallic yellow. "A lot of clients will look at a colour chart and be able to find exactly what they need. In fact many people are not particularly colour sensitive and cannot really distinguish between two shades next to each other on the chart. Others have a very precise idea of the colour they want, even if they cannot show you an instance of it. Then we have to work to find objects in the real world, whether it is a scrap of cloth or a piece of leather, that comes closest to what they are looking for. There are millions of possible colour shades and only a few hundred in any colour chart. So colour support is the first thing that we want from the paint manufacturer," he explains.

Sherwin-Williams Aerospace excels in the support they provide on this front, Barnett says. "We can send them anything and in a few days their labs will match the colour of the scrap we sent, and will send out a real sprayed sample or multiple samples to us and to the client, allowing the client see if that really is the colour they are seeking. They do not charge

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Matching the dream

EVA talks to Mark Cancilla, Global Platform Director – Aerospace Coatings, PPG Aerospace

Q: How complex are the latest VIP, business jet design schemes?

A: The complexity of the design schemes varies as widely as the personalities of the aircraft owners. Many want the aircraft paint scheme to project a certain effect or image, while others prefer a simple design, but always a high-quality finish. As a coatings supplier, our key focus is to ensure that we provide accurate and fast response for colour matching as well as colour design options to the design team. PPG utilises our expansive colour palette crossing multiple industry segments including not only aerospace, but also our automotive and other decorative coatings businesses.

Q: How demanding are they in terms of multiple colours and overpainting?

A: Business aircraft customers demand high-quality products that produce high-quality finishes with very good application robustness. These are key features that PPG addresses in our product formulations, application development, and manufacturing processes.

Q: How do you meet your customers' needs?

A: PPG Aerospace's global network of Application Support Centers and sales offices in 28 locations around the world are committed to providing customers with rapid and responsive service. The sales and customer support staff collaborates with our global Aerospace Coatings product line management to ensure that we have complete capability within the business to support our customers' needs, which includes colour styling and technology, application development capabilities and facilities, and product technologies to optimise performance and appearance. Our global col-

our matching and batch production facilities provide quick response to customer requests for specific colour needs, and our global product technical services organisation is available to assist our customers in the application of our products.

Q: How do you work with 'difficult' customers?

A: All customers are demanding, but we understand this. We are a demanding customer to our suppliers, as well. Our goal is to understand our customers' needs and ensure that our capability to support their needs is optimised. With our global sales, customer service, product technical services and product line management staff, we are well equipped to best understand our customers' needs and to develop approaches to meet their requirements.

Q: What does the personal jet owner expect in a unique aircraft paint design?

A: Just as the colour and paint appearance is important to a car owner, the owner of a personal jet will generally want to have his or her own aircraft colour, design and paint appearance to meet the style they are seeking. Everyone has their own vision of what they would like to project. It's as different as the way each person dresses. But all personal jet owners expect very high quality and consistency in the final finish of the aircraft paint scheme.

Q: What is the process of preparing an aircraft design scheme?

A: The process of preparing an aircraft design scheme works best when the owner, design organisation, and coatings supplier meet together to discuss the ideas of the owner and the potential options provided by the coatings

supplier, permitting the design organisation to create the style and effect being sought by the owner. This is the most efficient approach to achieve the best final solution. Often, there are iterations that are required before the final product is realised, but this close communication is important to achieve the best results.

Q: Are there special colours they expect? Are there custom colours involved?

A: Customers absolutely expect coatings suppliers to achieve the effect that they want to achieve. This can often involve specific colour matching to reference materials, objects, or even the owner's favourite car! To achieve this, the coatings supplier must have significant colour matching and product production capability. Custom colours and effects can be provided by the coatings supplier to aid the owner's vision. PPG has provided a wide variety of mica and metallic products that provide from mild to brilliant sparkle effects in the final colour. We can also provide colours using our Andaro® Special Effect Pigments to further broaden the design options for our customers.

Q: Are there any special paint requirements or expectations – speciality formulas being used, like micas or metallic?

A: The growth of micas, metallic and other special paint effects, such as those provided by our Andaro® Special Effect Pigments, is increasing rapidly. Just as it is difficult to purchase a car without such effects today, we are finding that our business aircraft customers are requesting these same effects in their aircraft paint designs. To support this need, the PPG Aerospace colour technology and styling organisation consults regularly with the PPG

Continued from p17

Automotive OEM and Refinish businesses, ensuring understanding of design trends and that the colour capabilities can be translated into the Aerospace formulation schemes with good application characteristics and performance criteria.

Q: How does privacy/security of VIPs affect their design?

A: Most often, customers who are seeking anonymity relative to their personal aircraft request very simple designs. This often involves the application of a white colour variant for the fuselage and a simple stripe or stripe pattern. Of course, these applications are quite easy to support as a coatings supplier.

Q: What is the nature of the training process/consultation process between the paint house and the manufacturer that helps to ensure that the designer's vision can be implemented successfully?

A: PPG's global Application Support Centers, which house our sales and customer service staff, along with our global technical service team, are positioned to ensure that the organizations who apply our products to the aircraft are successful. Before a product or technology reaches a customer application, it goes through an extensive application development process in PPG paint spray booths that have full temperature and humidity control, ensuring our understanding of actual field performance characteristics. Our global technical service team surveys customer paint shops to characterise the unique elements of the shop that can impact the paint application and interacts with the application development team in the production of the application guides used to set up the application parameters of our paint products. This approach helps to ensure that application proceeds as planned with no surprises!

Q: What new paint technologies are being looked at in the lab right now, which might have a bearing on how designers approach the task of producing the 'dream design' at a future date?

A: The PPG Aerospace Coatings business continues to develop new technologies and invest in capabilities that impact our ability to supply a wider array of colours and effects. We have developed and launched solar reflective technologies that allow designers to consider darker colours that may not have been considered previously due to heat load impact or other issues. PPG's focus is to be able to provide all customers with any colour, design or effect that they are trying to create. ■



We engineer each and every scheme that we produce, generating detailed drawings and technical specifications down to an eighth of an inch for the paint shops involved



for this. It is a pure support service, and it is hard to overstate how important this is to us. In some cases, getting that exact match is a make or break element in the design process," he notes.

Another dimension to the support provided by the manufacturer is on the paint shop side. "I might have a special project, or a particularly discerning client, and I will phone Sherwin-Williams and ask if they can provide a technical expert to spray the job out in the paint shop for the client. It might be an aircraft being done up for the Aircraft Owners and Pilots Association, for example, where the aircraft is going to attract a lot of attention from a very knowledgeable audience. Every time I make a request like this, Sherwin-Williams has put someone on an aircraft and flown them to the paint shop concerned and put them up in a hotel for the duration of the job. I don't have to pay any money to get this done. It is purely a support service, and that is a level of support from the manufacturer that you simply do not get in any other industry sector," Barnett concludes. ■

Stepping in where the OEMs leave off

A conversation with James Raisbeck, CEO Raisbeck Engineering

Raisbeck Engineering and its precursor, Robertson Aircraft, go back to the late 1960s, when James Raisbeck left Boeing to start a career in aircraft design. Since then, the Raisbeck team, under his direction, have amassed a staggering number of 'firsts' in the industry. They have come up with one innovation after another, many of which have subsequently been adopted as standard by the OEMs involved.

Q: What is the secret? How have you managed to keep on innovating down the years and how do you decide which element of an aircraft provides you with the opportunity to design and produce a profitable 'add on' innovation?

A: In retrospect it is always easy to see where the OEM has left gaps that we can fill. Down the years I have come up with some basic rules, or guidelines, on what to look for

when thinking about making improvements to existing aircraft. I have always tried to choose an airplane, whether it be as large as an Airbus A320 or as small as a Cessna 182, or anything in between, that provides us with a decent profit opportunity. The basic rules are: 1) The aircraft should be in current production. 2) It needs to be popular, with plenty of them out there in service. 3) They should be operated by people who can afford to upgrade their aircraft if that upgrade can deliver proven additional performance and utility. 4) We would like, if possible, to have some relationship with the manufacturer (this has not always been possible, and we have not always been blessed with a loving relationship with the manufacturers whose airplanes we have targeted). The fifth and final rule is that there needs to be a technological hole, something the aircraft lacks, and the bigger the hole, the better the opportunity for us to make measurable improvements.

Q: You have had a real focus on Beechcraft, so it seems that their King Air line meets your five rules. What is it about Beechcraft that makes this OEM such an ideal candidate from your perspective?

A: I should preface this by saying that Beechcraft has simply done what so many OEMs have done down the years, namely to keep on adding new life to an old airframe design by stretching and tweaking it. The idea is always to do just enough to create a new model and stimulate fresh demand. For example, the Beechcraft King Air 350, in current production, is simply a stretched and repowered model of the King Air 200 and 250, which itself is a stretched version of the C90, which is still in production. If you go back to the King Air 90, that was a modification of the piston-powered Queen Air, which itself was a twin engine version of the Bonanza that Beechcraft had flying as a prototype before the Second World War. There has been an enormous amount of new



technology and innovation in aviation since Noah grounded that particular Ark, but Beechcraft made its living for nearly 60 years by doing just enough to tweak an old model into a new model. The first King Air was delivered in 1964, so they have done a very good job of getting the most out of that series of aircraft, and still are.

