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CRACKING THE MAINLAND MARKET

Virgin Australia CEO, John Borghetti, pleasantly surprised by results of China code share partnership

Orient aviation 24 YEARS

Trump's unwinnable tariff war with China

IATA backs global drone registry

Indian government extends deadline for Air India bids

INDUSTRY INSIGHT SPECIAL REPORT
Leasing in the Asia-Pacific: an update

Orient aviation 24 YEARS

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CONTENTS

Volume 25, Issue 4

Drone abusers threaten air safety

Drones, or unmanned aerial vehicles (UAVs), are no longer an occasional annoyance to airlines. They are becoming an ever present danger to air safety, especially in the vicinity of airports.

Last month's incident at Auckland airport, where a drone came within five metres of an Air New Zealand B777 as it approached landing from Japan, was close enough to the aircraft for the cockpit crew to fear the device could be sucked into an engine. Fortunately, it was not.

This incident was not an isolated episode. Data reveals that the number of near misses and incidents involving drones around airports is increasing. In China, the Gulf States and elsewhere, hundreds of flights have been cancelled or diverted because of drone activity. It is estimated that millions of drones are being operated across the world.

As more drones fly, permitted because of the grey areas surrounding global drone regulation, it must only be a matter of time before an accident of significance happens.

Drones are easy to acquire and inexpensive. Cost alone is boosting the phenomenal growth rate of drone hobbyists worldwide. Most drone nerds are responsible operators of their spider like crafts, but there are always a few crazies who ruin the game for everyone.

The industry's regulators have recognized the enormity of the threat unregulated drone flying poses for airlines. It is now critical then for industry regulators to establish global standards for safe drone operations within airports, for MRO and operations support and around airports to ensure safe flying.

In Chengdu in September, the International Civil Aviation Organization (ICAO) will hold its second Drone Enable conference to identify solutions to drone management in aviation.

Issues to be discussed are formulating air traffic rules for drones in available airspace, establishing criteria for drones to be integrated safely with commercial airline operations and agreement on tougher penalties for rogue drone users.

These reckless people must be punished with severe penalties. As well, the industry must mount a global campaign to draw the public's attention to the dangers of operating drones in restricted airspace. Airlines have access to a captive audience of millions on their flights. Many air passengers would have no idea that flying a drone near an airport could be a threat to air safety. Perhaps the websites of airlines could be the place to start educating the community about responsible drone operations? ■

TOM BALLANTYNE
Chief Correspondent
Orient Aviation Media Group

IndiGo CEO takes voluntary time out from the airline business

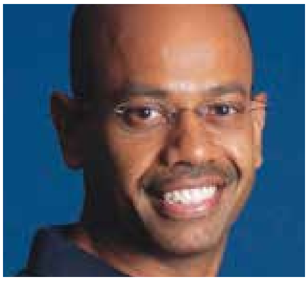
Forty-two-year-old Aditya Ghosh, until April 26 the CEO of India's largest carrier by numbers, has resigned to "work out what he wants to do next". He will formally step down as president on July 31, the airline statement said on April 27.

IndiGo co-founder and billionaire owner of conglomerate Interglobe, Rahul Bhatia, was immediately appointed interim CEO of the low-cost carrier but it is widely believed he is keeping the seat warm for airline veteran, Gregory Taylor. Expatriate Taylor, who was named at the beginning of the month as a senior advisor to the carrier, is expected to be IndiGo's next CEO once his appointment is approved by regulators.

Bhatia told media in India that "Aditya had been saying for the last few months that he wanted to get off the treadmill of running an airline and the board had to finally accede to his wish".

"Aditya was at the helm all these years and we will miss him, but the company will not miss a heartbeat – the transition will be seamless," he said.

"The airline is planning for the future. In the areas of network planning and revenue management, India does not have resident expertise and had



to bring in talent from overseas who have deep functional knowledge."

Taylor has spent more than three decades at United Airlines and also U.S. Airways, where he worked with then CEO and chairman, Rakesh Gawal, the other co-founder of IndiGo. Most recently, from 2016-2017, Taylor was the executive vice president of revenue management and network planning at the airline. His areas of expertise include corporate, strategy, network and fleet planning, finance, cost management and airline express operations.

Bhatia handpicked Interglobe in-house lawyer Ghosh to run the infant LCC in 2008. Ghosh led IndiGo for nearly a decade, growing it into the nation's biggest airline by market share. Under him, the airline placed record aircraft orders worth billions of dollars, had a blockbuster IPO and became the biggest budget airline in Asia by market valuation.

IndiGo built its brand on being on time and expanded at breakneck speed. It has a fleet of 160 aircraft that rivals Jet Airways, but it's on time performance has wobbled, some say crashed, in recent months as its fleet grew, engine problems on its new A320neo persisted and incidents of staff insensitivity and poor service acquired traction on social media. The airline has more than 400 aircraft on its order book.

"Ghosh has been instrumental in bringing IndiGo to the top position in Indian aviation over the past 10 years," founder and CEO of Dubai-based Martin Consulting LLC, Mark Martin, said by phone to Orient Aviation. "IndiGo shares may have a temporary blip as they are overvalued. We don't expect a major sell-off as the airline has good leadership and is strongly entrenched in the aviation business."

