



SAN MARINO AIRCAFT REGISTRY

SMAR Angels – The Agile Leadership Team

The Place to Be – Collins Aerospace Venue Capacity to Connect – Inmarsat, Intelsat, OneWeb, SmartSky Networks, Viasat & Moment The Ups and Downs of Success - Mohamed Hanno, Founder & Executive Chairman, ASE Group APP-arently More – James Moon, CEO, TailHail & Laurent Vallet, CEO, Get Heli



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Editor's NOTES



Paul E Eden paul@evaint.com

ith private and VIP aviation continuing their upward trend, the industry has to a limited extent been able to meet face-to-face once again at gatherings including Air Charter Expo 21 at Biggin Hill, London, in September; the NBAA-BACE show in Las Vegas during October; and November's Dubai Airshow.

Those events provided a forum for news, business and discussions about the future – which we now know will include the Bombardier Challenger 3500, a thorough modernisation of the super mid-size Challenger 350. Setting improvements to airframe, cabin, engines and systems aside, the Challenger 3500 has been designed with its lifetime environmental impact understood from day one, through an environmental product declaration, marking a commitment that it currently only shares with the Global 7500.

Gulfstream too has been busy, announcing the ultra-long range, Mach 0.925-capable G800 seemingly hot on the heels of the G700, which it expects to deliver for the first time in 2022. Continuing the close relationship forged over decades between the airframer and Rolls-Royce, the G800 promises an ultimate combination of speed and comfort for operators and owners looking to fly half a world away.

Yet still there are challenges to face, especially in terms of perception from outside the industry. In October and November, the UK hosted COP26, the UN Climate Change Conference. Business jets and head-of-state aircraft inevitably played an important role in bringing world

leaders safely to Glasgow, Scotland, for the event and, perhaps equally inevitably, their presence generated a media storm.

Elements of the COP26 operation were certainly suboptimal from an aviation point of view, but when the media generates stories founded on ignorance, shouldn't the industry respond with well-chosen facts? And an admission that yes, its aircraft do emit more carbon per passenger than an airliner, but that it is working hard to cut and ultimately eradicate those emissions? It seems we remain very good at telling one another what we do, but seldom reach out beyond the industry to inform others.

Our cover image for winter reflects upon a challenge the industry is no longer shy about: its efforts to become more diverse. The ladies are all members of the team at the San Marino Aircraft Registry, where President David Colindres is keen to continue encouraging women into the aviation industry.

In this edition we also meet the extraordinary Mohamed Hanno, Founder and Executive Chairman of the ASE Group, who reckons after almost 50 years in aviation that Jet A-1 rather than blood flows through his veins. In contrast, Neil Book, Chairman and CEO at JSSI, came to the industry in 2008 with no aviation experience at all, and is now hooked.

Hanno and Book are just two among the many passionate individuals we speak to this time around as we explore subjects as diverse as helicopter safety, charter apps, the benefits of a large cabin and the latest developments in the Venue cabin management system from Collins Aerospace.

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Contents / WINTER 2021



Issue 56 2021 www.evaint.com

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ISSN 1754-1166



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Published by:

EVA International Media ltd Boswell Cottage 19 South End, Croydon London, CR0 1BE, UK

Tel: +44 (0) 20 8253 4000 Fax: +44 (0) 20 8603 7369

www.evaintmedia.com

Printed by:

The Manson Group Limited St Albans, Hertfordshire AL3 6PZ, United Kingdom

Distributed By:

Asendia UK LTD Heathrow Estate Silver Jubilee Wav Hounslow, TW4 6NF









SMAR Angels 4

The San Marino Aircraft Registry includes a core group of female staff at the heart of its business offer, while President David Colindres is keen encourage more women into the industry

Disciplined Expansion 10

JSSI Chairman and CEO Neil Book assumed he was signing up for a two-year assignment in 2008. He explains the company's philosophy as it continues adding new products

Large Cabin Comforts 14

Large cabins provide benefits in comfort and living space. We spoke with Camber Aviation Management, Comlux, Greenpoint Technologies and Lufthansa Technik executives to learn more

Maintained & Measured

Digital tools are transforming engine maintenance as Pratt & Whitney Canada's Satheeshkumar Kumarasingam and Megha Bhatia at Rolls-Royce reveal

The Place to Be

Collins Aerospace has updated its Venue CMS. Craig Bries, VP Sales, Marketing and Business Development, Avionics, and Tracy Miller, Venue Engineering Lead, Avionics, describe the changes

30 APP-arently More

Get Heli and TailHail, new app or web-based systems, are reinventing the way helicopters and private jets are chartered. We booked CEOs Laurent Vallet and James Moon for a discussion

The Sky is Not the Limit

MySky is a revolutionary business aviation spend management platform, as CEO and Co-founder Kirill Kim explains

DuPage Flight Center: Gateway to Chicago

Located close to Chicago, Illinois, DuPage Flight Center is a Phillips 66-branded FBO offering capacious ramp and hangar space. EVA spoke with General Manager Brian DeCoudres to find out more

Agusta – The New Brand in VIP Rotorcraft 40

Leonardo Helicopters is highlighting its VIP helicopter capability with a new brand - Agusta

Days of Honda

Having proven its HondaJet fractional ownership programme in North America, JetClub came to Europe with the same concept last June. Founder, Chairman and CEO Vishal Hiremath explains

Capacity to Connect

Inflight connectivity has never been more critical to business and VIP aviation, so EVA asked Inmarsat, Intelsat, OneWeb, SmartSky Networks, Viasat and Moment for their latest news and comment

20 Years with Textron

Air Charter Scotland is marking 20 years of operating Cessnas, while navigating Brexit and COVID, as Derek Thomson, Commercial Director/Ground Operations Manager reveals

The Ups and Downs of Success

Founder and Executive Chairman Mohamed Hanno tells the extraordinary story behind the ASE Group's ground handling and global flight support operations in Egypt, Morocco and the UAE

Managing the Variables 55

Starspeed's Simon Mitchell and Maritime Aviation's Jonathan Turner look at off-airfield helicopter safety, while Survival Systems USA's Keith Wille examines worst-case options



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SMAR Angels – The Agile Leadership Team

avid Colindres is the President of the San Marino Aircraft Registry
"SMAR" an organization that has been remarkably successful over the past decade.
David runs a tight ship in all aspects of operations, boasting excellence in product and service quality and a finely tuned organization. The registry capitalizes on its skilled human resources department and enjoys having the finest service and end-to-end customer experience in its industry.

David believes that if the registry wants to be fast on its feet, transform customer experiences, and continuously outpace competitors, it needs to create a truly agile enterprise.

Thus, building an agile enterprise means finding the right balance between standardizing operations and pursuing (sometimes risky) innovations. We are running an aircraft registry; you would want to make sure that safety and service were of consistently high quality and that our team approach was always appealing. At the same time, we need to innovate, adapt to new international standards and industry best practices. If you pay insufficient attention to operations, quality slides and costs rise, harming our operators and the business.

SMAR Angels - The Agile Leadership Team

The agile leadership team consists of the Operations, Legal, Finance, and the State Safety programme departments,—the individuals most critical to the components of our operating system. They are called the **SMAR Angels** and have a combination of four traits and competencies that emerged as key to their success: courage, resilience, lateral thinking and managing ambiguity.

Mr. Colindres has always given the

opportunity to women to take leadership, since he believes that women have a myriad of polished abilities to be successful and contribute to the aviation sector. He says, "It has always been a matter of great pride to me that my female colleagues in the Registry rise to any challenge, learning and improving through times of uncertainty. These women are the vital element of the Registry model and the basis of our customer service approach. I am very pleased that there are some senior women in the Registry, and I hope this trend continues. Equally, our duty is to help the next generation of women succeed and this is an area where we are making particularly good progress."

These women are highly professional and have the ability to draw together all the strands in the Registry that make a great experience to their clients. They are frontrunners in the management and operation, who define success as meeting a combination of the CAA obligations and the Registry goals. Committed to working with the team in developing, maintaining, and continuously improving strategies and processes to ensure civil aviation activities achieve the highest level of performance, whilst meeting both national and international standards. Helping to turn the vision of the leaders into working reality.

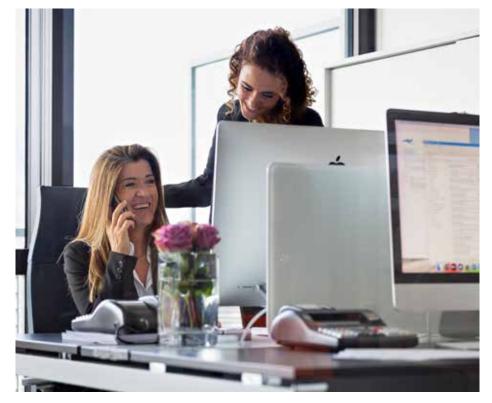
The Operations Department

Fostering strong relationships with clients is not a new trend; it's a vital component of business success. But in the last few years, we've seen a heightened need to connect more closely with both existing and potential clients. Consequently, at the heart of the aircraft registry operations is a large group of women highly skilled and knowledgeable on client needs and regulatory requirements.

They strive to be at the forefront of aviation safety regulation whilst







delivering excellent customer service.

They constantly seek out new opportunities for improvement and continually enhance our services to satisfy the needs of the aviation community.

They are vested with the responsibility of ensuring a memorable experience from

day of engagement.

These women have the ability to listen with attention, patiently gather all the facts to understand the issue or concern and position themselves to resolve situations quickly, by delivering solutions perfectly suited to each client.

They maintain a professional but friendly attitude in every dialogue, making the interactions non-conventional.

The customer service and support they provide excels during initial registration and most importantly while the aircraft remain on the registry. On a daily or weekly basis operators and aircraft owners must be served with professionalism and diligently. Part of these women's tasks is to ensure that ongoing surveillance is carried out by the technical personnel responsible, as appropriate, in all facets after certification within the established deadlines. They are responsible for the regular planning and coordination of all ongoing safety oversight. The Registry must be satisfied that: aircraft are compliant the rules and policies; their commercial operators are competent and compliant; flight crews and aircraft maintenance engineers are fit and competent; and that general aviation activities meet required international safety standards. To achieve these essential aspects of the mandate, they have gained the technical knowledge, experience, and competence to implement and run an effective data base and filing system, which monitors and records that aircraft operation-related activities are performed in a timely efficient and safety compliant manner.

The SMAR Angels have been playing a significant role in the Registry, looking at aviation with a different set of eyes and a different mindset for innovation, improving profitability and performance. They possess a high degree of integrity, are tactful, have a good understanding of human nature, and possess the ability to solve problems in due time.

The Legal Department

In some circumstances lawyers are required to go beyond simply providing expert legal analysis or even wise counseling about what is right. Inhouse legal departments, who are often charged with making decisions on a range of issues from strategic decisions about how to deal with wide spectrum of international clients that the registry host.

The Head of Legal role inside the

Registry has significantly grown in importance because the health of the registry requires that it navigate complex and fast-changing international and national law, regulation, litigation, public policy, and politics.

The role has broad scope—beyond law—that includes ethics, risk, governance, and compliance. The Head of Legal is a core member of top management, participating in decisions and actions about not just risks but also innovation and opportunities, not just law but also business, not just public policy but also geopolitics.

The Financial Department

David's financial officers quickly became one of the most active members of the agile leadership team. They worked closely with David to focus on working-session to create profitable business, devise a better business process that were inconsistent with the leadership manifesto.

They began revamping the planning, budgeting, and reviewing process—first for registry and then for other parts of the business that were tackling innovation programs. They reset corporate objectives to reflect the new priorities. Created new financial reports for the strategic agile initiative. They also commissioned agile teams to develop planning and budgeting processes similar to those used by venture capital firms with start-ups.

Today, The San Marino CAA and its Aircraft Registry are a self-financed and sustained organizations. The Board sets its terms of reference for financial policy. The aim of its funding policy is to ensure they are not constrained by lack of funds, allowing them to meet operational requirements, and are not unreasonably or imprudently bound by restrictive covenants or liquidity risks. Working within the constraints of the public sector, they aim to ensure that such financial resources are used to fund aviation safety

...our duty is to help the next generation of women succeed and this is an area where we are making particularly good progress.