Similarly with Boeing, the 737 is the same tube that it was in 1964. It has been reengined and stretched and provided with new avionics, but it is essentially the same aircraft. The Lear Jet which first flew in 1963 was a redesigned version of a 1950s Swiss fighter and the Lear 60 still has the same wing. So when someone like us comes along and looks at these aircraft there are going to be opportunities. Actually, when you look at the business aviation industry and at the numbers of aircraft sold each year it is pretty obvious that there is insufficient money in the business to retool the manufacturing process for new clean sheet aircraft on a regular, cyclical basis. So you don't see a lot of new technology being rolled into airplane models on a yearly basis like you do in the auto industry. There is a huge cost associated with developing and certifying new technology in aviation. So the name of the game has been about breathing new life into old concepts.

Our approach is to start with an aircraft that is already parked on the ramp, in production and certified, so we don't have to worry about what tyres to put on it, for example. It is there, ready for us to examine and to see where we can improve it sufficiently that a customer will want to buy the upgrade at a price that we can turn a profit.

Q: That last point, of course, is key, and Raisbeck has been very profitable down the years, despite working with a small team. I believe your team currently stands at around 25 staff, including engineers. How do you form a view on what makes for a sufficient increase in productivity from whatever innovation you are planning to introduce?

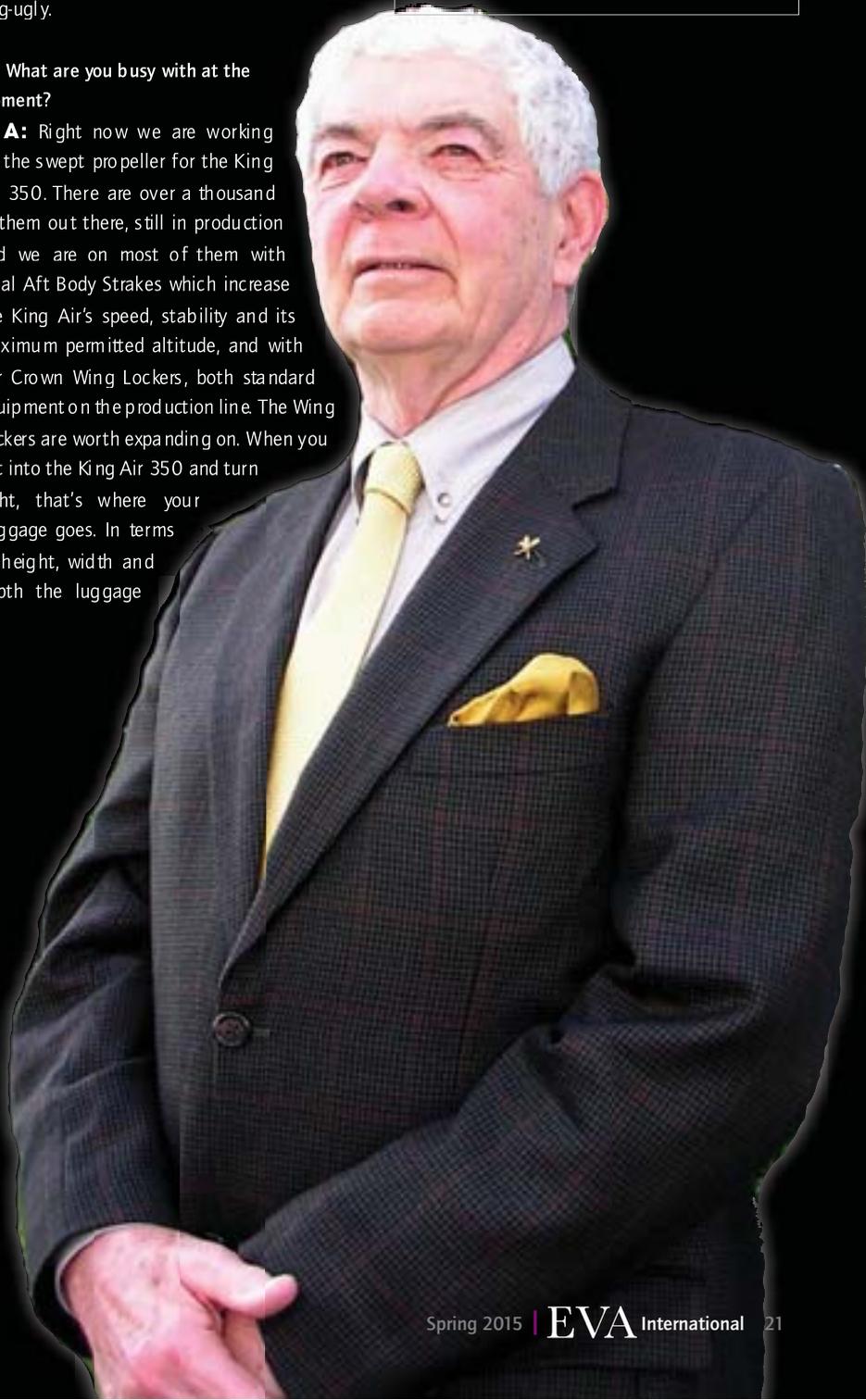
A: Seven things go into productivity.
1) Payload, how much will the aircraft carry?
2) Range, how far can it carry that payload?
3) Cruise speed, how fast can it get where

you want to go? 4) What airfields can you get in and out of? What is your operational flexibility? 5) What is the impact of the improvement on direct and indirect operating costs? 6) What impact will it have on the aircraft's resale value? In other words, how popular is the modification likely to be? Lastly, 7) Does it have 'ramp appeal'? Will it make the aircraft look sexier? You have to worry about a mod that might work but makes the aircraft look pug-ugly.

Q: What are you busy with at the moment?

A: Right now we are working on the swept propeller for the King Air 350. There are over a thousand of them out there, still in production and we are on most of them with Dual Aft Body Strakes which increase the King Air's speed, stability and its maximum permitted altitude, and with our Crown Wing Lockers, both standard equipment on the production line. The Wing Lockers are worth expanding on. When you get into the King Air 350 and turn right, that's where your baggage goes. In terms of height, width and depth the luggage

Beechcraft has simply done what so many OEMs have done down the years, namely to keep on adding new life to an old airframe design by stretching and tweaking it





space is the same as the 1958 Queen Air, from which this model is derived. Yet the King Air 350 carries three times as many passengers as the Queen Air; so where are you going to put their luggage? There is nothing brilliant about wing lockers. They have been on aircraft forever, but not on a King Air. Why? That is a very good question, but it goes directly to the OEMs' historic reluctance to do more than the minimum required to bring a 'new' (i.e., tweaked) model to market.

Q: I follow that there are opportunities, but it takes a certain mindset to spot them, and entrepreneurial skill to transform opportunity into profit. You have made sufficient profit through your engineering successes to donate some US\$20 million to further education and to charity over the years, which, with limited staff numbers, is a tremendous feat and says great things about Raisbeck's status as a company that cares for its local community. What do you put your success down to?

A: I worked with excellent engineers at Boeing, really brilliant people. I started with Boeing in 1961 as a Research Aerodynamicist and left in 1969 to avoid the rush as I like to say. True engineers, like true physicists, do not just work nine to five; so when I left Boeing I was able to tap like-minded engineers still there, after their normal working hours, to help me solve engineering problems I was encountering. The rumour was that half of Boeing used to moonlight, consulting to Raisbeck; why, it wasn't over 10%! Seriously, nowadays, I make a practice of taking our young engineers to Boeing Field; we walk together along the ramp and try to pick apart every aircraft we see there. "Why did they do it that way?"

we ask, again and again. "Why is this part here shaped like this? How could we make it go faster, using less fuel, carrying more weight?"

It is all about thinking through the problem at hand. For example, if you take the Raisbeck Epic Package for the King Air B200GT, it makes that airplane the fastest fully certified King Air of any model, at 318 knots; faster even than a King Air 350. Our Swept Blade Propellers are part of our EPIC Performance Package, but getting more speed by simply redesigning the propeller has some very real practical limits and much depends on whether you want to accelerate faster to cruise speed, or actually increase the cruise speed. We can make a four-bladed prop that will go faster off the runway and help you to achieve additional climb, but at cruise speed you really battle to improve by two knots. At those speeds it takes around an additional 1% of propeller efficiency to gain an additional knot of speed and you are already at 85% maximum efficiency. The only way of going faster beyond that is to put a jet on the aircraft, unless, of course you go for more horsepower. So, for the King Air 350 for example, we are developing systems which increase the net horsepower at altitude, along with drag reduction to complement our new propellers there.

There is a huge cost associated with developing and certifying new technology in aviation. So the name of the game has been about breathing new life into old concepts

For business jets, we studied aerodynamic flows in great detail on a Lear 35. We had an idea about reducing drag. We did over 600 hours of flight testing to understand what the load distribution was across the wings in cruise mode. In the end we found that we could reduce the drag by 10% just by morphing the fixed trailing edge of the wing. So we unbuttoned the flap, made our own composite flap in its place, and sold a whole bunch of those systems to Learjet operators. That is vastly more appealing and less expensive to an owner than swapping out his engines for ones of higher power.