His departure comes as the carrier began a shift from its strategy of operating one aircraft type across its fleet to a mixed aircraft model. It also has begun buying planes outright instead of leasing them and is planning a low-cost, long-haul subsidiary.

In the last 18 months, IndiGo has added several expatriates to its executive ranks. They include chief financial officer, Rohit Philip, another United Airlines veteran; chief strategy officer, Willy Boulter, who was most recently board director and chief commercial officer at TAAG Angola Airlines but also was vice president partner network planning at Etihand Airways, group commercial officer at Virgin Atlantic, and had management appointments at Cathay Pacific Airways and as IATA vice president Asia-Pacific in Singapore.

In February, Wolfgang Prock-Schauer, then the boss of GoAir, moved across to IndiGo as chief operating officer. Austrian Prock-Schauer was Jet Airways CEO for six years to 2009 and worked on restructuring programmes at Bmibaby and Niki.

Other expatriates recruited to IndiGo are former AsiaAsia network expert, Jason Herter, as vice president operations and control centre; another United Airlines veteran, Cindy Szadokierski, vice president airport operations and customer services and chief planning officer, Michael Swiatek. ■

Indian government extends deadline for Air India bids

India's government has reacted to the lack of enthusiasm for its Air India group sale by extending the bid deadline by two weeks and revising several clauses of the Expression of Interest (EoI) document.

When the Indian government announced the Air India Group EoI on March 28, potential bidders were dismayed to learn the offer included Air India Express and AISATS, a joint venture between the national carrier and Singapore-based SATS Ltd, as well as Air India.

At press time, with no firm bids on the table conditions for disposal of the assets of the airline were legally loosened, but the government continued to insist it would retain a 24% equity in the group if the sale was successfully concluded. The revised EoI listed 160 points of clarification including banning individuals other than airline employees from bidding.

GR Gopinath, who founded India's first low-cost carrier, **Air Deccan**, wrote in an Indian media commentary last month that the government's asking price for the Air India group sell-off was unrealistically high, a view shared by the entire industry.

"The government is harboring the delusion the airline will attract good money, forgetting that Air India is a doddering maharajah. The government is offering 76% equity in the group and will pass on a debt burden of Rs 34,000 crore ($5 billion) to the successful bidder," he said.

"The debt is unviable and frightening. The airline is presently losing more than Rs 5,000 crore ($750 million) a year. Even the most intrepid and enterprising bidder may shy away." ***By chief correspondent, Tom Ballantyne.*** ■

Two time winner of Orient Aviation's Person of the Year, Shinichiro Ito, presented with his award in Tokyo

Orient Aviation Media Group publisher and editor-in-chief, Christine McGee, presented ANA HOLDINGS INC. chairman, Shinichiro Ito, with his second Orient Aviation Person of the Year award at a private dinner in Tokyo on April 25.

"It is an honor to receive this prestigious award for the second time," said Ito. "It is because of the hard work and dedication of our employees that ANA receives recognition for this. I am very proud of our team and want to thank Orient Aviation for this great honor."

"All of us at Orient Aviation wish to acknowledge Shinichiro Ito's inspired leadership, imagination, business acumen and appetite for progressive change. It is a tribute to his character that his award was widely endorsed by the region's industry."

"Shinichiro Ito led All Nippon Airways through a remarkable period of growth that transformed the carrier into a global airline company that is rated consistently as one of the top airlines in the world," said Christine.

"From there, he took on the leadership of the carrier's parent company, and once again demonstrated his imagination and drive in developing two low-cost carriers, joint venture Peach Aviation and Vanilla Air, as well as several emerging market companies still in development."

The Orient Aviation Person of the Year was launched in 1997 to honor the Asia-Pacific airline CEO who had delivered the most outstanding performance as head of his or her carrier for the year. The recipient is the subject of the cover story of the final edition of Orient Aviation in December each year.

Most recent Persons of the Year were Qantas Group CEO, Alan Joyce (2016), IATA director general and former Cathay Pacific Airways CEO, Tony Tyler (2015) and Air New Zealand CEO, Christopher Luxon (2014).

ANA HOLDINGS INC. has announced a record 45.6% jump in net profit, to 143.8 billion yen (US$1.3 billion), for the year to March 31, 2018. Operating revenue increased 11.7%, mainly due to revenue earnings from air transport. Operating income rose 13% year-on-year. The results exceeded the group's February profit forecast of 132 billion yen. Others factors contributing to the record result were strong international demand, improved inbound travel and expanded business at the group's LCCs, joint venture Peach Aviation and Vanilla Air. ■

Person of the Year roll of honour

2017 **Shinichiro Ito**, Chairman, ANA HOLDINGS INC.

2016 **Alan Joyce**, CEO and Managing Director, Qantas Airways

2015 **Tony Tyler**, Director General & CEO, International Air Transport Association.
Mr. Tyler is also the recipient of an Orient Aviation Lifetime Achievement award for his services to the aviation industry.