David Colindres, President, San Marino Aircraft Registry



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oversight functions, meet its national and international obligations, re-invest in the aviation sector and infrastructure to ensure better implementation of ICAO Standards, as well as contributing to their country's economic development.

Is fundamentally important that through our client feedback loops the scheme of fees are always finely tuned, since we are funded by those we regulate.

The State Safety Programme Department

Implementing and monitoring a proper management of civil aviation safety is one of the major responsibilities and commitments of San Marino. At the top of the management is a highly experienced aviation woman, specialized in areas that include safety at State level, safety management systems, safety improvement, human factors, and safety planning. She has established mechanisms necessary for aviation

safety, ranging from the foundation of a State Safety Program to the effective monitoring of its oversight functions, together with promoting safety with operators and service providers thereby managing their safety risks. In April 2021, she organised the first online San Marino Safety Conference, to promote the understanding of safety priorities and to open discussions among the Operators.

The Registry has tailored its strategies to meet the safety requirements and shape its services to offer the right support to their customers. This has been achieved by enabling a large pool of qualified inspectors composed of both men and women, who possess high safety standards to perform inspections in convenient, flexible locations world-wide, benefiting from internationally endorsed approaches to safety tools and promoting a strong safety culture of professional accountability.

As part of the same strategy to expand world-wide presence, from the Northeast

coast of Sardegna, extended support is also provided to clients at our office located in Eccelsa Aviation, a dedicated private and business aviation terminal at Olbia Airport. The Registry and its women are always determined to enhance client relations and provide support to its clients.

The Registry is passionate about turning customers into advocates. It strongly believes when customer service is excellent, your clientele can become your biggest supporters. It operates in a business-like style, where clients always come first and these women are blazing a trail for others to follow, with innovative solutions for customer service.

SMAR continues to take the lead in increasing women's presence in their organisation by offering barrierless career opportunities to women with interest in aviation and to contribute to continued growth in success.

Reach out to this team of women to experience their passion for excellence.

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Neil Book, Chairman and CEO, JSSI

et Support Services Inc (JSSI) provides aircraft maintenance programmes; supplies and leases parts, ranging up to complete assemblies, including engines; provides state-of-theart maintenance tracking tools and aircraft data; and delivers advisory services. With recent acquisitions including Conklin & de Decker and SierraTrax, it has become an aviation services provider of unique capability – and yet there are aspects of business aviation in which JSSI is

definitely not involved, aircraft charter and operations among them.

Neil Book, JSSI's Chairman and CEO, has firm opinions on why the company does not operate aircraft and why it aims to become the definitive source for aircraft data. With no aviation background before he joined JSSI in 2008, Book himself is unusual among industry executives, most of whom profess a deep interest, passion or even infatuation with aviation. So, what's his story?

"I have an entrepreneurial background

and just prior to being at JSSI, I sold a cybersecurity business that I'd cofounded. While I was involved in that and other businesses, I was part of a small group looking at JSSI as an acquisition opportunity. We had very limited knowledge of the business aviation space, but the company founders put it on the market in 2008 and we thought the business model was unique and very attractive.

"We acquired the company and I was invited onto the board of directors. I spent a few years familiarising myself with the business and industry and we felt the company was far from reaching its potential. My life freed up a little around 2012 and at that time the board asked me to step in.

"I told them that was ridiculous because I knew nothing about business aviation, but I agreed to it, thinking it would be a two-year assignment. I saw a company with enormous potential and I fell in love with the business. That was ten years ago and now I realise what makes this industry really special is the people in it. I can't imagine myself doing anything else."

Disciplined & opportunistic

It has been said before that the easiest way to make a small fortune in business aviation is to start out with a large one. The fact that Book and JSSI continue to flourish has much to do with the discipline that keeps the company true to what it does best. "We've tried to stay in our lane. We never tried to convince ourselves that we should be buying jets and operating them;



The Conklin and de Decker product is proving especially useful among new entrants into the business aviation industry

we've remained disciplined while staying opportunistic and expanding.

"When I first arrived in a management position, the company did one thing – provide hourly cost maintenance programmes – in a unique way. It was tip-to-tail coverage and customers could enrol their airframe, engines and APUs. But that was where it stopped. So we scaled from there. We began strategically buying inventory in advance of our customers' maintenance events so we could offer better value.

"As we built inventory, we also built a





SierraTrax enables-owner operators and companies managing small fleets to handle aircraft MRO quickly and efficiently, with the option to interface into the wider JSSI network

parts trading business. That led us to look at what we were paying for rental engines and identifying opportunities to acquire engines for lease. Then we had customers with airplanes coming up for major maintenance events where the cost of the event was greater than the value of the airplane. We started buying those airplanes and parting them out. We've been creative and moved into other areas of the business that build on that hourly cost maintenance concept."

SierraTrax

Earlier in 2021, JSSI acquired SierraTrax, the maintenance tracking software specialist. An obvious complement to hourly cost maintenance (HCM), Book says it adds value for JSSI's HCM customers. "We can track all their maintenance on their behalf, gain insight on future events and acquire strategic inventory to support them. We're building an ecosystem of businesses that feed one another."

SierraTrax satisfies the needs of owneroperators and, typically, management companies with responsibility for perhaps three or four aircraft. Book describes it as a 'light' system, but since it costs up to 75% less than more complex MRO tracking softwares, it provides a cost-efficient solution that's leagues ahead of Excel or paper, and brings users into the JSSI network, where there are typically savings of 10% or more to be had on parts and maintenance events.

Tip-to-tail maintenance nonetheless remains the cornerstone of JSSI's business and Book explains why. "Customers want to place their aircraft in programmes, but can end up with separate contracts and points of contact for the airframe, engines, avionics, APU and so on. It becomes an administrative nightmare. Our approach has always been to provide one source. We don't build anything, we're in business to support the great products the OEMs manufacture, with services that are as simple and intuitive to use as possible."

JSSI is well positioned to support the warranty cover on new aircraft and some owners will sign their purchase up to JSSI rather than the OEM maintenance programme. "We also provide warranty gap coverage," Book continues. "Oftentimes, for example, an engine repair is covered by an OEM programme but a rental engine is not, while our programme covers both."

Data-driven decisions

After just 10 minutes of conversation, it's clear Neil Book thinks fast and likes to move decisively, which ought to make the heavily regulated and often slow-moving

world of aviation his antithesis. He admits that it can be frustrating but says: "It's often that way because it has to be, but that slow pace can permeate other parts of the industry and we try to act carefully and strategically to make decisions and act before our competitors."

Book believes it is incumbent upon JSSI to provide data that enables its customers to make the best decisions. Transparency is key, he says, because the customer base is often conservative and cautious in its decision making. "That's one of the reasons we're announcing the integration of the Conklin & de Decker performance and operating costs guide with every maintenance programme we sell. It will provide access to benchmark operating costs for the same aircraft type and others in the category, helping people understand whether are they are paying above or below market rates for everything from pilots, through fuel to maintenance. We believe the democratisation of data is critical for customers and if you provide that, they'll come back for more."

Like its CEO, it seems JSSI is never still, and never rests on its laurels. A relationship with Avfuel, enabling JSSI customers to offset their carbon emissions through the fuel supplier's programme, was among a raft of recent announcements. There are other fuel companies out there, so why did JSSI choose Avfuel? "I'm a relationships person," Book explains. "When I first came to the industry, Craig Sincock [President & CEO of Avfuel] was gracious enough to sit on our advisory board. I've learned a lot from him over the years and admire him greatly, so although we were open to partnering with other companies, Avfuel was the place to go."

After almost a decade and a half in the industry, has the entrepreneur been bitten by the business aviation bug? "I really do love it," Book admits. "There are enormous opportunities and, right now, a lot of challenges to address. There's so much demand, with many new entrants to the market, and the system is strained. Utilisation is high and there are only around 20,000 business jets flying around the world. There are lots of challenges and we're working hard to address them."





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While a large-cabin, airliner-based jet will never match the outright speed of a purpose-designed aircraft, there are considerable benefits in comfort and living space to be had, as executives from Camber Aviation Management, Comlux, Greenpoint Technologies and Lufthansa Technik confirm

othing beats a large cabin, airliner-based VIP or VVIP aircraft for comfort and space. Ranging in size from regional jets all the way up to the 747-8, large cabin jets also provide unique cabin design and engineering opportunities.

Annika Wicklund, Design Director

at Greenpoint Technologies, provides a designer's perspective: "Widebody aircraft, including the Boeing 787 and 777, offer ample space, range, and comfort to complement endless design possibilities. Due to their size, the ceilings of these aircraft may be higher, allowing larger dedicated amenities, such as workout facilities or a wellness area. A master suite on a widebody often includes a spacious shower, walk-in closet and double vanity.

"But the 737 is also a significant airframe with huge potential. Narrowbody aircraft include many widebody features by implementing an adaptable layout, including a lounge convertible to a dining room or an office doubling as a guest suite. Narrowbody aircraft can feel very intimate and clever through innovative design solutions."

"Over almost 35 years, Greenpoint has delivered turnkey interior completions, refurbishments, and reconfigurations of narrow and widebody aircraft for private individuals, corporations, and heads of state," says Chad Thorne, VP Sales & Marketing. "We have a long history of working closely with Boeing and as one of the original licensed BBJ completion centres, Greenpoint has designed and delivered specialty interior systems and modifications for almost every Boeing commercial model. We are now also working with multiple Airbus clients and looking forward to completing our first ACJ interior."

Greenpoint's work is typically for VVIP and head-of-state customers. The latter may have mission requirements defining aspects of the equipment fit and accommodation, but the completion process is similar, as Wicklund explains: "While head-ofstate and VIP clients may differ in layout arrangements, materials, and features,

There are very few aircraft that have two stories, four galleys and ten lavatories. The 747-8 offers limitless design possibilities, including Greenpoint's unique Aeroloft.

Annika Wicklund, Design Director, Greenpoint Technologies

they both require exceptional quality and attention to detail. The most important step is to collaborate closely with the client to thoroughly understand their needs, mission requirements, and design vision. Heads of state often have experienced crew, operational teams, and previous aircraft to reference, which drives active problem solving to refine interior features."

And though there is more to travel experience than space alone, for those seeking the ultimate in roomy interiors, nothing beats the 747-8, for which Greenpoint has a unique configuration. "Anyone who has flown on a 747-8 knows the expansive feeling of the interior," Wicklund says. "There are very few aircraft that have two stories, four galleys



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Greenpoint Technologies installed this lounge in a VIP Boeing 787. Greenpoint Technologies



The hallway of the same VIP Boeing 787. Greenpoint Technologies

and ten lavatories. The 747-8 offers limitless design possibilities, including Greenpoint's unique Aeroloft. Sleeping eight VIP guests, the Aeroloft provides private guest suites above the main deck; it is installed on five head-of-state aircraft flying today."

ACJ TwoTwenty

Richard Gaona, Executive Chairman & CEO at Comlux, says that for every business and VIP aviation mission there is an appropriate

aircraft. The case for airliners depends on many factors, some more obvious than others. Compared to an ultra-long range conventional bizjet, for example, he says the ACJ TwoTwenty offers comparable 12-hour endurance, considerably more space and lower maintenance costs. The appropriate size of aircraft may also depend on who is flying and how they wish to travel. Gaona notes that a couple and their entourage once had more then 250 bags loaded onto a Boeing 767.

A newcomer to the airliner-based VIP/VVIP jet market, the ACJ TwoTwenty offers a unique proposition. Airbus contracted Comlux to complete the first 15 aircraft and although the latter expected to own and operate the initial pair itself, these were recently sold. The ACJ TwoTwenty cabin concept is modular, enabling considerable flexibility within a 'catalogue' of mix-and-match cabin sections.

"The aircraft is configured with the galley forward and bathroom aft," Gaona explains, "leaving four zones in between where customers may choose which modules suit their mission best and where they should be installed. It's even possible to fit two of the same module, in different positions, if they require. So far all have chosen to place the bedroom at the back, with the bathroom including a shower, but then the remaining three zones are quite different, especially in terms of colours and materials."