Q: You mentioned leaving Boeing "before the rush"?

A: That was stretching the point a bit, because I left in the late 60s. But in the mid-1990s, the top management at Boeing decided that the company needed to save on staff costs since it wasn't going to design a new airplane for several years. Up to that point Boeing had produced new models with great regularity from the 707 thru the 777, on time and on budget. It had a fantastic and extensive engineering team. But the company's direction changed with the merger with McDonnell Douglas. The word got out that engineers were expendable. When the bean counters called for voluntary early retirement among the engineers, they expected around 400 to take the offer. Instead they got over 6,000 engineers of senior rank walking out the door. Basically the company lost the heart of its engineering competence. What happened after that was Boeing spending 10 years on the preliminary design of a new aircraft, including the so-called Sonic Cruiser. That eventually morphed into the 787, which wound up over three years late, racking up a massive budget overrun. That's what happens when you lose your key engineering skills and the continuity of a senior team. They will do better on subsequent models because Boeing has now rebuilt the engineering skills that it should never have lost in the first place. That's why we keep our team at Raisbeck Engineering small, happy, and constantly challenged by problems needing innovative, creative solutions. It's our credence and our future. ■

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Be amazed by the Genius behind the Beauty

Taking the runway soon

Higher



Faster

Farther



 **SAFRAN**
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Building from strength

Interview with Marc Foulkrod, CEO, Avjet



Now one of the global leading operators in the business aviation industry, Avjet has come a long way from the single aircraft, fledgling charter company Marc Foulkrod joined as a consultant in 1981. By the time Foulkrod acquired the majority ownership of the company in the mid-1990s, buying out his partner, the former chief pilot, Avjet was already well on its way to being a global player. Today, the company has offices, agents and representatives in Asia, Europe, Africa and the Americas – and as Foulkrod told *EVA*, it is continuing to expand.

“We just added three Gulfstream G550s to the fleet and we have three Gulfstream 650s that we manage, which maintains our focus on large-cabin aircraft for our charter business,” Foulkrod explains. The rationale for the current expansion of the fleet is to provide the company with sufficient capacity to increase its presence in Europe, the Middle East, Asia and Africa. As Foulkrod notes, US companies are very keen to develop and extend their relationships into these regions and that, in itself, is generating demand for long-haul, large-cabin charter capacity.

However, while some markets definitely provide expansion opportunities, at present, some are shrinking. Russia and China are both cases in point here. “The market in Russia changed dramatically once Putin annexed the Crimea and the US and Europe imposed sanctions. However, a lot of Russian owners did not keep their planes in Russia anyway and those that did lost no time getting their aircraft out of Russia. We have to wait to see how things turn out there, but business doesn’t stop and many wealthy Russian business people have simply shifted their focus. Money goes where it is treated best,” he comments.

Avjet has been in Africa for some three years now and has co-operative arrangements with several Gulfstream owners. “There are challenges to operating in Africa. In some ways it is like the Wild West, but we are persevering there and we believe there is definitely growth to come,” Foulkrod says. GDP growth for Africa as whole is currently running in excess of 5% year on year, according to The World Bank and the International Monetary Fund, which makes it a very exciting place to be – despite the challenges around the lack

of infrastructure and endemic corruption. "You have to be careful about who you engage with and partner with. You need to make sure you are working with the right people and doing things correctly, but if you do that, it is definitely worth being in Africa," he comments.

He points out that there is a real opportunity to differentiate yourself as a player in Africa. "What separates us is that we do not engage in questionable practices or whatever oddities some might engage in there. We deal with the best people and the best companies and they respect us as a professional organisation. It is very important not to try to gain short-term advantages by engaging in practices that would not stand up to scrutiny. By being determinedly professional, other businesses that have the same requirement for transparency and high standards of corporate conduct seek to do business with you and that is a great way to grow," he notes.

According to Foulkrod, Avjet has expanded its aircraft management business, and that part of the operation continues to grow at a healthy pace. "With the charter market in the US now back to relative health we are able to get more charter hours than our owners need, so charter continues to grow. We also see a general broadening of the base when it comes to the numbers and types of people that use charter," he notes. The aviation industry has come a long way from the Pan Am days where passengers wore suits and fine gowns and only the wealthy flew. It has now definitely become more available to a broad market, he says. In part this has come from the other end of the scale to that which Avjet specialises in. The light jet charter market, with Embraer Phenoms and aircraft like the Eclipse and in the year ahead, the HondaJet, has opened up charter to a much wider spectrum of people for short-haul flights. Potential charter travellers have become very sophisticated about the opportunities for flying 'empty leg' charter flights at a heavily discounted price, and this is true at all levels, he notes. "Clients know that there is an opportunity out there, that they can get on an airplane for a one-way trip without paying the normal, vastly higher price for a round trip. The fractional market has also extended private jet flying to a wider



There are challenges to operating in Africa. In some ways it is like the Wild West, but we are persevering there and we believe there is definitely growth to come

audience, a number of whom go on to buy their own aircraft," he comments.

"We are seeing quite a lot of innovation in the industry, especially in the US, around empty legs. In the past the industry of necessity generated a wide variety of empty legs across the whole spectrum of charter. Now people are making a business out of marketing empty legs and we are seeing increased utilisation of business aircraft as a result. For some operators and owners it is a much-needed revenue source, for others it is a new way of addressing the charter market," he notes. For Foulkrod, however, this increased focus on one-way trips also has the potential for creating difficulties and challenges. Because it reaches down into the opportunistic end of the market it encourages the entry of charter sales brokers of variable quality. There are problems with the non-payment by some brokers of the relevant taxes, which leads to investigations by the IRS and the FAA, which does not do the reputation of the sector any good.

Avjet now has some 41 aircraft under management and continues to be highly focused on long-range, international travel and coast-to-coast flying in the US. "Being based in Los Angeles means that we do a lot of LA to New York five

hour trips, while London is a nine-hour flight," he says. Avjet owns two jets in its own right, a Hawker 800XP and a Gulfstream 150. "With the pick-up in the charter market in the US it is now relatively straightforward to provide an owner with 200 to 300 hours of charter, if that is what they want. We have aircraft in our managed fleet that do 400 hours a year of charter. It is up to each owner to decide on the level of activity that they are comfortable with," he says.

Interestingly, Foulkrod says that Avjet is now seeing an uptick in aircraft sales. The company is a major aircraft broker in addition to its aircraft management and operator activities. "We are seeing more interest from owners in acquiring new jets or upgrading their existing jets, than we have really seen since the global financial meltdown of 2008. But people are not fully engaged yet because of the very dysfunctional nature of the US government. The continued intervention in the markets and the currency wars we are seeing make people nervous. Plus the regulatory stream that seems to spew out of Washington at an accelerated rate is a chilling factor for business. We need a stable regulatory regime that enables you to plan ahead five and 10 years, which is definitely not what we have enjoyed for some time now." Foulkrod, like many of the business leaders in the sector, is no fan of the current Administration. "Corporate aviation is a business tool, but it is always under attack by politicians. They want to tax it more and regulate it more and there is a constant threat of overreach by government that is not good for any business," he notes. ■



Hawker 800XP

More for less is the key...

Anthony Harrington talks to Honeywell's Mike Bevens and PWC's Michael Perodeau

Every engine OEM wants their engine to be chosen on one or more new models being launched by airframe OEMs. Honeywell, which has had its HTF7000 series engine on Bombardier's Challenger 300 since the aircraft's launch in 2003, now has the upgraded version of that engine, the HTF7350, on Bombardier's Challenger 350, which was certified by Transport Canada in June 2014. The HTF7350 produces just over 7,300 lb of thrust.

"Bombardier has NetJets Europe as their launch customer for the Challenger 350," Bevens notes. NetJets, which saw its first Challenger 350 arrive in July 2014 for its US operation, and which took a further seven aircraft during the second half of the year, is due to take five more Challenger 350s through 2015. The order announcement dates back to NBAA 2013, when NetJets intimated that it could take as many as 200 of the aircraft over the coming years. "We recently completed an engine update with Bombardier. The reason for the upgrade was a perceived need for more thrust on take-off in order to keep the runway requirement under 5,000 feet and to speed up the time taken to reach cruising altitude.