Airbus and Comlux jointly announced the ACJ TwoTwenty's launch a year or so ago, since when new technologies are already reflected in the initial aircraft about to emerge. Among them, the chromatic windows are more typically found on widebodies. "They're quite amazing," Gaona says. "No more window shades. Instead, at the touch of a finger the window goes dark. High-speed internet is also installed, with streaming enabled to personal devices as well as cabin monitors."

Like Greenpoint, Comlux has an enviable reputation for its large cabin completions. Among its many success stories, the SkyLady Boeing 767 was refurbished in summer 2020, with high-speed internet, an ionisation system and all-new cabin. Also operated by Comlux, the aircraft is popular with customers looking to celebrate special occasions, typically a wedding or birthday. With 50 passengers embarked, each pays around the price of a first class airline ticket, or less.

Having experienced a party trip as a guest on the aircraft, Gaona has first-hand experience of how its flexible accommodation is used. "The principal



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travelled at the front in the private suite, but during the flight everyone was moving around the cabin and although there were 25 passengers and most had a first class seat, I noticed people sitting on the floor and talking. We have other aircraft offering a similar experience, configured, like the 767, so that they could be head-of-state jets, but also perfectly suited to private groups."

Sensible, stylish solutions

Camber Aviation Management and its partners won a 2021 International Yacht & Aviation Awards design et al Award for their modular A220 VIP cabin concept, one that CEO Tom Chatfield notes could equally apply to an A320 Family or Boeing 737 narrowbody. He says the award is hugely significant since the people voting in the design et al categories are usually from within the industry.

When customers come looking for a way into the large cabin VVIP market, Chatfield explains that there are multiple routes to securing not only the aircraft they want, but the aircraft that best suits their mission. Large cabin business jets are typically acquired as green airframes into which the fully customised cabin is installed, or as fully furnished aircraft ripe for refurbishment or refresh, but a select few previously served as airliners. Given the relatively few hours a VIP jet flies compared to an airliner, a relatively low-time ex-airline machine can represent a cost-effective solution to large-cabin ownership.

Chatfield also notes that an owner flying most of their missions within, say, a 4,500nm range, has only an infrequent requirement for extreme range and no real reason to spend extra to achieve it. "Owners have all the benefits of a more comfortable, larger airplane on 90 to 95% of their missions, while factoring a fuel stop for truly long-range flights. It takes maybe an hour to stop for fuel and could save tens of millions of dollars. When I speak to customers, I advise them to think carefully if less than 10% of their flying is over extreme ranges."

Saving money doesn't mean accepting second best. Chatfield says: "When we



Explorer Concept

veteran of large-cabin completion and refurbishment for VIP, VVIP and head-of-state customers, Lufthansa Technik (LHT) is never shy of innovation. Yet it's latest concept, the Explorer ACJ330, is on the dramatic side of unusual even by LHT's

own high standards.

Jan Grube, LHT's Sales Director, VIP & Special Mission Aircraft Services, says the Explorer takes its inspiration from superyachts, allowing owners to go almost anywhere at any time while also serving as a luxurious boutique hotel 'base camp' for off-ship activities. The baseline A330 offers all the space and performance required for such a mission, but with the advantage of being able to reach the other side of the globe in just a few hours.

Presenting an Explorer configuration for 12 passengers at the recent Dubai Airshow, LHT included a spectacular projection concept. Grube provides details: "For the wall and ceiling projections we worked closely with Diehl Aviation to integrate one of its existing projection systems. Depending

on the IFE system installed, it's not a major challenge to tailor the projections to other IFE components, including the aircraft's surround sound system, while the projection content can also be individually altered, for example to allow streaming video.

"The audio-visual possibilities are wide, extending from the acoustic 'swoosh' of a virtual shark passing overhead, to a full disco. Live experiences, including outside views fed by external cameras, while gaming or even the display of crypto art are possible."

'Toys' – helicopter, submersible, matching tender – are key features of any well-equipped superyacht and LHT imagines Explorer customers carrying on this tradition. "The spacious lower deck of a widebody offers lots of room for additional 'exploration equipment'," Grube enthuses.

"Right now, we envisage a 'Mobility Lounge' in the rear cargo deck, visible through a glass floor from the main deck and accessible in flight via a staircase. We'll create it in cooperation with BRABUS, for joint presentation at an upcoming show, although the 'toys' we plan to integrate will go well beyond automotive."

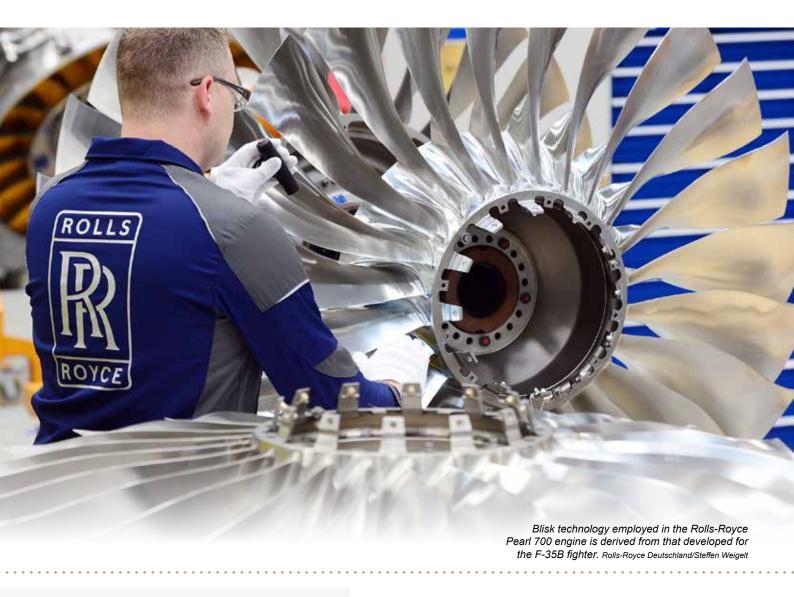
refurbish an aircraft we'll apply a new livery, polish it and ensure the cabin is perfect, reflecting the new owner's needs and sense of style. If they don't know, people are convinced these aircraft are new. And ultimately, there are benefits in terms of value proposition, much shorter outfitting times and, of course, lower cost.

"Imagine a customer seeking a BBJ. We'd scan the market for one with a good pedigree and a cabin similar to the customer's ambition. The aircraft might cost \$20 million and the refit \$10 million. That's a \$30-million airplane available for delivery in less than a year, and the customer may be able to fly it unchanged while the cabin elements are engineered. And looking at the green, or sustainability aspect, repurposing an aircraft uses far less energy and raw materials than buying a new one. Right now we're seeing quite an interest from clients wanting to follow this route and we're working with them to make their acquisition as efficient as possible."



Camber Aviation Management's modular A220 completion concept includes this intimate cinema area. Camber Aviation Management – PierreJohn Vision – Kestrel Aviation Management





Maintained & Measured

Digital data collection and analysis may be revolutionising engine maintenance, but hands-on technical skills are as important as ever. Pratt & Whitney Canada's Satheeshkumar Kumarasingam, and Megha Bhatia at Rolls-Royce, discuss the latest engine MRO developments

rom sitting on a baking desert ramp, to operating in the extreme cold of high altitude at Mach 0.9, a bizjet's engines endure the harshest of environments every time they go to work. That they do so efficiently and reliably is testament to engineering excellence and quality maintenance, the latter increasingly

relying on digital predictive technologies just as it does the humble wrench.

Satheeshkumar Kumarasingam, VP of Customer Service at Pratt & Whitney Canada, says: "We have a variety of engine condition trend monitoring products, some of which are fully incorporated into the design and manufacture of the engine – as with the PT6 E-Series turboprop and PW800 turbofan – while others are

separate devices integrated with the engine post manufacture.

"We refer to the capabilities these enable as digital engine health management services, the most recent of which is our FAST solution. It provides near realtime, high-density, full-flight data after each mission, going beyond diagnostics and prognostics to give customers a fully connected, data-driven engine.

"It automates the capture and analysis of a wide range of engine and aircraft parameters and can provide wireless access to encrypted and secure flight data recorder information. It is helping customers move toward a predictive maintenance environment and supports on-condition maintenance programmes."

Maximising the potential of aircraft connectivity, FAST data may be downloaded wirelessly after flight. Kumarasingam says Pratt & Whitney Canada can analyse and share the data within 15 minutes of engine shutdown.

Beyond the obvious advantages of the latest engine monitoring systems, there is also a sustainability aspect. Healthy engines are more efficient, but the possibilities go beyond even that. With reference to the FAST system, Kumarasingam explains: "Through its ability to deliver alerts and trend monitoring, P&WC is more closely engaged with the customer, not only



Pratt & Whitney Canada's PW300 series powers a variety of midsize business jets. The PW308, illustrated, is installed in the Hawker 4000 and Falcon 2000EX/DX. Pratt & Whitney Canada



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The Pearl 10X, visualised in virtual reality. Rolls-Royce

providing early detection of possible events, but also helping them extract maximum benefit from the engines with the greatest cost efficiency. The system can also automate much of the onerous task of compiling carbon burn and other regulatory reports. This means more time on wing and higher rates of dispatch availability."

Pratt & Whitney Canada's PT6 turboprop exclusively powers the PC-12 fleet and the majority of King Airs, while its business aviation turbofans are in widespread service, but it is far from alone in the market. Rolls-Royce is among its key competitors, with its own engine care packages, and monitoring and reporting technologies, notes Megha Bhatia, VP Sales & Marketing, Business Aviation.

"CorporateCare Enhanced, our turnkey solution, transfers all the risk involved in operating an integrated powerplant system to Rolls-Royce," she says. "It's a comprehensive programme that provides coverage for the complete powerplant, including the engine and nacelle."

Engine health monitoring (EHM) is included within the CorporateCare Enhanced package, while non-CorporateCare customers may sign

up to the EHM service for a fee. "It monitors the health of the engine and, with the Pearl family of engines, also the accessories," Bhatia continues. "It sends proactive alerts and recommendations for inspections or actions if anomalies are observed. We do this by monitoring over 10,000 parameters and comparing them to the engine's digital twin, which we establish through the engine design and pass-off test. This enables us to see, assess and, if necessary, respond to changes in temperatures, speeds, pressures or response times."

The result may be a less intense maintenance intervention since a more serious problem has not been allowed to develop – and while that's good for the aircraft owner, in some cases it has the potential to be good for the fleet, too. Bhatia explains: "Through our Intelligent Engine programme we compare the data analysed on a wider fleet level to give insights on where the fleet is operating and the environments the engines are experiencing. This data is also very useful to us when designing new engines."

Owners need not worry about their individual data being shared, since Bhatia says data safety is among Rolls-Royce's

top customer priorities. "We are used to these requirements. As one of the world's leading suppliers in the defence sector we have all the necessary infrastructure and processes in place to ensure the highest standards of data security are fulfilled."

Rolls-Royce has a long, proud association with the defence sector. The company has produced some of the most iconic military engines, and Bhatia reveals that there is a healthy cross pollination of ideas and technology across its business aviation, military and airliner portfolio. "One example is the swept fan blade design, which was originally introduced with the Trent engine family for large commercial aircraft. This technology was further developed and introduced for the first time in our business aviation engines with the BR725, powering the Gulfstream G650 and G650ER.

"Or you could look at the blisk [bladed disk] fan of the latest Pearl 700 and Pearl 10X engines. While smaller blisks have been used on several programmes, Rolls-Royce developed large blisk technology as part of the LiftSystem programme for the Lockheed Martin F-35B."

Pratt & Whitney, of course, has a comparable legacy, of which Kumarasingam is obviously proud. "Our products are a result of taking the best from each new family of products we develop – from the safety that comes from building engines for single-engine aircraft, through the durability and reliability to support airline service, to the support for a helicopter that can take off or land just about anywhere, and the premium service expectations that come with serving business jet customers," he explains.

"There are many examples where technology developed for one market segment is applied to another, such as with the PW800 engine family. At its heart is durable, rigorously tested core technology shared with Pratt & Whitney's awardwinning GTF commercial aircraft engines."

In the field

At some point, every engine needs handson attention from an expert technician, whether for scheduled maintenance or



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repair. Just as they have comprehensive digital offers, so Pratt & Whitney Canada and Rolls-Royce have the people and facilities to match.

Employing more than 2,000 dedicated staff, Pratt & Whitney Canada's customer support network provides global coverage on a 24/7/365 basis. "We have in excess of 50 Designated Maintenance Facilities, company-owned shops providing line maintenance and mobile repair team [MRT] services, plus Designated Overhaul Facilities and Approved Repair Facilities in 25 countries. These assets are all strategically located in areas where there is the greatest concentration of our engines in service," Kumarasingam says.

"We also have 100 Field Support
Managers, on call to help customers
troubleshoot issues, and another 100 MRT
technicians who travel to the customer's
location when required. To address AOG
situations we have our C-First customer
response centre, which operates around
the clock and is staffed by multi-lingual
experts. We also have more than 1,000
engines in our engine rental/exchange pool,
ten strategically located parts distribution
centres and 12 customer training schools
operated by FlightSafety International."

The story at Rolls-Royce is similar, as Bhatia describes: "Through extensive dialogue with our customers we have a clear understanding of what is important in a business aircraft operation and that's why we created a dedicated organisation that understands the needs of its customers. To enable this, we've established a network of capability including 175 lease engines, more than 75 authorised service centres, nine parts stores and in excess of 70 on-wing services technicians, all strategically placed around the world. In the middle of this powerful services infrastructure sits our dedicated 24/7 Business Aircraft Availability Centre."

And neither company has forgotten that many of its engines remain in service on older aircraft with long, productive lives ahead of them. Rolls-Royce extended its comprehensive CorporateCare coverage to include nacelles for its BR700 and new Pearl family of engines. Bhatia



Authorised Service

igh-quality engine maintenance is available at many MROs, some of them, like Duncan Aviation, delivering authorised service for the OEMs. As well as delivering under programmes from Pratt & Whitney Canada and Rolls-Royce, Duncan Aviation supports Honeywell, Williams and General Electric, while it also services customer

All of the company's MROs provide programme support and service, while it also has an overhaul facility dedicated to the Honeywell TFE731 and HTF7000, plus several rental engines.

Indeed, Mike Bernholtz, Team Leader Engine Service Sales, says the Duncan Aviation Engine Parts Reclamation Program constantly adds TFE731 engines to its reclamation process to build parts inventory, while it also supports customers facing challenges finding parts for older engines.

notes that to date, more than 750 aircraft have been enrolled.

engines signed up to JSSI products.

The ongoing maintenance of virtually all Pratt & Whitney Canada engines can be managed through its Eagle Service Plan (ESP). "It's a pay-per-hour engine maintenance cost guarantee programme that helps move customers toward a fully planned maintenance environment," Kumarasingam says. "This environment helps increase aircraft availability and time on wing, reduces maintenance costs and avoids maintenance 'surprises'.

"ESP covers major scheduled maintenance, unscheduled engine and

accessory maintenance, and required engine and accessory upgrades – all of which we see as integral to maximising availability and managing maintenance costs."

Engine maintenance has become an ongoing process of data collection and analysis, backed up by traditional engineering skills applied in the hangar and workshop. The latest programmes and technologies, like those on offer from Pratt & Whitney Canada and Rolls-Royce, are helping customers fly cost-effectively and safely and, critically for all our futures, more sustainably too.



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Tracy Miller, Venue Engineering Lead, Avionics, Collins Aerospace

The Place to Be

Collins Aerospace has updated its Venue cabin management system with a new graphical user interface and other features, as Craig Bries, VP Sales, Marketing and Business Development, Avionics and Tracy Miller, Venue Engineering Lead, Avionics, explain

enue, the cabin management system (CMS) from Collins Aerospace, has become a trusted companion to many bizjet passengers and crew. The name is familiar from years of service, but the product has moved on – most recently through a revision of its graphical user interface (GUI, pronounced 'gooey'), to improve the user experience and refine customisation options.

Craig Bries, VP Sales, Marketing and Business Development, Avionics at Collins Aerospace says the latest Venue iteration continues the tradition of providing more than simple control over the cabin. He describes it as a 'total cabin management system', but it also has elements of a smart TV or iPad about it, enabling access to apps as well as control functions.

Speaking at the Dubai Airshow in November, Bries explained that Venue was among the main business aviation exhibits Collins Aerospace was showing. "During and since the pandemic, we've seen a 150% increase in Venue retrofits," he said. "Our bizjet and VIP customers want that 'at home/in office' experience when they're in the aircraft and we think we can deliver it."

After more than 1,500 Venue installations to date, Collins Aerospace has also perfected the art of supporting its customers, both remotely and in person. Bries continued: "We have our avionics support network, including field managers available 24/7 and our trusted dealer network. The latter is there for installation and subsequent field support."

Meanwhile, the new GUI introduces an icon-based philosophy. Tracy Miller, Venue Engineering Lead, Avionics, outlined: "Instead of customising the GUI for different languages, we made it international by using basic, easily recognised icons for lighting controls, window shades, temperature and so on. The system shows a 3D layout of the aircraft, including the cabin zones, with the same interface on the galley and cabin monitors, or a personal device. Regardless of how the crew or passengers interact with Venue, the interface looks and acts the same.

For a passenger stepping onto a Venueequipped aircraft for the first time, interaction with the system requires an app, through which all the functionality of the cabin touchscreens is available on a phone or tablet.

"The philosophy was to have the permanent, touchscreen cabin monitors behave like an iPad, making the system more similar to how people use their everyday phones and tablets. Each of the 3D models is customised for the aircraft, so different cabin zones may be modified from one controller regardless of cabin layout." In reality, the 3D model goes beyond replicating zones, with the GUI depicting exactly the seating arrangement of the subject aircraft.

The level of functionality is surprising. "You can control the temperature of the oven in the galley," Miller continued, "and the water levels in the lavatories; it's really comprehensive."

'Comprehensive' also means multiple functions; to streamline the process of achieving regular settings, Venue provides



A Venue touchscreen controller

programmable multi-task buttons. "There might be a button labelled 'Good Morning', Miller explained. "It could gently bring up the lights in the cabin, or play a particular type of music, or movie." Alternatively, a user may prefer a particular ambience in

which to watch movies and a multi-task button could be set to lower the lights, close window shades, set volume levels and even, perhaps, adjust the temperature.

It is probably fair to assume that lavatory water level will be outside





Craig Bries, VP Sales, Marketing and Business Development, Avionics, Collins Aerospace



Galley touchscreen monitor with Venue interface showing oven controls, connectivity status and more

the scope of most users' interests, while entertainment is more likely to be a headliner. "From an entertainment perspective," Miller enthused, "we're bringing 4K to bizjets for the first time, both in movies and our new ASXi high-definition Airshow moving map product.
"Something that stands out for many Middle East and Gulf customers is that

Airshow features a 'Mecca pointer' that shows the direction of Mecca wherever a customer is flying, and local prayer times."

And if a 4K moving map is insufficient to impress, then Airshow is also customisable so that the 3D aircraft depiction progressing across the screen may be adjusted to represent the aircraft being flown, while there are also options for delivering

additional information on points of interest. It means the map becomes a story-telling entertainment app in its own right and Miller, clearly an Airshow fan, is especially pleased with its ability to show topography, cities and more on an iPad as the user moves the device in different directions.

"We also have Stage, our inflight streaming service for business jets and VVIP aircraft. It involves a server for which we provide content including Hollywood movies, TV series, weather data and city information." Stage content remains fresh and relevant through ground or airborne connection, although updating and synchronising in the air is likely to incur prohibitive data costs - the Stage server has a 2TB hard drive. Access is via a website or mobile app, with desired content checked from a long list of options. With connectivity the system is then synched, or it can be synched via PC and an external hard drive. The latter is connected to the Stage server, where the data is available for viewing on personal devices and cabin monitors within five minutes – there's no requirement to wait for the system to fully synchronise.

Compatibility with an external drive also means customers are not restricted to Collins Aerospace content. So long as the file type is compatible, personal movies, photographs or music may also be uploaded and played.

Bries and Miller do a very good job of selling the Collins Aerospace CMS vision, but there is clearly a level of personal pride involved. As Venue Engineering Lead, what's Miller's favourite aspect of the system?

After a moment's pause for consideration, he responded: "From a maintenance point of view, I think our Auto Recovery feature is remarkable in that if a component, let's say a touchscreen controller, were to fail and the replacement didn't have the same level of software as the other components, then because they are networked it will be updated to match. It's a really impressive feature.

"From a customer standpoint I think it's the level of control. Lots of cabin management systems control some features, like entertainment or lighting, but Venue really does control everything." ■



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APP-arently More

Get Heli and TailHail, new app or web-based systems, are reinventing the way helicopters and private jets are chartered. We booked CEOs Laurent Vallet and James Moon for a discussion

any customers appreciate the convenience of booking a private flight with just a few clicks through an app or website. The practice has become more common and is attractive to customers new to the industry, but also seasoned brokers. Now some companies,

Get Heli is unusual in being dedicated to the helicopter charter market. CEO Laurent Vallet gives an overview: "Get Heli provides user-friendly, optimised performance on all platforms, whether

Get Heli and TailHail among them, are

providing enhanced services and even a

community aspect to their systems.

tablets, phones or computers. We receive regular positive feedback, including messages from pilots who prepare quotes on their tablet in the aircraft while they await their next client."

In its launch territory – the UK – Get Heli has more than 100 aircraft registered from 15 operators and at Air Charter Expo 21 in September, the company announced its wider rollout. "We've started onboarding international operators, mostly from across Europe," Vallet says. "We'll drip feed these countries to brokers as they come in and so far we have helicopters on offer in Belgium, the Czech Republic, France, Greece, Italy, Spain and Switzerland. The list of available countries is updated and published regularly on our

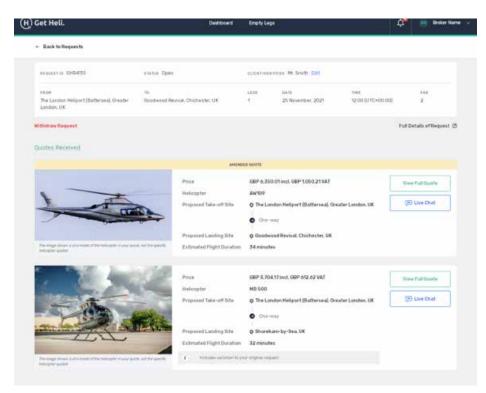
request forms and we've already received interest from US operators."

Compared to business jets, the helicopter industry's fragmented nature complicates the process of buying charter. Get Heli learned that brokers were spending as much as a day working on a single helicopter trip. The result was seldom more than two quotes, while their limited market view prevented a full understanding of aircraft availability and prices – plus, the quality and legality of operators, especially abroad, was not always assured. Lengthy email exchanges and multiple calls to clarify customer requirements or the technicalities of the mission were also common.

"The old way is therefore highly



inefficient," Vallet says. "We're addressing that comprehensively. Operators are registered, sorted and vetted, all in one place. Request forms are standardised and comprehensive, from simple one-way to complex multi-leg/multi-helicopter trips. Notifications are sent automatically, quoting happens without the need to chase and requests are easy to track from the dashboard. Quotes are clear and easy to compare, with prices broken down to show [re]positioning costs, landing fees and taxes, with photos and specification of the exact helicopter. AOC and insurance documents are ready to download, online secure payment through Stripe is available if required, and we've even standardised the operator/broker flight contract, working together with city law firm Kennedys Law, to the benefit of the industry. If any questions remain or the flight is particularly complex, an online chat function is available within the platform.



Quote presentation on Get Heli





Get Heli chat function on smart phone

"And, while brokers wait for quotes to arrive, price estimates based on our historical data are displayed. They allow the brokers to revert to their clients within minutes and hopefully secure that mandate before their peers."

Get Heli is impressively comprehensive, therefore, but Vallet is clear on its remit. "We are merely facilitating business through technology. We are neither stepping into the process, nor taking part in the agreement and, if online payment is selected, we don't transit funds through Get Heli either. The brokers are very much in control of the process and in direct touch with operators on the platform just as they used to be. They can ask all the complex questions they need to and do a good job for their clients. The only difference is that now they have a lot more time to organise other charters or prospect new clients."