"The time to cruising altitude is critical since this goes directly to the aircraft's range. The upgraded engine maintains the same Mach 0.8 speed at cruise altitude with a fully fuelled aircraft carrying its full complement of passengers," Bevens notes. Having worked closely with Bombardier on the Challenger 300, Bevens says that Honeywell had anticipated the need for an upgraded engine on a new Challenger model



Mike Bevens, Senior Technical Director at Honeywell

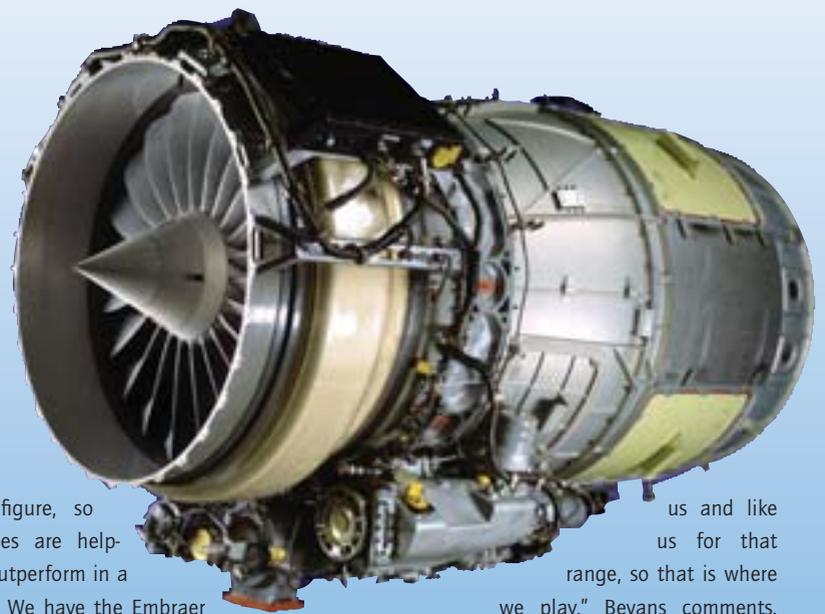
and had had the upgrade in its work plan from shortly after the launch of the Challenger 300. "Bombardier essentially waited ten years before it went ahead with the successor to the 300, but since we had been preparing for a higher thrust version of our HTF7000 family for all that time, it was pretty straightforward for us to produce the upgrade. We did not have to do anything particularly heroic to achieve the additional thrust," he comments.

Bombardier, of course, has done very well out of the Challenger 300. As Bevans notes, the aircraft's production sales held up pretty well through most of the bad years following the global financial meltdown in 2008. "They sell around 50 to 60 Challenger 300s each year and for a long while there was little pressure on Bombardier to do the next version. But then we had new aircraft like the Embraer Legacy 500 and the G280 from Gulfstream appearing and Bombardier had plenty of incentive to start work on the Challenger 350," he says.

Honeywell has also had its HTF7000 series on the Gulfstream 280, which is built in Israel for Gulfstream by IAI. "Sales of that aircraft are doing well. The G280 came out of flight test with 200 feet better than the brochure on take-off field length and range 200 miles over the

brochure figure, so our engines are helping it to outperform in a good way. We have the Embraer Legacy 500 out there and doing well with the HTF7500," Bevans notes. The Legacy 450 is the somewhat smaller, seven-seat version of the 500 and also has the HTF7000 engine family as its power plant. "It's the same engine. All we have to do is adjust the power-set ranges in the FADEC, so that is pretty straightforward," he adds.

Honeywell is very content to leave the higher thrust ranges to PWC and others. "We looked at the higher thrust categories, up above 10,000lb of thrust, but between 10,000 and 14,000lb of thrust you are in very crowded, highly competitive territory. Where we currently play in the 4,000 to 7,000lb thrust range we have a very well established position. Our customers trust



us and like us for that range, so that is where we play," Bevans comments. That doesn't mean that Honeywell completely ignores the higher thrust range. It has a very successful business providing components to other engine OEMs in that space, including fuel control systems, pumps and valves.

Similarly, Honeywell is happy to stay out of the light jet market, where there are three very capable competitors, namely Williams International, Pratt & Whitney and GE Honda.

So where is Honeywell going next on the engines front? Bevans points out that Honeywell's interests range from business aviation mid-size aircraft to helicopters, and turbo props. "We want to deploy our technology across all of them, as widely as possible. We are looking constantly at market opportunities for our FADEC



We recently completed an engine update with Bombardier. The reason for the upgrade was a perceived need for more thrust on take-off in order to keep the runway requirement under 5,000 feet and to speed up the time taken to reach cruising altitude

systems, for our low emissions combustion solutions. In the jet engine space the OEMs are all going for stand up cabins and you will see a new burst of aircraft in the 4000 nautical mile range segment coming to market, which plays well for us. The next big city pair groupings lie in that 4000 nm range. Whether the aircraft will end up being too big for our solutions depends on how the OEMs implement their vision. If they go to the high-Mach number approach (as with G650 and Global Express) then that would probably be too heavy for us. But we have very competitive power density (thrust-to-weight ratio) and we are getting a very good response from OEMs around our approach," he comments. Airframe OEMs all face the same pressures, namely to bring aircraft to market that are more fuel efficient, less polluting, with the required range. Honeywell has great solutions to offer, Bevans says.

After market care is huge for all engine manufacturers. Bevans points out that Honeywell's Maintenance Service Plan (MSP) is very popular amongst pilots, operators and corporate flight departments. "We have our support offering well dialled in to what our customer base want and expect and there is a very high uptake ratio on the airplanes flying our engines. People understand that a good maintenance package helps resale values as well as eliminating nasty surprises," he concludes.

P&WC celebrates certification for its PurePower® PW800 engine

On 15th February, Pratt & Whitney Canada celebrated achieving the certification of its PurePower PW800 engine by Transport Canada. The engine will power Gulfstream's new G500 and G600 business jets. As Michael Perodeau, Vice President, Corporate Aviation and Military Programs notes, the PW800 has already logged hundreds of hours of test flying on P&WC's Boeing 747 testbed. "The next stage is to port the engine to Gulfstream," Perodeau says.

P&WC has already shipped a couple of shipsets of the PW800 to Gulfstream and there are now more on the way. It is a particular point of pride with P&WC that it does the whole powerplant, including the nacelle. Perodeau says that P&WC is not releasing the exact numbers on the by-pass ratios achieved in the PW800.



You get very high bypass ratios on regional jets but they can hang big heavy engines off their wings and the bigger the nacelle, generally speaking, the higher the bypass ratio you can achieve

Michael Perodeau, Vice President, Corporate Aviation and Military Programs

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He'd rather play that close to his chest for fear of giving the competition rather too easy a 'heads up' on all P&WC's hard work. But he does say that it is a high bypass ratio for a business jet. "You get very high bypass ratios on regional jets but they can hang big heavy engines off their wings and the bigger the nacelle, generally speaking, the higher the bypass ratio you can achieve. The smaller scale of business jets limits what we can do, but this is all about optimising for high speed, high altitude cruising and for generating great thrust at take off so you can bring the required runway figures down to very attractive levels," he says.

So far, up to certification, the PW800 has clocked up over 3,300 hours of testing, including 350 hours of flight testing. "Basically we have demonstrated the performance and operability of the engine throughout the flight envelop of our 747 testbed. So this has confirmed the performance expectations that we have given to Gulfstream and that, after all, is the basic reason for flight testing," he comments.

Not surprisingly, since the PW800 was designed to be best in class, it is generating some very good fuel efficiency and emissions numbers. "Fuel consumption improvements are a driving force for the whole business aviation sector and have been for ages as far as engine development is concerned, since quite apart from the green agenda, fuel efficiencies go directly to range, and every owner wants more range for his or her aircraft," Perodeau says.

There are, of course, two elements to emissions improvements, one is cutting back on NOX emissions and the other is generating fewer particulates. The PW800 as the TalonTM X technology, which P&WC designed to be a low NOX combustion chamber and the engine is very low on particulate emissions. Much has been said about the fan on the PW800. It is a single piece titanium fan, with the various bits, including the blades, all friction welded under high pressure. This produces very clean joins with no imperfections and no weld area to create weaknesses. "With no joins, the fan acts like one continuous piece of metal," Perodeau notes. Linear welding has been around for ages but its deployment in turbojet fans has particular benefits - no one wants a turbine blade breaking loose at high speed.

P&WC has also been achieving good things with the venerable PT6. "The market remains reasonably healthy for our PT6. It is now on so many different aircraft and mission types, from agricultural aircraft to King Airs and the Pilatus P12. We are always looking at potential new variants of the PT6. We have studies under way for electronic controls on some variants. We do not have FADEC on it yet, but that is a technology that we are always studying and

we are getting prepared to incorporate FADEC when it makes sense to do so," he notes.

Perodeau reckons that P&WC is drawing some cautious confidence from the fact that a number of market indicators are moving in the right direction. "As far as the corporate market is concerned in the US, the flying hours are climbing back up towards healthy levels and have been moving up consistently for several months. Corporate profits across corporate America remain strong and the stock markets are buoyant, which is always a good sign," he comments. However Perodeau notes that all these plus points have not yet converged to bring about a really significant increase in manufacturer order books. "There is still a big question-mark over Europe, with some of the well known instability in some of the Eurozone economies. But at some point you have to hope that all the positive signs will prevail and will translate into a noticeable increase in new business for the business aviation sector. Airplanes are flying and the fleet, on average, is getting older, so people are going to want to replace old aircraft with these very attractive new models as soon as they can get confident that the global economy is back on track," he concludes. ■

Fuel consumption improvements are a driving force for the whole business aviation sector and have been for ages as far as engine development is concerned

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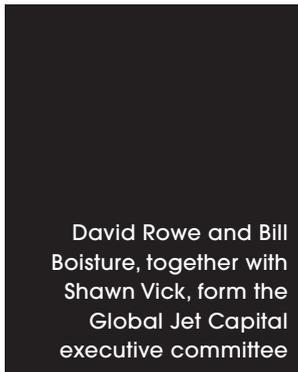
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Lease, don't buy – best advice for large cabin?