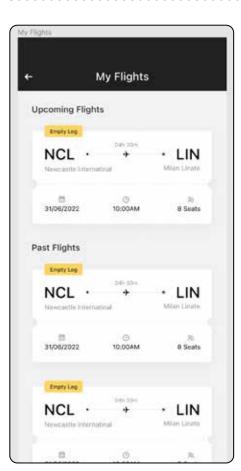
But Get Heli isn't only for brokers, it's for operators too. For them, Get Heli promises a good source of reliable business, international exposure, a much smoother charter arrangement process and a centralised booking management system. And thanks to Get Heli's bespoke request and quoting forms, operators also receive comprehensive, detailed requests from brokers to which they can respond with quotes exactly meeting the needs and

flexibility requested by consumers, but within operational limits. And the chat functionality available to brokers is also there for operators to contact them direct.

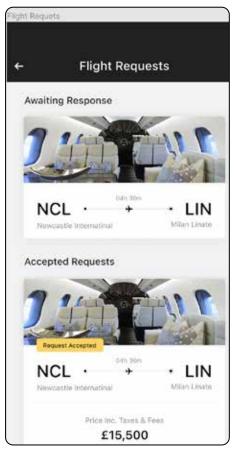
TailHail

A new jet charter membership service, TailHail offers customers access to private jets and a variety of ancillary benefits through a dedicated website and app for iOS or Android. Debuted in spring 2020, TailHail is still in the relatively early stages of its development and CEO James Moon candidly admits: "Our technology is only at 5% of what we want in terms of user experience, but we'll officially launch in April 2022 with more than 50% of our functionality in place and operational."

The system is not yet set up to integrate with other platforms, but Moon is continuing his fund-raising efforts and describes such integration as part of TailHail's future 'stage four deployment'. "We'll have more on that capability towards the end of next year, but we're already handling global flight requests and while we haven't been particularly active from a marketing perspective, I am happy with our ability to generate traction in such a short space of time."



Interface with the TailHail system



Quoting system via TailHail





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The Get Heli platform on laptop

An annual membership fee provides access to the TailHail app and members' area on the website, both of which are portals into the TailHail world. Moon's ambition is to offer private jet experiences, rather than simply flights, and he notes: "TailHail offers a wide range of events and benefits. At present we have more than 45 complementary brand partners worldwide, from wine-tasting events in the French Riviera to an exclusive partnership with a hotel in the Maldives.

"And we are working to make private flying more accessible, affordable and sustainable. I believe that flight sharing is a great way to make our sector more efficient and truly affordable for individuals, families and businesses. Our users are able to find out who they might be sharing a flight with. We've seen our competitors struggle with handling shared flights, and we've learned from them how to offer a great shared flight experience."

TailHail therefore allows its members clarity on who they might be choosing to share an aircraft with, but what about the aircraft itself and the operator? Does booking through the TailHail system imply a level of guaranteed service and safety? "I speak on behalf of the sector globally when I say I'm appalled that illegal charter still exists," Moon states.

"It is a stain on our industry and our efforts to eradicate it have been poor. Here at TailHail, we safety vet and approve each aircraft operator before they are allowed onto the system. If they are unable to complete our aircraft upload process then they do not become part of the TailHail flight network. We ask for a comprehensive set of information, from a copy of their AOC, through insurance details, to accident history and more. The data is manually approved by a TailHail aviation team member before the operator appears to our customers."

Regular meetings with signed-up operators ensure they are happy with their TailHail experience and that Moon and his team are content with the relationship. At this still early development stage, the company is also enthusiastic about customer response, good and bad. "I want to address issues so that all our members have positive experiences," Moon declares. "Operating honestly and transparently, we've had direct discussions with users about what they expect from the TailHail experience and this has already allowed us to develop new features and functionality that will further set us apart from our competitors and offer one of the best private flight experiences around."

Operators are registered, sorted and vetted, all in one place. Request forms are standardised and comprehensive, from simple one-way to complex multileg/multihelicopter trips. **Notifications** are sent automatically, quoting happens without the need to chase and requests are easy to track from the dashboard."

Laurent Vallet, CEO, Get Heli



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The Sky is Not the Limit

MySky is a spend management platform developed specifically for business aviation. But what does that really mean? We asked CEO and Co-founder Kirill Kim

I founded the company with my business partner Christopher Marich five and a half years ago, building it from being an offline audit platform into a full spend management platform that serves all industry stakeholders," MySky CEO and Co-founder Kirill Kim begins.

"As a spend management platform, it enables our customers to manage their direct costs better and optimise their indirect costs. We handle many back office processes, helping operators with the automation of expense flow, verification of invoices and the recharge process to owners. We've added important new features recently, including accurate flight cost budgeting based on our cost database. So, we're not only helping to automate, optimise costs and sell more charter, but also allowing owners to understand the costs associated with their aircraft and plan better financially."

'Costs' in MySky terms means all airport charges and more. "Our database is the benchmark against which costs are compared and forecast for fuel, airport services, navigation charges, overflight rights and so on. Invoices are automatically verified against existing documents within our database and issues flagged. Our platform integrates into other industry tools, such as accounting and flight management software, pulling operational pre- and post-flight data, as well as with Avinode to generate data against charter requests."

The system even has the capability to scan a paper invoice, detect and identify the vendor and then enter it into automated verification while creating a digital copy, categorising the invoice line



Kirill Kim, CEO and Co-founder, MySky

items and matching it to a specific trip number or flight; according to Kim, almost 90% of the process has been completed before the document ever reaches an accountant. MySky is accessible through PC, smartphone or tablet.

Vendor & owner benefits

Vendors working with MySky customers also see benefits. For example, Kim says MySky information shows vendors being paid more quickly. "In the past, let's say an FBO sent an invoice. It goes in the pile and has to wait to be entered. Then it waits to be verified, a process that could take two or three weeks. Then it goes

through the approval process, which is usually slow and takes another week or two. The FBO ends up being paid a month or six weeks after servicing a flight; with MySky the process is much faster.

"Customers have the option to enter invoices directly into the MySky platform, or they can provide a vendor email address and our technology will search the inbox for the invoice address and enter it automatically. It allocates cost articles and presents the accounting team with all the line items pre-accounted and pre-verified. And there's no chance of the email sitting unnoticed in an inbox."

MySky's database is essential to its accuracy and therefore constantly expanded and checked. "We are a data company, so we have a lot of engineers but also a large team of data evaluators. They constantly check that the data is very accurate by running it against invoices from different airports. Using data from across the industry we can also work up benchmark average costs for services so that our customers may understand whether their procurement is efficient.

"This ability to show how well an operator is working in different regions is very powerful and helps owners understand costs better; I think the industry will increasingly move towards this kind of transparency."

Relationships & new products

In July 2020, MySky announced that it was using the S&P Global Platts database of global jet fuel prices as the data source for its platform's fuel procurement analysis; the facility also enables

comparisons with prices for choosing sustainable fuel over regular Jet A. Just a few weeks later, a second announcement saw MySky fully integrated into SD Pro, enabling a seamless cost and operations management process.

Data security is among SD's critical concerns and the relationship with MySky says much about the latter's systems. "All our data is encrypted and we use servers in the US or Switzerland for storage. Customers choose where they want their data securely stored. Their data is very sensitive and keeping it secure is our priority," Kim says.

MySky also recently added Quote to its portfolio. Kim explains: "Quote is a new predictive costs toolset that allows charter operators, pilots, family offices and corporate flight departments to forecast the cost of a flight with more than 96% accuracy. Operators plug in data, including make and model of aircraft, registration and departure time and Quote estimates the cost of the flight in under 10 seconds. The result is that

operators can produce a quick, accurate, and therefore competitive, charter price."

The combination of accuracy and competitive prices means more earning potential for charter operators, and MySky offers further help through its Budget product, launched in March 2021. Again, Kim explains: "Budget is an advanced and accurate budgeting tool to enable private jet owners, brokers, operators, and aircraft management companies to see a detailed picture of the total annual running costs of any aircraft type. It provides owners with accurate financial insight, as well as allowing them to analyse costs between any aircraft type, whether new or pre-owned. Furthermore, it supports operators and aircraft management companies when reconciling running costs to owners."

MySky helps optimise and predict costs, improving and simplifying aircraft ownership, operations and even sales, while also helping service providers; in that respect, MySky should perhaps be considered everyone's sky. ■

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DuPage Flight Center, DuPage Airport, West Chicago, Illinois

DuPage Flight Center: Gateway to Chicago

Located just one hour from the centre of Chicago, Illinois, DuPage Flight Center is a Phillips 66-branded FBO matching high-quality facilities with capacious ramp and hangar space. *EVA* spoke with General Manager Brian DeCoudres to find out more

an you describe the DuPage Flight Center?

The DuPage Flight Center opened in 1993. We offer a full array

of amenities and services, including upgraded passenger and crew lounges, concierge services, conference rooms, VIP facilities, Wi-Fi internet access, WSI Flight Planning, exercise facilities, gourmet catering, the on-site Kitty Hawk Café, courtesy cars, rental cars, and more than 30,000sqft of designated transient hangar space. Our executive FBO terminal is beautifully appointed with granite floors, stunning architecture and a luxurious lobby. Open to the public 24/7, we have on-site US Customs.

Who uses the FBO and where are they going?

With our Customs capabilities we have customers coming in and leaving from and to points all around the globe. Many travel for business since we have a large mix of industries in the area, while downtown Chicago is a big attraction for most passengers. Leisure travellers pass through DuPage to visit Broadway Chicago, to go ice skating in Millennium Park, see the Christkindlmarket, a Chicago Bull or Chicago Black Hawks game, check out the illuminations at Morton Arboretum, and more.

Most FBOs offer something their customers remember above all else. What does DuPage Flight Center do to make its visitors feel special?

Crews have come to love our DuPage Flight Center bags and t-shirts.

What facilities do you provide for your passengers?

Our passengers can have their vehicles valeted on the Flight Center ramp and line service will bring the vehicle to the aircraft upon their arrival. We also have gate access where the passenger just calls us when they arrive and line service opens the access gate. We have the ability to provide total privacy, including a VIP lounge that can also work as a small

meeting area, along with two further conference rooms. The Kitty Hawk Café is open during the week, with views of our main ramp.

What facilities do you provide for your crews?

We work with more than ten hotels within a five-mile radius. Hilton Garden Inn and Marriott Courtyard are just a couple our crews enjoy. Our FBO offers a range of luxurious facilities, including a workout area, fresh Starbucks coffee, and a quiet and comfortable crew lounge for day trips or pilots needing a break on a long cross-country flight.

What facilities do you provide for aircraft?

DuPage Flight Center has in excess of 1 million sqft of ramp space for all general aviation aircraft. More than 100,000sqft of heated hangar space is also available, along with de-ice, anti-ice, water and lav services, oil, GPU and catering.

Your part of the world has some fairly extreme weather. How do you cope with it?

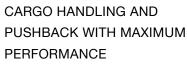
Winter takes a toll on the Midwest, with everything slowing down, but we take pride in ensuring all customer requests are met. The incredible snow removal operations here at DuPage ensure we remain open, even in the harshest conditions.

You are Phillips 66 branded. Why? And can we expect SAF availability soon?

We put out a sealed bid RFP for fuel supply services every five years and Phillips 66 has consistently been the most competitive supplier on price and customer support. Phillips 66 has always been reliable with our supply needs in the Chicagoland area, even in the most difficult times. SAF is coming and I believe will be here to stay once the supply logistics are in place for our area. I'm sure the DuPage Flight Center will have it as an option.

We have
the ability
to provide
total privacy,
including a VIP
lounge that can
also work as a
small meeting
area, along with
two further
conference
rooms."





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Agusta - The New Brand in VIP Rotorcraft

The AW609 at the Casa Agusta rotorcraft terminal in Dubai

Leonardo Helicopters is highlighting its vision for VIP helicopters and future air mobility with new brand Agusta, the spectacular Casa Agusta rotorcraft terminal in Dubai and the AW609 tiltrotor

eonardo chose the grand opening of its new Dubai rotorcraft terminal at the beginning of Expo Dubai 2020 in October to announce the launch of an initiative to reinforce its leading position in the VIP/ corporate helicopter market, as it pioneers new advanced and sustainable vertical flight air mobility solutions. Agusta is now a brand embodying the company's distinctive design, technology, service philosophy and values in the executive rotorcraft sector. Operated by Leonardo and Falcon Aviation Services, the terminal is named Casa Agusta.