Anthony Harrington talks to Shawn Vick, Chairman, Global Jet Capital

Global Jet Capital is the best capitalised new entrant to the private aircraft financing market that we have seen in decades. Launched at NBAA 2014, the company represents the coming together of three global investment firms, GSO Capital Partners (a Blackstone company), The Carlyle Group, and AE Industrial Partners. The new company has the financial resources to fund in excess of US\$2 billion worth of new and pre-owned large-cabin, long-range jets. Global Jet Capital is already in the final stages of several major deals and has a full pipeline of prospective financings that should complete this year. EVA talked to Global Jet Capital's Chairman, Shawn Vick, General Partner at AE Industrial Partners, who together with Bill Boisture; well known as the former CEO of Beechcraft; and David Rowe; another seasoned industry professional and the founder and managing partner of AE Industrial Partners; form the Global Jet Capital executive committee.



Q: What led to the formation of Global Jet Capital?

A: The concept for the Global Jet Capital business model goes back several years. The original conversations with Claude Franco, David Rowe, Bill Boisture and myself began

around the time of the 2008 financial crisis. We started evaluating the possibility of launching an aircraft financing business that would specialise in operating and finance leases for large cabin private aircraft. We believed this platform should not only provide leasing solutions but also lending products such as progress payment financing as well as senior and junior loans for private aircraft. The opportunity to launch Global Jet Capital reached an optimal point in 2014 as demand for private aircraft financing started to pick up.

Q: Please elaborate on the various lease and loan products you are offering, remembering that not all of our readers may be familiar with financing terminology

A: Let's first talk about the different kinds of leases. Operating and finance (or capital) leases are perhaps the most important products we offer to the market. Both lease structures finance all or nearly all of the cost of the aircraft. This is important when you consider the price of a new long range aircraft. Banks typically will want to limit the amount they lend against a private aircraft to 65 or 70% of its value. This can leave the customer having to come up with \$10 or \$20 million of additional capital to acquire the jet. Both operating and finance leases address this concern by providing full financing.

In both lease structures, Global Jet Capital acquires the aircraft from the current owner (or the manufacturer) and leases the aircraft back to the end user. The lease is for a set term which can be as little as five years and as long as 12 years. The lessee (the end user) pays a monthly rental at a rate that is set at closing. During the term of the lease, the lessee will enjoy the full use and enjoyment of the aircraft. The lease contract will specify that the aircraft must be properly managed and we will take a view of the aircraft management company the end user wants to put the aircraft with, but for all practical purposes, it is their aircraft for the duration of the lease, which may well be for a good chunk of the life of the asset.

At the end of a finance lease, title to the aircraft will pass to the lessee when the final rent has been paid. A finance lease is effectively

a high loan-to-value loan and is typically accounted for as such.

The operating lease has a very different outcome. At the end of an operating lease, the end user simply returns the aircraft to the lessor. If the customer would like to extend the lease or purchase the aircraft, the lessor will explore those options, but in most cases the lessee is moving on to another aircraft. And the lessee is happy about that because it gives him or her a chance to move to another aircraft model. Maybe the motivation is to get into the latest technology offering or maybe a larger (or smaller) aircraft to better fit the mission profile. Regardless, the flexibility that an operating lease offers is compelling.



For clients looking for more traditional term loan financing for their new and pre-owned aircraft, we are able to provide 70 to 100% financing over seven to 12-year repayment terms

In the operating lease structure, the lessor takes all of the aircraft residual value and aircraft liquidity risk. If the aircraft is worth half of what everyone thought it would be or if it takes nine months to find another lessee or buyer for the aircraft, it is the lessor's problem – not the lessee's.

Operating leases also allow end users to avoid having to own an asset, which can have privacy or on-balance sheet accounting implications. From a budgeting standpoint, not having the variability of the residual value at the end of a finance lease (or a loan) allows the CFO to accurately project the cost of flying a private aircraft.

Q: You mentioned progress payment and other lending products when describing the vision for Global Jet Capital

A: Yes, in addition to the finance lease product – which is a form of lending effectively – Global Jet Capital will provide other types of loans to help finance private aircraft. We will work with clients to provide progress payment financing in connection with their new aircraft orders. For clients looking for more traditional term loan financing for their new and pre-owned aircraft, we are able to provide 70-100% financing over seven to 12-year repayment terms.

The junior loan product we offer can often be combined with a customer's relationship bank to provide 90-100% financing if desired. A junior loan – sometimes called a mezzanine loan – is the tranche of financing that comes as a kind of top-up to the senior loan amount, generally at a somewhat higher interest rate, since the junior lender is taking on the additional financing risk beyond the point that the bank deems it prudent to go.

Q: In the years following 2008 we saw the world's banking industry retracting mightily, withdrawing from a number of funding areas. In trade finance as banks pulled out, we saw capital market players coming into the trade finance space with dedicated funds. Is that a parallel with your thinking about the opportunities in aircraft financing?

A: That's a great example. The banks by and large are still somewhat reserved about making large ticket loans for non-core assets like private jets. Many lending institutions that were in the aircraft financing business prior to the 2008 financial crisis found having to mark those aircraft assets to market through the lean years was an extremely painful process. We are also, incidentally, in talks with a number of banks who are exploring the fit between our business model and their end customers. Leasing is not for everyone, particularly banks. If we can work with financial institutions to deliver operating lease products to their clients, we will be creating a win for all involved.

Q: You make a compelling argument for the operating lease. But can you persuade those who incline towards owning the jet outright to change their view?

A: Some aircraft owners are really invested in the idea of ownership. We expect a good number of clients to continue to pay in cash or utilise the more traditional, lower advance bank loans to partially finance the aircraft acquisition. But when relatively new large cabin jets fall by over 10% in value in consecutive years like we have just seen, the number of parties interested in operating leasing grows and it's reflected in the calls we are getting.

Q: So what made for the current timing for the launch of Global Jet Capital?

A: Over the last two years it has become clear that the large-cabin, long-range jet market has begun to stabilise. The industry has seen a good return to growth for this segment and manufacturers have built a solid backlog of orders. The super-midsize market has also picked up somewhat, though beneath that class of aircraft the market continues to be challenged. Anyway, two years ago we all got together again and started putting the Global Jet Capital concept together in earnest. We gathered two very capable financial partners, in the Blackstone subsidiary GSO Capital Partners and The Carlyle Group, with whom both Bill and I have had a relationship that goes back over a decade. We looked at the kind of growth that had taken place in the market, at the generally negative attitudes in the banking industry toward private aviation, the projections for growth in jet sales from Bombardier and Gulfstream and decided that now was a very good time to get into the business with a seriously competitive offering.

Q: Which markets are responding to your financing capabilities?

A: We are very purposely targeting the \$25 million and above asset class as the reasonable and

sound end of the market to invest in. The proposals that we are looking at from interested borrowers and lessees are global in scope. We literally have proposals from every continent and are looking at transactions in North America, Europe, Africa, Asia and South America. The aircraft under consideration range from Gulfstream 280s to 550s and Bombardier Global Expresses as well as Falcon 7Xs, Boeing BBJs and Airbus ACJs. The conversations include both finance leases and operating leases. Candidly, the interest in operating leases has exceeded our initial expectations.

Partially, what is driving this move to leasing is the way the price of new jets has rocketed in the last two to three decades. If you go back 20 to 30 years, the high-end jets were in the high teens and low 20s. The large-cabin aircraft like Boeing were for head of state or military use. Today you are looking at \$50 million to \$60 million for a new large-cabin aircraft. Tying up \$50 million in an aircraft does not make good business sense for most people.

Q: What makes you confident that you can judge residual values well enough not to get burned by them?

A: Our crystal ball is no better than anybody else's. But the way we have organised our platform allows us to thoughtfully manage residual value risk on a

portfolio basis. And that's the key. An individual or a corporation does not have the benefit of portfolio diversification and financing maturities that are spread out over many years. If you buy a new, expensive private aircraft in 2015 and plan on buying your next model in five years' time, you are subjecting yourself to the vagaries of the overall economy and the specific demand for that aircraft model in 2020. If that year turns out to be a down year, or if that particular model has been replaced by newer technology, you may bear the economic brunt of a lower than projected residual value. If we owned that aircraft, we would mitigate the risks of that particular lease expiry date and aircraft model with a diversified portfolio.

Our team has strong credentials in the private aircraft business and we are using that experience to build a portfolio to absorb the kind of volatility we have seen recently in aircraft values. Our capital is also very different to bank capital. We have permanent and patient capital that will allow us to invest across the aviation business cycle. If an aircraft comes off lease in a depressed market we are not compelled to sell. If conditions favour re-leasing it, we'll do that instead.

Q: Do you do anything other than financing?

A: We are a finance company. That being said, our long individual histories in private aviation allow us to offer a unique perspective. We can provide clients with a complete package solution, which together with financing may include a power by the hour type support programme for the jet and its engines.

We can blend in a complete solution for prospects, including the financing. One client is returning to the charter business after a three-year hiatus doing other things. The client had eliminated all of his infrastructure when he left and is now looking for infrastructure that goes with managing and operating aircraft to be funded as well. We are putting together a complete funding package for him. ■





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New brand... same plan

Gogo goes for growth

EVA talks to John Wade, Executive VP and
General Manager, Gogo Business Aviation



In September 2014 Aircell, which provides in-flight communications combining air-to-ground (ATG) and satellite communications systems to business aviation, rebranded as Gogo Business Aviation. The business aviation (BA) division sits alongside Gogo's commercial aviation division, and both divisions are doing exceptionally well. Gogo's BA revenues grew by 35% in the fourth quarter of 2014, by comparison with the same quarter in 2013. The division contributed service revenue worth US\$20.3 million to Gogo's record fourth quarter results.

Gogo is now on some 2,000 commercial jets and has more than 8,000 systems flying aboard business aircraft. EVA spoke to John Wade, Executive Vice President and General Manager of the rebranded company, about the rebranding and Gogo's plans for connectivity services on business jets.

Q: It is always a risk when an organisation drops a well-known brand name. What was the rationale for rebranding Aircell as Gogo Business Aviation?

A: It was one of those things we did deliberately, and with a lot of forethought. We took the view that the Gogo brand in the commercial aviation space was very strong and we were seeing operators going to dealers and saying that they wanted the same service on their private jets. This led us to see that the branding around our commercial airline broadband product was much stronger, as Gogo, than the degree of recognition being enjoyed by the Aircell brand in business aviation. We eased into the change by rebranding the products ahead of rebranding the company, and it has worked out very well for us.

Q: For those who are unfamiliar with your in-flight communications and entertainment product lines, can you provide an account of these? It would also be useful to explain the way in which your air-to-ground (ATG) network and your satellite communications capabilities combine to provide these services.

A: Certainly. We have a number of different networks, or options, for bringing connectivity and communications to the cabin. We offer services over satellite, starting with Iridium. This is

a global satellite network of 66 active satellites in low earth orbit which allows global coverage with base stations on the ground. Iridium has an exciting next-generation programme called Iridium NEXT, which will consist of an updated constellation of 66 satellites. These will be launched between 2015 and 2017. We are the world's largest provider of today's Iridium services in aviation and more than 5,000 business jets take this service from us.

About six years ago we introduced our Gogo Biz broadband product to the US, which provides several megabits of connectivity to the aircraft. There are currently around 3,000 business jets that take this service, including operators like Avjet and JetSuite as well as NetJets, the biggest fractional operator in the world. We also offer services based on Inmarsat's Swift-Broadband satellite service, and for this we are a reseller of AVIATOR Satcom terminals from Cobham and we are a SwiftBroadband service provider. The whole idea now is that Gogo is a one-stop shop for virtually all communications products to the aircraft. This includes everything from cockpit safety services to in-cabin broadband, internet, in-flight entertainment and voice services. We do everything on the aircraft, from the handsets to the router.

Q: You recently introduced a new router product, the UCS 5000, which doubles as a media server for your Gogo Vision product. How does having a library of films stored on the server compare and compete with streaming movies? Don't people prefer to have access to Netflix or some other streaming movie provider?

A: The whole idea of the UCS 5000 router is to simplify connectivity for passengers and crews. One example is allowing you to move seamlessly from air-to-ground connectivity to satellite broadband without having to manually switch between systems, because you are out over the ocean, for example. We have been able to add very substantial storage and movie streaming capabilities to the router so that we can provide Gogo Vision in-flight entertainment and information service as an option for customers. Gogo is now the world's largest streaming IFE company. Today we have some 1,500 aircraft streaming wi-fi video from the UCS router to end user devices.



Much is made of the potential for in-flight watching of films streamed over broadband from terrestrial providers like Netflix, but what I tell people is that with the cost structure associated with data streamed to aircraft, it would almost be cheaper to make the movie than to watch it via streaming video. Having a large library of recent releases cached on the aircraft is orders of magnitude less expensive for end users, so why would you not go for that option rather? There is a lot of controversy over the legality of movie content on servers on business jets. With Gogo Vision operators know that they are on a secure footing. We do all the digital rights management (DRM) with the various studios and we work with them so that we are able to provide their latest releases as soon as they become available for home viewing. Because we take care of everything the operators of business jets do not have to worry about the Hollywood cops or the Bollywood cops descending on them over licensing issues. They know that they are in compliance and everything is as it should be. Actually this is not an easy thing to do. There is quite a bit of work required to get the digital rights signed off. The studios have to evaluate your entire infrastructure to make sure that there is no risk of decrypted movies finding their way onto the black market. We work with the studios to make sure that they are comfortable.

One of the great things about our on-board router is that we update the content of the entertainment library wirelessly as soon as the aircraft lands at one of the FBOs that we have an arrangement with. Right now we have an arrangement with Signature Flight Support, so at its various FBO locations, while your aircraft refuels the server looks for the Gogo cloud access point and starts downloading the video updates. This means that there is no need for technicians to go chasing after the aircraft to provide a manual feed of the latest releases, news content and so on. Operators can also soon have the update service provided direct in their own hangars. ■

For Gogo Vision, operators pay a flat monthly subscription plus a fee for each movie or TV episode they watch



Managing the change

Rapid growth, emerging new markets, opening new bases, hiring new staff, selecting new partners, all this need to be well managed by aviation organizations if they want to achieve the desired results in a timely manner. Recent history has showed that many operators failed to manage change in a sustainable way. This in turn led to wasted resources and, in some cases, to business failure.

With the implementation of Safety Management Systems in our industry, the change management process has found its way into aviation safety regulations. The increased risk which could impact operations as a consequence of a change implementation now need to be explicitly identified by management, and the associated risks need to be controlled and monitored. The risks involved cover a wide spectrum and include commercial, operational, human and compliance risks, all of which need to be managed proactively.

However in real life the management of change is often an uncontrolled process. Organizations try to mitigate the risk of moving into new markets, for example, by hiring experienced people with different cultural backgrounds, but they often fail to implement a structured process which they can control. There are personal risks here for management. In a worst case scenario a change not managed properly may even result in a change of the company's management, which was definitely not the intent when the change requirement was identified.

Change Management is an essential process which requires a professional and structured approach and needs to be supported by experts, to avoid negative outcomes and to achieve success.

Joel is the managing director of AeroEx an aviation consulting company based in Switzerland, offering a wide range of services to both commercial and non-commercial aviation organizations. He is a member of the EASA Rulemaking Group OPS.001 and chairs the EASA OPS Review Group 02. He is on the IBAC Safety Management System Working Group and is a safety management system workshop lecturer for EBAA.

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The EVA-Atlantic FuelEx MEBA beach party 2014

EVA's MEBA Beach Party, sponsored by Rani Awad, CEO of one of the world's fastest growing aero-fuel companies, Atlantic FuelEx, and held at Dubai's iconic Atlantis Hotel (Nasimi Beach Bar), was the most talked about event at MEBA 2014. Some 729 invited guests from across the business aviation sector enjoyed a free bar till the small hours, tremendous music, and a vast selection of barbeque'd food. The seniority of many of the guests gave everyone plenty of opportunity to combine networking with partying - a great mix in anyone's eyes! We are all looking forward eagerly to the next EVA bash which will take place in Geneva during EBACE 2015.

For more information about EVA parties, please contact max@evaint.com





PHOTO SPECIAL: MEBA PARTY





The once and future gathering

On 19 to 20 February some 200 delegates attended EVA's second Future of Business Aviation Conference, held once again at the Heathrow Hilton, Terminal 5. The aim, as with the inaugural conference last February, was twofold. First, to bring about an occasion for leading figures in the industry to provide thought leadership as they pondered where the various sectors in business aviation have got to since the Great Recession of 2008, and, more important yet, what 2015 and beyond might hold in store for all of us. The second goal involved setting aside the crystal ball and using the lunch and refreshment breaks, plus the outstanding Gala Dinner on the Thursday evening, to network, chill and party. The general consensus, according to both delegates and speakers, was that both goals were achieved handsomely!

A third goal was to introduce delegates to the concept of the EVA Association (EVAA).

The aim of the Association is to foster links and to promote and facilitate deals between members that might not otherwise come into fruition. The journal's wide network of contacts generates a range of opportunities for the EVA team to play "matchmaker" between parties with common interests. Again, as EVAA grows, it will help, in its own way, to promote the industry and help drive things forward, even as EVA's print and digital editions celebrate the industry's successes. The idea of the Association was greeted with interest by delegates. Satcom Direct and Rani Awad's Atlantic FuelEx have both signed up and EVA is in discussion with a number of other companies.

The conference was opened by the Chairman, Jahid Fazal Karim, co-owner and board member of Jetcraft. The first session, on the future of light flight began with presentations by Nextant President and CEO Sean McGeough and Richard Koe, co-Managing Director of WingX Advance. McGeough came to the Fu-

tures Conference buoyed by the successful first flight the previous month (January 2015) of Nextant's second remanufactured aircraft offering, the G90XT twin turboprop, and the fact that Barron's has named the Nextant 400XTi as the best aircraft in the light jet category.