Leveraging the heritage of an iconic helicopter industry name and a symbol of commitment to stay at the forefront of innovation, Agusta is a unique combination of best-in-class performance, comfort and refined Italian style. Leonardo is committed to providing unmatched tailor-made solutions to today's operators and those of the future.

VIP solutions offered under the Agusta brand include dedicated operational and customer services and information, aircraft interior and layout configurations, and bespoke options. Gian Piero Cutillo, Leonardo Helicopters MD, said: "Agusta is a strong brand our VIP operators can easily recognise and identify with, a brand that embodies their desire for excellence and quality combined with a personal touch and distinction. We want them to be themselves before takeoff, during flight and upon arrival at their destination, setting them apart from others. The strength and recognition of the Agusta brand legacy lives on in this market segment."

Since the arrival of the popular, iconic Agusta A109 50 years ago, operators have used 'speed and elegance' to define the helicopter and flight experience. The significant growth and evolution of the highly successful A109 and AW109 lines across all civil and public service applications means 'Agusta' has become synonymous with outstanding performance, refined aerodynamics, advanced technology and high levels of customisation.

Casa Agusta

Falcon Aviation Services will provide helicopter transport services from Casa Agusta, facilitating mobility to and from the Expo 2020 site. Meanwhile, an AW609 tiltrotor and a full-scale AW609 VIP/corporate cabin mock-up will be on static display adjacent to Casa Agusta for a limited period. This first appearance of the AW609 in the Middle East marks the global commercial launch of the revolutionary multirole aircraft as it nears civil certification.

Casa Agusta itself is based on a new

concept combining a helipad, showroom and lounge areas in a single, city-based heliport. The terminal concept will support the development of a network of point-to-point connections for urban transfers and connections between cities, while meeting the growing demand for sustainable, modern vertical lift mobility and greater access to urban areas. VIP passengers and charter operators will enjoy levels of service typically only available in larger private airport facilities far from downtown and urban areas. The terminal's modular design uses recyclable materials, making it environmentally friendly – and, if required, transportable.

The terminal experience provides a sense of Agusta before each take-off and on landing. A modern, modular, sustainable, refined rotorcraft terminal, Casa Agusta satisfies evolving trends in airborne mobility through an adaptable space, including areas designed for business or relaxation. The combination of dazzling infrastructure with the revolutionary AW609, which delivers rotorcraft versatility and turboprop-like performance, epitomises Leonardo's vision of the not-so-distant future in air mobility.

Driving transformation

Alessandro Profumo, Leonardo CEO, said: "The aviation industry of the third millennium is rapidly evolving towards new forms of mobility, aiming for modernity, security and sustainability. Indeed, our aim is not just to build new bridges for the exchange of goods and services, but, most importantly, to foster the movement of people and new ideas, which are key to economic and cultural growth.

"Leonardo wants to be a driver of this transformation, leveraging the capabilities that distinguish us: highend technologies, professionalism and a people-centric ethos. Casa Agusta and the AW609 strongly contribute to this mobility evolution."

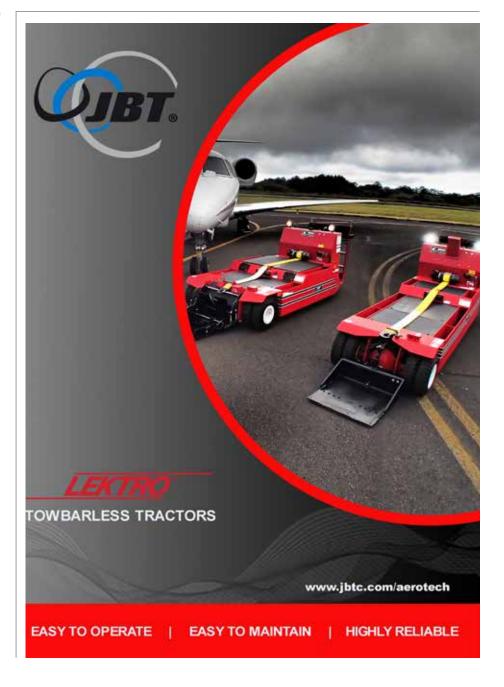
VIP portfolio

Leonardo Helicopters offers a large portfolio of rotorcraft, comprising more than ten models capable of dedicated VIP and transport missions, including charter, schedules, air taxi, sightseeing, private and VVIP/government. The VIP types among them include the AW109 light-twin series of Trekker and GrandNew helicopters, and the intermediate-class AW169; intermediate, best-in-class AW139; and medium-class AW189 family. In VIP configuration, the AW609 also falls into this intermediate class.

As well as optimised VIP and business flying, Leonardo's helicopters are at home flying to and from yachts, thanks to the company's extensive experience of deck operations. Leonardo also provides exclusive, bespoke expertise to yacht and

superyacht owners.

These VIP helicopters highlight best-inclass performance, the latest certification and safety standards, most modern design, spacious and comfortable cabins, and high levels of customisation. With a share of more than 40% of deliveries in the multiengine VIP helicopter market, Leonardo is an undisputed leader in the sector. It offers the largest, most modern aircraft models and capabilities, meeting and even exceeding the most stringent certification and safety standards, with a range of advanced technologies for navigation, mission safety and cabin experience.





Having proven its HondaJet fractional ownership programme with Jet It in North America, JetClub came to Europe with the same concept last June. Founder, Chairman and CEO Vishal Hiremath describes the programme

etClub provides an unusual coownership scheme based on a unique
aircraft. There is no mistaking the
HondaJet, with its overwing engines
and distinctive profile, although its fuel
efficiency and comfortable cabin are
less obvious other than to those who have flown
it. They are qualities Vishal Hiremath, JetClub's
Founder, Chairman and CEO knows very well.

"I was bitten by the aviation bug," he begins, "as an eight-year old walking into a TriStar cockpit. From then on, I wanted to be a pilot, but not a professional pilot, so I became an engineer and have a private pilot's licence. I worked at Rockwell Collins on advanced cockpit technologies, then joined Gulfstream, moving into business development and sales. Then it was on to Honda, where I headed the international sales team.

"We found lots of prospects who loved the HondaJet but told me and my co-founder, Glenn Gonzales, that they didn't fly much and would prefer an ownership partnership or aircraft share. We approached several companies and tried to sell the aircraft to them, but it was new and unknown, and they weren't interested. So, we decided to do it ourselves."

The company launched in the US under the Jet It brand, quickly denying critics who suggested light jet fractional ownership would not work. "We believed there was a market among small and medium-sized business, entrepreneurs and corporations looking for cost-effective options for private flying. We launched with one aircraft and three years later we have 14 in the US and Canada." Based on that success, JetClub was launched as an international company, starting

out in June 2020 with a single Europebased jet operated on a Maltese AOC. JetClub also took the aircraft to the recent Dubai Airshow, hoping to raise awareness and interest in a region traditionally dominated by larger jets.

JetClub concept

The aircraft of the Jet It and future JetClub fleets will be identically branded. Customers sign up to shared ownership of a HondaJet, with options ranging from one half to one eighth of the time available on that aircraft per year. In reality, they are buying guaranteed access to a HondaJet, rather than to the specific aircraft they are nominally part owner of.

"We offer a number of days per year rather than hours. Our starting point is a one-eighth ownership share, or 12.5%, which equates to 35 days per year. On any of those days, the customer may fly just one hour, or as many as eight. It offers great flexibility," Hiremath explains.

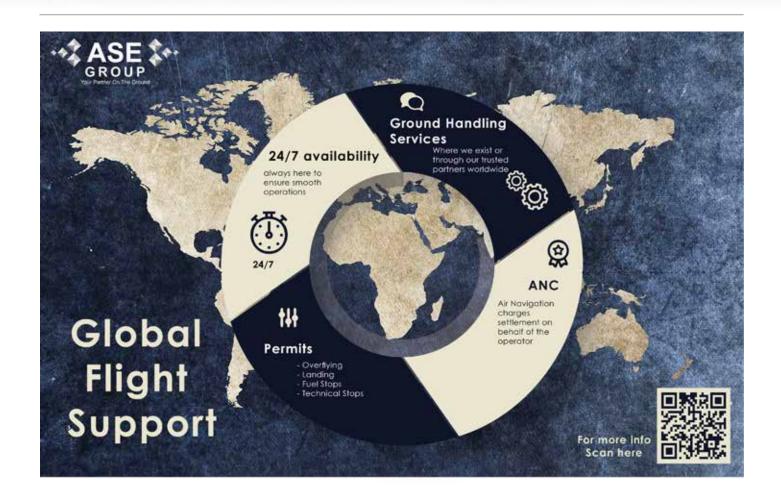
The HondaJet is not a long-range aircraft, but Hiremath states: "We are a regionally-focused global company". A JetClub customer could, therefore, fly from Paris to Biggin Hill, join a chartered jet for Van Nuys, and pick up a Jet It HondaJet for their onward journey. Jet It customers are already using JetClub's aircraft when they visit Europe.

The policy so far has been to assess the market and then sell an aircraft to owners before taking delivery. "Sometimes we take an airplane in advance or lease one to provide better support to our clients or facilitate a regional demonstration aircraft," Hiremath says, "but we like to be quite conservative." Pilots are full-time employed, with four available in Europe and many more in the US.

Hiremath believes that once potential customers have flown in the HondaJet they are hooked. "Our European customers are remarking on how spacious it is for a so-called very light jet. It's very

comfortable and quiet, and we have no regrets choosing it. There are also cost savings in having a single-type fleet... if we have to grow faster or increase range we may step up to a mid-light jet, although the HondaJet is likely to remain in the fleet."

Jet It and JetClub customers are evidently extremely happy with their aircraft, but there is more to the package they buy into. A full concierge service is available to them and Hiremath says it has received: "...amazing feedback from brokers and customers". He concludes: "It seems the airlines do a great job for us by delivering lousy customer service, forcing more people into private aviation. I don't want our customers choosing option one, two or three, so we have dedicated customer service people who can arrange anything and respond to questions, even those about COVID. It really has made a difference for our fractional owners and charter clients."







Capacity to Connect

t the height of the

Inflight connectivity has never been more critical to business and VIP aviation, so *EVA* asked Inmarsat, Intelsat, OneWeb, SmartSky Networks, Viasat and Moment for their latest news and comment

COVID-19 pandemic, data usage among business jet operators reached new levels and as more jets return to the skies, there is no sign of data appetites diminishing. Cabin and cockpit connectivity are now 'go/no go' items for many missions and, while bandwidth providers deliver ever more capacity, the latest apps consume it and demand continues to expand. With multiple

options available, we spoke to several industry

Inmarsat

executives for their views.

The big news from Inmarsat, its pending US\$7.3-billion sale to Viasat, shouldn't distract from the story of its continuing mission. When asked about the implications of the sale, Inmarsat commented: "Stability and continuity are core considerations for us in relation to our customers and partners.

Together, Inmarsat and Viasat could utilise their highly complementary capabilities to deliver superior solutions for Inmarsat's global mobility customers in aviation and other market segments well into the future."

In the meantime, Kai Tang, Head of Business and General Aviation at Inmarsat, fielded *EVA*'s questions.

Business aviation data usage rates have soared and there is a hunger for more. With several capable service providers out there, what's Inmarsat's USP?

First and foremost, we are a global mobility company dedicated to serving only those customers whose missions put them in all corners of the world. Our services are in place today and serving thousands of loyal, happy customers around the world. We continue to invest more than ever before to deliver highly differentiated global technology platforms that will continue to meet the needs of business aviation

customers long after the recovery period from the pandemic. With decades of experience in the business aviation market we recognise that inflight connectivity alone is no longer enough, it needs to be reliable and consistent, regardless of location, time or other uncontrollable factors.

Our long-established, global partner ecosystem delivers unparalleled expertise, value and support to our customers. This collaborative mindset enables us to present a complete solution across network, hardware and service.

How does Inmarsat support its customers?

We own and operate the world's only fully redundant, global Ka-band satellite network. It runs our Jet ConneX service and allows us complete end-to-end visibility and control, in turn enabling us to be more responsive to the unique requirements of business aviation customers. We also own and operate our award-winning SwiftBroadband service, which continues to be the solution of choice for thousands of business jets.