Perhaps even more important, however, is the fact that the company has so far sold one or more of its aircraft in 14 different countries, showing that the demand for top quality light jets is global and can be expected to grow. Nextant will be delivering its first 400XTi to China in the first quarter of 2015 and obtained its STC validation from the Civil Aviation Administration of China, clearing the way for Chinese operators to acquire the 400XTi. McGeough emphasised that Nextant has proved the success of the remanufacturing concept as a viable route for business aviation. Basically, Nextant has shown that remanufacturing makes it possible to design, build and certify an aircraft that delivers like-new performance for half the

cost and in a fraction of the time that it takes to bring a new clean-sheet jet to market. The long term implications of this for the business aviation market have still to play out, but by extrapolation, the process has the potential to refresh whole swathes of the active fleet, and restore as-new performance to some of the most popular older aircraft models out there.

McGeough pointed out that while a re-manufactured jet was not for everyone the process has already turned an ageing aircraft into a sparkling new addition to the light jet segment. Koe addressed the prospects for recovery in the light jets market, particularly in Europe, where so many business trips have a journey time of under two hours and involve no more than two or three passengers. "Journeys of under 2,000 nautical miles (3,700 kilometres) form a considerable proportion of all business trips across Europe. As intra-Asia trade grows and the infrastructure roll out of new airports and the opening up to business aviation of what are now military airfields continues, prospects for the light jets market will improve. Flight departments are under pressure to address business private jet travel in a fiscally prudent manner and light jets with high quality business jet-style interiors and facilities such as wi-fi and broadband communications, have much to offer in this space, he pointed out.

Session Two, OEMs and Operators - Joining the Dots, was one of the strongest sessions of the conference, and featured Brad Nolen, Director, Product Strategy and Market Development, Bombardier Business Aircraft, plus Jose Eduardo Costas, Senior VP, Marketing and Market Intelligence, Embraer Executive Jets, and Achuzie Ezenagu, Managing Director at Toucan Aviation.

Jose Costas addressed what is undoubtedly one of the biggest challenges facing OEMs today, namely the way technological changes and market demand are combining to dramatically shorten the design cycles for new aircraft models. "OEMs have been accustomed since the middle of the last century to recycle their old models, stretching the fuselage a little, adding more range, and so on. But innovation and market demand is now pushing OEMs to think much more in terms of new clean sheet

designs and we have to do it so much faster than before," he noted.

At the same time, doing this in an already crowded market, where there are some 40 different aircraft models fighting for total sales of less than 700 units in 2014, is a very tough call. "What we are also seeing is that market segments are starting to overlap, so distinguishing between a mid-range and a super-mid range jet is getting more difficult. Features migrate from one category to another and become the new standard, so now everyone has flat floors and stand up cabins. Wet galleys and larger baggage holds are now table stakes



so you have to find still other ways of differentiating your product," he commented. "What is absolutely clear is that technology life cycles are now much shorter than the economic life of the product, so we have to take account of this at the design stage," he noted.

We have already seen fly-by-wire migrate to the mid-size aircraft. Top of the line avionics that combine synthetic vision with state-of-the-art topographic mapping are now available for the light jet segment, not just the mid-size or large continental jet. For the end customer, pilots and operators, this is all good news, but the challenge for the OEMs is figuring out how to stay on the leading edge of the innovation curved while still remaining profitable.

At the same time, OEMs need to provide

very comprehensive, global levels of customer support. "AOG is a huge challenge unless you have a global support network. At the same time you have to be able to cap owner costs through maintenance programs that transfer risk back to the OEM. Since 2008, some 80% of aircraft sales in this market have been replacement aircraft to existing owners, so customer retention is a vital part of business success for OEMs, just as it is for the rest of the sector. You can't rely on large numbers of new customers coming in to replace those you lose, he pointed out.

Brad Nolen cheered delegates up by reiterating Bombardier's confidence in its forecast that the sector will see sales of some 9200 new jets through the next ten years. 50% of the revenue generated will be in the large body, inter-continental category. The expectation is that sales will be slower in the first five years, ramping up in the next five. Of itself this number is more than enough to keep the sector profitable if people stay at the top of their game. Nolan agreed with Costas that range, speed and seating are all becoming commoditised. Competition in the years ahead will increasingly come down to design.

"This is basically a small market where hand finishing and craftsmanship can make all the difference. Attention to detail is going to be key," he told the audience. More and more OEMs will want to innovate in avionics, in the cabin interiors, in seat design and this will put pressure on suppliers already in those niches, he suggested.

On the plus side whereas in business aviation's dominant market, the USA, there are around 60 business jets for every £100 billion of wealth, in countries such as China and India the corresponding figure is just one business jet for every £100 billion of wealth generated. That leaves tremendous scope for additional aircraft to come into those markets in the years ahead, he pointed out.

Toucan Aviation's Achuzie Ezenagu told delegates that he expected short hop, under two hour trips to dominate business aviation in Africa for years to come. Intra-Africa trade is slowly emerging but there is a tremendous amount of work that still needs to be done in terms of harmonising flight regulations be-



tween countries before we will see anything corresponding to European private flight schedules, he commented. Nevertheless, Ezenagu said that Toucan was expanding its fleet with the addition of two further mid-range jets.

Session Three, The future for FBOs, saw Allan McGreal, CEO of Rizon Jet UK warning the industry that it needed to rethink the current trend that portrays FBOs as merely a short strip of polished marble flooring located between the car park and the ramp, which the client wants to move through with all possible speed. FBOs can be so much more than this and can offer the client a great deal, including being a place to relax and hold meetings. However, for FBOs to attract investment on the scale of Rizon Jet's £29 million Biggin Hill FBO, stripping FBO services down to the bare, functional minimum won't work. Owners have to be encouraged and educated as to how time spent at the FBO can add value to their journey and the facilities have to be of a standard that top CEOs and high net worth individuals expect. The whole industry is in danger of losing the client to the first class operations mounted by commercial carriers, he warned.

"Between them, the major commercial carriers have spent over £690 million in the past twelve months on new and enhanced visitor lounges to enhance the experience available to executives and wealthy passengers. Our industry will not be able to compete with that level of spend if we keep pushing FBOs to be

simply functional "gateways", he warned.

McGreal's message to FBO operators was that they need to diversify their revenue streams if they want to survive. "Make no mistake, this is about survival. You need to forge links to your surrounding communities and use your FBO investment to host events that both generate revenue and demonstrate to prospective customers how attractive your facilities are," he commented.

Session 4, The pre-owned market, was presented by Jahid Fazal Karim, co-owner and board member, Jetcraft. With some 2,200 aircraft on the market, Jahid pointed out that the business aviation market is getting appreciably closer to the "normal" benchmark, which is where the pre-owned market constitutes around 10% of the active fleet. Values in both the large and the mid-sized markets appear to have stabilised and the whole market is drawing a sigh of relief at the fact that the US economy saw growth of 8% in the final months of 2014, and appears to be on track for 3% or better, year on year GDP growth. However, to see a real recovery in the business jets market we need demand in all regions to return. It may take several years more to get to the levels seen in 2007, before the Great Recession, but steady growth in the major markets would help.

Unfortunately, growth is still very patchy, with some regions doing well and some doing badly. Russia, Jahid noted, is now a very



difficult market, given the way the economy is being hammered by sanctions over Russia's support for the separatists in Eastern Ukraine. Europe is a mixed story, with Spain showing some positive growth finally. China is difficult, both because of a slowdown in the economy and because business jets are being caught up in the anti corruption campaign being waged by the Chinese government.

"The Middle East has always been a good market for business aviation, and continues to be so today, with the exception of Syria. Brazil is slowing, while demand in Mexico continues to grow. Mexico is important because it absorbs a good deal of the lower cost side of the pre-owned inventory," Jahid commented. He pointed out that despite the lack of buoyancy in the market since 2008, Jetcraft has nevertheless managed to grow its business year on year by around 10%. "The thing to remember is that you can still grow in tough times - you just need to stay strong and stay focused," he told delegates.

Session 5: Completions - designing the dream jet interior was presented by Daron Dryer, Director of Engineering at Comlux America, and Howard Guy, CEO, Design Q. Having a designer and an engineer on the platform for the session gave delegates a chance to see how essential it is that both professions work together to produce the dream interior. Dryer's presentation was an eye opening glimpse into how aircraft interiors might look a decade or so from

now, when curved surface viewing screens allow designers to replace aircraft windows with a full side wall surface viewing screen stretching from one end of the aircraft to the other - or segmented if the design calls for that. This kind of technology breakthrough will pose no difficulties for engineers and will give designers the ability to use high definition screen technology to transform interior walls into dreamscapes or realistic views. Users could have as much control over what is depicted as they now have over mood lighting in some of the more advanced business jet interiors.

Another piece of future-tech Dryer sketched out was the extrapolation from today's technology of noise cancelling headphones, to noise cancelling cabins, where the persistent rumble and hum of aircraft engine noise vanishes completely.

Howard Guy, who had some 13 years experience designing Jaguar car interiors before taking up business jet interior design 17 years ago, warned that designers need to ensure that they do not allow themselves to be overly



guided by the customer's view of what they want. "If your goal is to wow the client, simply giving them what they expect will not achieve that. You have to go beyond their vision and show them something they have not yet imagined but that captivates them when they see it," he comments.