We work hand in hand with our valueadded resellers (VAR) to ensure they are fully equipped and enabled to support end users' needs. We believe that competition is key to creating innovation and value for customers, and we're proud that our VAR have created such differentiated value and choices when delivering Inmarsat service to customers.

Inmarsat serves multiple markets. Does that mean niche users, including business aviation, take the bandwidth left over after your major markets have taken their share?

Business aviation is by no means a niche market for us. These are some of our highest priority users. We're one of the few operators offering a guaranteed speed to the subscription, meaning we pledge that each end user will get no less than their contracted speeds, and they consistently benefit from the higher speeds we can deliver. The benefit of this approach is that each customer is guaranteed service. We have more than 30 years' experience balancing capacity for global, mobile customers and that history allows us to plan our future capacity demands ahead of need.



SmartSky's Citation test bed and flight demonstrator. SmartSky Networks

Intelsat

Intelsat delivers business aviation connectivity through its FlexExec product. Mark Rasmussen, Senior Vice President, Mobility, was ready to answer questions.

How is Intelsat satisfying the expanding market for data, and what's your USP?

Flexibility and simplicity are important features of FlexExec. We offer the same maximum data speed to everyone, regardless of the plan selected, including by-the-hour and unlimited plans. Moreover, Satcom Direct's new Plane Simple antenna has been optimised for a seamless internet experience with the FlexExec network and consists of just

two LRUs, freeing up valuable cabin luggage space. And to keep things simple, SD provides the best service support in the industry, with a custom suite of applications designed to simplify flight planning and operations.

How do you support your customers?

Intelsat provides a fully managed service to SD that ensures a premium level of inflight connectivity to every aircraft. With dedicated support from our operations team, we proactively monitor every flight on the FlexExec network to ensure the best performance with beam switching and service level agreements. In the unlikely event of a fault with the connection, Intelsat is able, in most cases, to remedy the problem in real time over the air.

FlexExec is delivered exclusively through SD. How does that work?

Specifically designed for business aviation, FlexExec is a global, Ku-band, high-speed network with multiple layers of high-throughput satellite coverage. That means we have bandwidth dedicated to those who fly on business jets so they can confidently expect service levels worldwide. FlexExec is powered





A ViaSat-2 satellite. Viasat

by the global Intelsat network, which is the largest commercial satellite network in orbit and is integrated with an enterprise-grade, fully redundant terrestrial network.

FlexExec is the only network integrated with the SD Plane Simple antenna system and can consistently reach speeds up to 15mbps – as demonstrated during a series of recent US, transatlantic and European validation flights.

OneWeb

Ben Griffin, VP Mobility at OneWeb, is excited about the company's low-earth orbit (LEO) satellite constellation and its promise to deliver high-speed broadband literally everywhere. Around half the 648-craft network had been launched by early December 2021, with full service expected from late 2022 and aviation connection following early in 2023.

How will OneWeb satisfy business and VIP aviation? What do you promise that others do not?

Our network will offer more than 4Tbps, revolutionising business aviation connectivity because it's so fast and disruptive. We have more than enough capacity to meet expanding demand, but we're already looking at what a Generation 2 network might look like. Compared to their geostationary satellite cousins, LEO satellites have a shorter lifespan, meaning we can update the network more rapidly; Gen 2 will offer a huge increase in capacity, perhaps from as early as the late 2020s.

We examined the business aviation market and recognised that there are excellent providers out there delivering connectivity as part of a wider service offer. They do that far better than we could and understand the market better, so we're working with partners who'll wrap up the very best in connectivity and take it to the market. We're phenomenally good at designing and continually evolving satellite networks, but we don't pretend to be experts in every vertical we operate in. Our partners will also handle our electronically scanned antennas, associated LRUs and customer service.

Because of the capacity and the fact that our satellites are effectively closer to the aircraft and offer exceptionally low latency, the speeds on offer will change how customers use their connectivity. Cloud computing without timing out will become possible, along with watching the stock markets almost in real time, while gamers will be able to engage properly, rather

than finding themselves back in the lobby when they thought they were still in the fight.

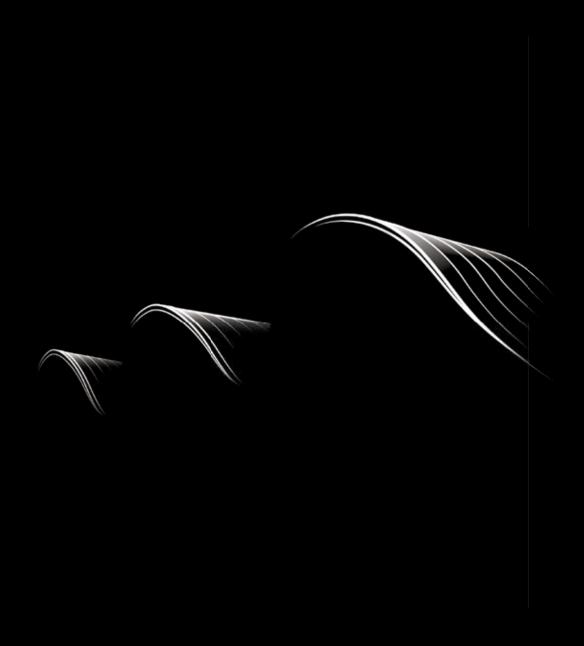
SmartSky Networks

Creating a new air-to-ground network for the US market was always going to be a challenge and SmartSky Networks has suffered delays. Brit Wanick, VP Marketing & Partnerships says: "COVID-19 undoubtedly slowed progress as did a technology vendor dispute. Both have been resolved and in June we announced completion of all technical milestones and the opening of our operational network in the Southeast Corridor. Since then, we've continued to deploy the network across the continental US and coincident with our commercial launch, announced more than 50% coverage for business aviation flight hours at October's NBAA-BACE event. We expect to have full CONUS coverage in the second quarter of 2022."

You have an obvious competitor in the US business aviation market. What's your USP?

We're entering the market with a superior network, innovative hardware, and a transformative data and services layer, Skytelligence. Through our expanding

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Interface into Moment's digital world. Moment

An Alternative Moment

rench company Moment takes a rather different approach to business aviation connectivity, through its Flymingo Box portable server and separate wireless streaming platform.

CEO and Co-Founder Tanguy Morel says: "Passengers expect new standards for cabin comfort and inflight services and communication. This represents a challenge for business aviation operators in terms of innovation and performance; connected solutions that include digital platforms

enable unparalleled inflight connectivity and provide a more complete passenger experience.

"Embedded connectivity technology ought to be integrated early on in new cabin designs, since in addition to being affordable and offering total flexibility to operators, scalable digital platforms are suitable for business jets of any size, enhancing the travel experience by providing access to a digital guest portal. This allows operators to personalise their on-board offer and guarantees a reliable communications environment to their passengers."

partnership network we offer customers an unmatched experience that enables choice of cabin Wi-Fi equipment, entertainment, business productivity and cockpit information, and options to support aircraft and flight telematics with a consistent and dependable network. We serve the entire aircraft data ecosystem, from passengers to

operators, to directors of maintenance, to application developers.

How do you support your customers?

We have key relationships with business aviation services providers, including Honeywell and Avionica, which offer worldclass avionics and connectivity support. SmartSky antennas and aircraft base radios are required for use of the system, with the antennas mounted to the bottom of the aircraft, like other air-to-ground connectivity systems. The equipment and installation are available through our MRO, OEM and dealer partners. We have equipment available today, and customers can take advantage of our current Early Arrival promotion to acquire and install the shipsets.

Viasat

In October, Viasat strengthened its Ka-band offer with a direct service called Select, offering global and regional unlimited plans matched to an aircraft's mission and featuring uncapped data as well as the company's 'no speed limit' connectivity. Claudio D'Amico, Viasat business area director for Business Aviation, was ready to answer questions.

With Select you are satisfying customers' growing demand for data, but how exactly does the offer work?

It's a service plan portfolio designed to deliver performance, flexibility and value. Within that we offer packages designed to satisfy operator needs, with no data caps, because we know they don't like them, and delivering the same service speeds, typically greater than 20mbps, across all plans; we've had customers telling us they've been getting up to 90mbps.

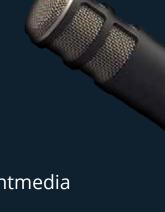
We're addressing two primary areas, with a set of regional plans for North America and Europe, and we're addressing other regions through a set of global plans; we cover 90% of business jet routes. For example, an operator doing most of their flying in North America would take a regional package and contract extra data for a once-a-year trip to Europe, but an operator regularly flying transatlantic would save money with a global plan.

The plans are flexible to suit not only regions and mission profiles, but also whether customers are light or heavier users. And we don't have restrictions on when the service is available. Our customers can connect from ramp to ramp. Connection speed is the same regardless of plan and with the ViaSat-3 constellation coming on line in 2022 we'll have even more capacity, which is very exciting. ■



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Air Charter Scotland began operations with a Cessna fleet and has continued to operate Cessna models through its 20-year history. Derek Thomson, Commercial Director/Ground Operations Manager, describes the company's relationship with the Citation, and the dual challenges posed by Brexit and COVID

urprisingly large, undeniably rugged and home to no more than 5.5 million people,
Scotland is a uniquely proud nation. It also has a long aviation tradition, thanks in part to its remote landscape perhaps, but including aircraft manufacturing and operations. In its two main cities, Edinburgh (the capital) and Glasgow, Scotland boasts financial and cultural hubs, while elsewhere in the country new enterprise sits comfortably alongside a rich history stretching back to long before the Romans visited Britain.

All that said, it should come as little surprise that Air Charter Scotland runs a thriving business jet operation out of its Glasgow headquarters. Established 20 years ago with a small fleet of Cessna piston-twins, Air Charter Scotland later leased a privately owned CitationJet 1, offering it for charter from 2003. Under new ownership, the company expanded further into the jet market in 2006, adding more CJs, a trend that has seen it continue to operate Cessnas alongside other models. Over two decades, Air Charter Scotland has flown 20 Cessnas, a record that manufacturer Textron Aviation believes is unique. And that is surprising.

Derek Thomson, Commercial Director/ Ground Operations Manager has experience with several business aircraft types and says one of the reasons for Cessna's success in the Air Charter Scotland fleet has been Textron Aviation's continuous improvement in customer support, including its willingness to recognise the charter operator's challenges and work together as a team.

Since Air Charter Scotland's fleet is operated on behalf of owners, there is also a question of why they continue to choose Citations.

"I believe Citation dispatch reliability is an important factor and the aircraft are

very efficient," Thomson says, "and then there's the cost of acquisition. We speak to lots of people looking to enter the private aviation market and many of them could afford seriously large aircraft. But we try to be as impartial as possible and provide the best guidance. We encourage them to buy something more modest as they explore private jet ownership and the Citation is perfect for that."

Interestingly, two of the Citations have Tamarack winglets installed and Thomson reveals 'great efficiency figures' as a result.

Maltese AOC

Air Charter Scotland's fleet is Cessna heavy, but also includes three Legacys, a Challenger 350 and a Falcon 7X. While the latter offers considerably more range, the company's operations are mostly limited to Europe, North Africa and into the Middle East. Speaking via Teams, Thomson was clearly not in Glasgow; turning his laptop, he revealed a sweeping Maltese vista before him.

He was wearing his alternative Accountable Manager for Air Charter Scotland Europe Ltd hat, essentially managing the company's new Maltese AOC. The move towards a Continental base was made in response to Brexit, a palaver to which Scotland did not subscribe but was forced to accept by the wider UK vote. The ravages of COVID hid the worst machinations of Brexit, but now operators across Europe, and especially in the UK, are learning to negotiate the new normal.