The closing session on Day One, Session 6 - The future for business aviation in Asia, was presented by Robert Molsbergen, President of

Executive Jet Management (EJM) and COO of Global Aircraft Management for NetJets. EJM is the first international operator to be approved for a CCAR-135 operating certificate in China, but as Molsbergen emphasised, getting there was a long and somewhat tortuous road. EJM began discussions with the Chinese regulator in 2010 and it took four years to get there - two and a half, if you start the clock from the time EJM announced its joint ven-

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ture with its Chinese partner. However, much has changed since 2010. The two big clouds hanging over the continued growth of business aviation in China are the slowdown in the Chinese economy and the government's current anti-corruption campaign. The latter, in particular, is a serious concern since its impact as a chilling factor on the use of business aviation should probably not be underestimated, Molsbergen warned.

Nevertheless, China remains a very exciting market with phenomenal growth potential. There is every chance, taking the long view, that the China market will grow to rival the US market. In the short term, even at more subdued rates of growth, China is likely to generate some one million high net worth individuals. The NetJets strategy is to move slowly, initially deploying EJM's aircraft management and charter skills and waiting until the time is right to introduce a fractional model into China. At present Molsbergen noted, the fractional model is ruled out by legislation preventing the part ownership of private jets, so there is a lot of development work and lobbying to be done yet.

In the evening delegates attended EVA's Elite Business Aviation Networking Party, with entertainment and an open bar till midnight, courtesy of the generous sponsorship of Rani

Awad, CEO of Atlantic FuelEx. As readers will see from the photo session, a great time was had by all! Day Two began with Session 7 - the future of aircraft management, when delegates were treated to the contrasting views of Mike Moore, Vice President of Aviation Sales at Meridian Air Charter, and Dagmar Grossmann, CEO of Grossmann Jet Services.



Moore began by reminding delegates that there is nothing simple about identifying an appropriate budget for maintaining and running a particular aircraft. "There are key variables that you have to consider such as where the aircraft is in its life cycle, how far off it is

from its next major inspection, the upgrades that are likely to be needed, what the owner's appetite is for charter and of course, how much it is going to be used," he noted. A typical split across the industry in the US when it comes to charter fees is an 85/15 split, with 15% of revenues going to the management company. Fuel surcharges are passed 100% to the owner. This is an expensive asset and owners need to take the trouble to identify an aircraft management company that is going to be the appropriate choice to manage a multi-million dollar asset. "Going with the company that charges you slightly less, so that price is the only determinant is a very strange way to treat a \$23 million aircraft," he pointed out.

Dagmar Grossman is at the other end of the scale from the Teterboro-based Meridian, since Grossman Jet Services manages a single large private jet. Grossman emphasises that the operator's life has changed dramatically in the last few years. "Instead of just taking care of an asset for the client, the operator is now very often in a tri-party agreement instead of a bilateral agreement. It is no longer just you and the owner, now the bank or banks are part of the deal. Banks worry, since the 2008 crash, about having to repossess an asset that has deteriorated in value, so they want to bring the aircraft



management company into the deal and give them the responsibility for keeping the value of the asset as high as possible," she notes.

Grossman was instrumental behind the founding of the industry forum, CEPA, Central European Private Aviation, in 2009. In her view, management companies and operators need to get together to agree minimum rates so that no one poisons the market through reckless undercutting in pricing. "I am of the view that we as management companies would benefit from having a regulatory framework that we all adhered to," she told delegates.

Session Eight, The future flying office, was a panel discussion with James Person, Director, Global Business Development, General Aviation at ViaSat, Ken Bantoft, VP at Satcom Direct, Kurt Weidemeyer, VP, Inmarsat, and Karina Larsen, VP, Satcom1. With two satellite companies and two of their major resellers on the panel delegates were treated to an in-depth account of how broadband speeds are going to improve when the next wave of satellite services commences. ViaSat is due to launch its fourth satellite this summer, while Inmarsat's Global Xpress will be the first high-speed broadband network to span the world. Person noted that the exponential growth of mobile data consumption on the ground is

now being seen airborne. Networks will require a similar increase in capacity to support a true office in the sky environment. Satcom1's Karina Larsen pointed out that while broadband connectivity in business jets has trailed woefully behind the kind of speeds that users enjoy in their homes, within a short space of time, anyone who currently has only a cou-



ple of megabits per second broadband to the home, will find that business jets have a vastly superior connection to their home service. "It really is going to flip round," Larsen noted.

The panel stressed the fact that an enormous amount of effort is going in to ensuring

that broadband connectivity in jets is as secure as it possibly can be and that on the pricing side, owners and passengers are protected from unpleasant surprises when they get the bill for the service. Ken Bantoft pointed out that Satcom Direct has a complete suite of tools to help both operators and users get the most out of whichever network service is appropriate for them. James Person explained that when ViaSat-2 launches later this summer, ViaSat's coverage will include the Atlantic Ocean between North America and Europe and will provide an order of magnitude faster broadband connectivity than existing satellite systems.

Session 9, the future of fuel, was presented by Miguel Moreno, Global General Aviation Manager, Air BP. Miguel pointed out that the level of service required from fuel providers in meeting the needs of business aviation is extremely high, while at the same time, the level of product innovation taking place right now is enormous. The need to produce "green" fuels which help the industry to respond to public concerns about emissions is inescapable. "There is tremendous potential to reduce carbon emissions on a country by country basis. Carbon emissions from UK aviation could be reduced by 1.7 million tonnes per annum by 2030 by switching to include biofuel, and by

18% by 2050 through the uptake of sustainable aviation fuels," he commented.

Air BP is working with partners to address these goals and is actively investigating how to differentiate its fuel offerings through the introduction of low carbon products. It is working with the parent company, BP, to develop a "reduce, replace, neutralise" strategy which will benefit business aviation as a whole. "Air BP is an active participant in all facets of the carbon market," he told delegates and provided a range of examples of active projects already in hand to reduce emissions across its operations.

Session 10, The future of charter, was a panel discussion led by Richard Koe, Managing Director, WINGX Advance, as moderator. The panellists were David Roberts, Director of Regional Sales & Aircraft Management, Avjet Corporation; Oliver King, Managing Director, Avinode, and Glen Heavens, Managing Director of Synergy Aviation. The themes that really came out of this session were the dramatic changes taking place across the charter industry, driven by the twin facts that end users are becoming ever more "savvy" about selecting and pricing charter flights even as specialist internet services give them the ability to find information about charter flights and pricing for themselves. This in turn is leading to a much more cost effective use by customers of empty leg bookings at discounted prices. Glen Heavens pointed out that there has been almost no growth in the charter market in Europe in the last five years - though figures from the US are now looking much more promising.

Oliver King talked about the recent sale of Avinode, which provides an electronic platform to bring sellers and buyers of charter services together, to Multi Service Technology, which is owned by World Fuel Services. "We wanted to make sure that Avinode continues to be a powerful business-to-business market place for aircraft charter and the deal with Multi Service gives us the strength to develop the platform further," King said. Avjet's David Roberts said that Avinode was a very useful tool in their business, bringing approximately 10 to 30 charter requests a day, often resulting in one to three additional bookings a week. However, every inquiry has to be followed up in depth by the sales team to ensure the right



fit between client and aircraft. Despite the rise of new platforms aimed directly at giving the end user the power to find and book charter flights for themselves, the panel felt that there would always be a role for brokers who took their business seriously.

The final session of the two day event focused on how the industry identifies and provides services to high net worth individuals. Christina Riess, CEO of the aircraft management company, A/SQUARE, gave a presentation and it was followed by a panel discussion, with Christina being joined by Synergy CEO Glen Heavens and Miguel Moreno, Global General Aviation Manager, Air BP. Christina pointed out that by the end of the decade there will be some 2,325 global billionaires, and around 900,000 HNWI millionaires. The definition of an UHNWI she suggested is investable financial assets of more than \$20 million, while a HNWI would be someone with investable assets of \$1

million a year. Using those criteria there were approximately 211,275 UHNW individuals in the world in 2014. These individuals, and/or the businesses they run have just over an 82% share of the business aviation market in terms of jets owned. As Glen Heavens commented during the panel discussion, while the business jet is undoubtedly a powerful business tool, the whole industry rests on the purchasing power of a tiny proportion of the world's population. "Even if we broaden the numbers out to include everyone who charters an aircraft, I suspect that we would all be a little shocked at how small the numbers are, by comparison with the general population," he noted.

Christina provided delegates with a fascinating insight into the principles that drive UHNWIs. "They do not want to be served up the most expensive option, just because they are wealthy," she pointed out. They want control and transparency and they only work with people they trust and who they judge can do that particular job better than they can do it. And they only recommend someone to a friend if they thoroughly trust that person. So the importance of building a trusting relationship cannot be overestimated, she emphasised. Miguel Moreno has extensive experience of HNWIs and UHNWIs, having previously held senior roles in BP's marine division, dealing with the refuelling of super yachts. "Yachts are pure luxury items, with a little business thrown in, while business aviation is mostly business, with a little leisure component. What we have to ask ourselves all the time is what is it that this particular client wants? What are his goals and how can we help him fulfil them as far as business aviation is concerned?" ■





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