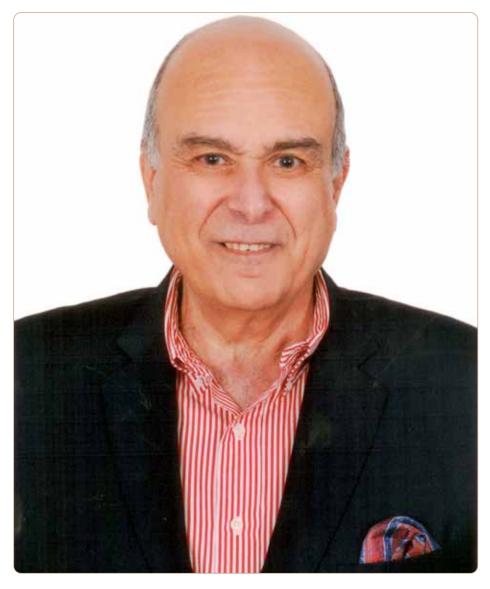
"The aviation deal was put in place on 24 December 2019," Thomson rues, "just one week before we pulled out. We'd already set up the Maltese AOC to counteract the situation, but COVID meant we didn't have time to assess Brexit's real impact. We decided that we'd watch the situation from April 2020 and through the summer. It has been better than we thought it would be for our UK operation, but there's no getting around the fact that it's created around three times more work to plan a trip.

"I'm in Malta exploring how we can expand our European fleet through external

aircraft management and, most likely, some internal changes, moving aircraft from the UK to the EU." The result for Air Charter Scotland is likely to be jets lost from the UK register, while new aviation jobs are created in Malta, rather than at its Glasgow HQ or its Edinburgh and Luton outstations.

Meanwhile, Air Charter Scotland's flight operations team continues to excel. Through the challenges of COVID and Brexit they've continued delivering the flexibility and reach only possible through business aviation often, Thomson says, thanks to "lots of late nights and strong coffee". "Sometimes, at the height of the pandemic, we saw borders changing by the hour and there was always a concern we'd have a crew stranded. But we made certain everything was 100% perfect and managed to come through it." And that effectively sums up Air Charter Scotland's ethos and formative relationship with Textron Aviation: always striving for perfection regardless of the challenge, to deliver unique capabilities as safely and efficiently as possible.





Mohamed Hanno, Founder and Executive Chairman, ASE Group

The Ups and Downs of Success

Providing ground handling and global flight support in Egypt, Morocco and the UAE, ASE Group's dedicated teams serve the airline, freight and private/VIP aviation industries. Founder and Executive Chairman Mohamed Hanno reveals its extraordinary story

ohamed Hanno's passion and experience stand out even in an industry where such qualities are not unusual. Founder and executive chairman of the ASE Group, Hanno hails from an aviation family and began his career with Alitalia in 1974, later moving on to Hapag-Lloyd Flug, Thomas Cook, Egytrav and Aero Lloyd. Taking the aviation, airport, tourism and travel expertise learned with these European companies, Hanno created ASE-Aero Services Egypt in 1989, followed by ASE-Airline Supervisors Experts in Morocco during 1998 and ASE-Associated Services Experts in the UAE a decade later. Today, ASE handles private, airline and cargo flights at multiple airports in Egypt, Morocco and the UAE, and offers flight support globally.

"I decided I'd had enough of working for other people," Hanno recalls, "which is why I started Aero Services Egypt. We went through some ups and downs with the Iraqi invasion of Kuwait and terrorist activity here in Egypt, but in 1994 we signed a contract with Air Berlin. They stopped flying to Egypt after the Luxor massacre in 1997, but contracted ASE to work with them in Morocco. Later, when they began operating to Dubai, they asked me to work with them there too."

Considering the challenges conflict and terrorism posed to his nascent operation, Hanno looks back and says: "It was quite interesting, because I love what I'm doing." And he was clearly doing what he loved very well, because in 2008 Hanno was elected vice chairman of the IATA Ground Handling Council (IGHC), a position he retained until 2016. He'd been involved with the organisation since 1992. In 2016 was nominated to become a member of IATA's newly formed Ground Operations Group. Meanwhile, in 2011 Hanno was invited to become a member of the Airport Services Association board, a position he still holds. The ASE Group has, almost by default therefore, always been closely aligned with IATA and ASA best practices.

Regional presence

The map showing ASE's presence in its three operating countries is surprisingly busy, and Hanno explains the spread. "We have main locations in Egypt, Cairo, Luxor, Hurgada, Sharm El Sheikh and Alexandria, with our people at those bases also serving nearby airports. This way we cover Egypt's primary tourist airports in addition to Cairo. We work the same way in Morocco, with Dubai as our main station in the UAE and people working at other locations from there."

The result is guaranteed service levels in the three countries wherever ASE's customers need to go. And this is true regardless of whether the customer arrives in a business jet, is a VIP or head-of-state visitor, airline or freight carrier since ASE has dedicated teams for each. Based in Egypt, the flight support department extends the company's reach

globally thanks, Hanno says, to a trusted network of handlers and authorities; there is also a useful interchange of information between the private/VIP, airline and cargo arms of the business, which has proven particularly significant during the COVID pandemic.

The latter, combined with ongoing regional security challenges, has complicated operations considerably. It means that on occasion ASE's team has had to tactfully inform customers that their destination airport will not or cannot accept them, a tricky situation that means managing expectations carefully.

EVA has often spoken with Krimson Aviation, Ethiopia's primary business aviation handler. Dawit Lamma, Krimson's CEO is wont to expound the growing possibilities for the African market and Hanno is in complete agreement. "I've been very clear in my

message that Africa is an important and growing market, where business aviation may involve anything from an airlinertype aircraft, through a Citation or Gulfstream to a helicopter."

Asked about the full extent of ASE's VIP and government aviation activities, Hanno reveals that the company was responsible for all aviation aspects of the Argentine president's tour of Egypt in 2008 and has handled flights for the Qatari royal family and others. Looking ahead, he says he'd recently asked his executive team what was next for the company. "No one really knew how to answer. I believe aviation is in its worst position ever, but a new era is coming. I'm going to do my best, because after so long in the industry the smell of jet fuel has become a drug for me. I'm addicted... I think Jet A-1 rather than blood runs through my veins." ■









Managing the Variables

Operating helicopters safely requires planning, careful risk assessment and constant vigilance. Starspeed's Simon Mitchell, and Jonathan Turner from Maritime Aviation, provide an overview of off-airfield and yacht flying, while Survival Systems USA's Keith Wille discusses options for those rare occasions when everything goes wrong

othing matches the helicopter's versatility and ability to operate off-airfield. But there's more to safely landing a helicopter 'away' than finding a suitable area, as Simon Mitchell, Managing Director at the UK's Starspeed, notes: "The rules vary from country to country. In some parts of Europe it is quite complicated – Germany and Switzerland for example. It's actually forbidden in some areas. In our experience the UK is probably the most flexible."

Even in the UK, though, pilots must be aware of regulatory requirements. "Essentially," Mitchell explains, "there is a division between what's classified as a 'Congested Area' and what is not. Several regulations apply to a congested area landing, including the need for an accurate site survey having been made within the previous 12 months, while the helicopter must achieve Performance Class 1 take-off profiles. Pilots must also ensure the site is large enough and suitable for the helicopter, secure the landowner's permission and inform the police."

Performance Class 1 requires that a helicopter have enough power from one engine to land safely back on the take-off area or continue flight, clearing all obstacles by 35ft. Thus, only twin-engined machines are permitted to operate in Congested Areas.

Operating off-airfield presents many potential hazards, among which Mitchell says the most significant is weather, although he also emphasises the threat posed by obstacles and wires, and surface conditions on the day.

"Once you are landing you also have to be very aware of soft ground and FOD [foreign object damage] and think about your downwash. In basic terms, if you compare an off-airfield landing with a standard airfield landing, pilot workload is perhaps three times higher, with many more parameters to consider before making a safe approach and landing. It's important to remember that during airfield operations and airways

flying, pilot workload is shared with the airport, ensuring the approach path and runway are clear, and providing weather information, air traffic in the tower and air traffic 'in radar'. When a helicopter pilot operates outside that structure, their task is far more complicated and the responsibility is all on them.

"For commercial off-airfield operations, especially at night, we try to get a landing site officer [LSO] on the ground first," Mitchell goes on. "We often use Puma Aviation, but a few operations provide LSOs, who remain in radio communication with the helicopter. When this is not possible, we generally try to arrange for the landowner or someone else to be at the site, ensuring we call them before departure to see if there are any last-minute changes."

Shipboard heliport

Where helicopters are regular visitors off-airfield, a helipad, equipped with lights if night flying is required, makes sense. Mitchell notes that every helicopter's flight manual specifies minimum helipad dimensions for the aircraft, while helipad design is listed in ICAO Annex 14, Volume II. He says: "For most helipads you want to achieve a minimum of 2D – and that translates into twice the longest dimension of the helicopter and rotors [D]."

The specifications for a helipad, at a private residence for example, are therefore well defined, but what are the additional requirements for a yacht landing? Jonathan Turner, Managing Director of Maritime Aviation, explains: "The helicopter landing area on a superyacht is known as a 'shipboard heliport'. It presents unique features that may create challenges even for the most experienced pilot. First and foremost, it is hosted on a seagoing vessel subject to variable winds and sea states that cause the yacht to pitch and roll, heave and yaw; it's effectively a moving target. In addition, shipboard heliports are generally in confined areas, close to vessel superstructure which, in itself, can create additional turbulence for the pilot to deal with."

Turner continues: "Pilots operating to and from shipboard heliports must

ensure the vessel has undertaken its own 'preparations for flying', with all loose articles, including furniture, cushions and so on removed or mechanically secured so that the downwash does not draw them up into the main rotor."

And, just as two engines are a prerequisite for operations from Congested Area sites, a dual powerplant is preferable for flying over the ocean. "Most modern helicopters are perfectly capable of operating on one engine to reach safety, should the other fail," Turner states. "An owner would always be encouraged to purchase a twinengined helicopter for enhanced safety when operating to/from a ship. Also, most modern helicopters can be flown single-pilot and in IFR conditions, and this is how the majority of yacht helicopters operate. Some owners, however, prefer two pilots at all times, while some only demand two at night."

Beyond safety

Survival Systems USA is in the business of training a surprisingly wide range of professionals, among them military and civilian helicopter crews and passengers, how to survive in a worst case scenario after a helicopter accident. Most obviously including water training in the 'dunker', Survival Systems USA's programme also covers how to survive the impact of an accident and those first few hours or days in the mountains, the desert, or the water, until search and rescue arrives. It is perhaps more relevant in this era of helicopterequipped explorer yachts than ever before.

Keith Wille, Development Manager at Survival Systems USA, says: "Dunker training is our bread and butter, but we offer many other options, including different types of survival and safety training. Everything we do kicks in as soon as the pilot has exhausted his or her options. It's the point where the aircraft is going down and crew and passengers are in survival mode." Without the correct training, injured casualties could succumb to exposure in cold conditions within hours; add in the risk of drowning if they are in water, and it could be seconds.

The training is also about providing the tools and experience required to avoid panic. "We can explain exactly how an exit mechanism is used, but there's no accurate way of describing or predicting panic," Wille says. "But it happens here, in the training. Once people have experienced it and worked through it in a safe environment, they have a new level of self-confidence. And, from time to time, we have people who walk in the front door and tell us: 'Your training saved my life'.

"We had such great feedback from commercial and military clients on the unexpected benefits of learning to deal with highly stressful, unexpected situations, that we created a leadership and team development programme around the training. Companies with no requirement for survival training send employees to us for the experience; it also means that pilots who come through here go away not only with survival skills but also better able to cope in high-stress situations."

There is no prevention for pure bad luck, but the extreme situations Survival Systems USA trains for are best avoided through careful, professional piloting. Turner emphasises: "Pilots operating to and from yachts treat every aircraft movement as if it were their first ever. Hazards can be various and numerous on shipboard heliports and can manifest themselves at any time, creating an unsafe environment to which the pilot must react. Appropriate preparations for flying must therefore be undertaken prior to any flying operations to maintain safe and efficient operations."

Mitchell agrees that at sea or on land, the pilot is inevitably the ultimate risk owner for the aircraft and its passengers. "There are just too many variables to manage the risks any other way. It places great responsibility on the shoulders of the pilot – every time they sit in the cockpit, the world is completely different, with different challenges." Careful planning, on-the-day preparation, professional risk assessment and an operating culture that places the ultimate decision on whether or not an operation should go ahead on the pilot, is therefore essential to safe helicopter flying.



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