2014 **Christopher Luxon**, CEO, Air New Zealand

2013 **Yoshiharu Ueki**, President, Japan Airlines

2012 **John Borghetti**, Chief Executive Officer, Virgin Australia

2011 **Shinichiro Ito**, President & CEO, All Nippon Airways

2010 **Emirsyah Satar**, President & CEO, Garuda Indonesia

2009 **Tony Fernandes**, Chief Executive, AirAsia

2008 **Idris Jala**, Managing Director, Malaysia Airlines

2007 **Jaime Bautista**, President, Philippine Airlines

2006 **Chew Choon Seng**, Chief Executive, Singapore Airlines

2005 **Geoff Dixon**, Managing Director & CEO, Qantas Airways

2004 **Kanok Abhiradee**, President, Thai Airways International

2003 **Ralph Norris**, Managing Director & CEO, Air New Zealand

2002 **Isao Kaneko**, President, Japan Airlines

2001 No Award

2000 **David Turnbull**, Deputy Chairman & CEO, Cathay Pacific Airways

1999 **James Strong**, Chief Executive, Qantas Airways

1998 **Dr. Cheong Choong Kong**, Deputy Chairman & CEO, Singapore Airlines

1997 **Fu Chan Fan**, President, China Airlines

*In **2012, Orient Aviation awarded its second Lifetime Achievement award** in its 18-year history of the Person of the Year. The recipient was Air New Zealand CEO, **Rob Fyfe**.*
*In **1998**, Cathay Pacific Airways chairman, **Peter Sutch**, was awarded Orient Aviation's Lifetime Achievement award.*

Down memory lane – and back – with industry veteran Eddington

It is more than a decade since former **Cathay Pacific Airways** and **British Airways CEO**, now **Sir Rod Eddington**, left the airline business for leadership and advisory roles in government, finance and media.

But in his keynote speech at a Royal Aerospace Society lunch in Sydney last month, it was clear aviation, particularly Asia-Pacific aviation, is very much in his ken.

Discussing his former charge, the Cathay Pacific Airways of the 1990s, he told guests: "When I worked in Hong Kong for Cathay Pacific, it was the gateway to China. If you were anywhere in the world and you wanted to go to China you almost certainly flew to Hong Kong first, aside from the appeal of Hong Kong in its own right.

"I live in Melbourne now and there are a dozen Chinese carriers flying non-stop into Melbourne. There are the obvious ones: China Southern, China Eastern and Air China. But you also have Sichuan Airlines, Capital Airlines and Hainan Airlines.

"There's a long list of carriers [from the Mainland] so Hong Kong is no longer the gateway to China. The game changes and airlines have to change. Cathay will bounce back, but it has some tough things to do first.

He continued: "When I first rattled around China in the late 1970s and early 1980s, there was only one Chinese airline, the CAAC, and it basically flew Tupolevs and Antonovs.

"Now, Chinese carriers fly modern airplanes. They fly them well and their inflight service and product continues to improve. China is no longer a reservoir of technology that belongs in a museum. There's a lot of talk about Silicon Valley. China is very quickly closing the gap in technology terms.

"The other interesting fact about Chinese aviation is airports. I remember going into Capital Airport in Beijing when it was a tiny little place with an old circular terminal that serviced very few flights. If you look at Capital Airport today there is no comparison.

"But there are challenges associated with that enormous expansion. One of them is Air Traffic Control (ATC). The Chinese military still controls most of China's airspace. If you are in Hong Kong and flying into or over China the ATC delays are interminable. But I would not bet against the Chinese. They are major players in the world game."

Sir Rod also considers viable long-haul low-cost travel has potential if the right aircraft services a long-haul budget carrier network. "The low-cost model for short-haul is well established. With long-haul [full-service] carriers, you would have 400 seats on a B747-400 and you could sell the last hundred quite cheaply. There was always a bit of that in the mix anyway," he said. "Now, with the B787 and A350 I think we will see more low-cost carriers that will be long-haul rather than short-haul."

Why, Sir Rod was asked, did he decide against investing in the A380 when he was at British Airways? "I could not make it work. I always thought it was a

terrific airplane from a customer viewpoint. But it is very large, very heavy and carries very high trip costs," he said.

"In order for it to make money you needed 400 plus people who wanted to fly from the same place at the same time. In one sense it was academic. The balance sheet at BA when I got there was shot. We couldn't have ordered a Bandeirante, let alone an A380.

"As an airline person who cares about the operating economics of a business it is very difficult to make money with the airplane." ■

Deciding the fate of the British Airways Concorde

Sir Rod said he had been at British Airways about six months when the French lost a Concorde out of Charles de Gaulle [airport]. "We can still see in our minds the footage of that terrible accident. Subsequent to the accident, airworthiness authorities rightly grounded the plane," he said.

"We had to make three substantial modifications to it. We had to put Kevlar lining in the fuel tanks. We had to get Michelin to make new tires and we had to change the wiring in the undercarriages, which was where the spark originated. That took 18 months. We put ours [Concorde] back into the air, as the French did, in November 2001, two months after 9/11.

"There were a couple of things that meant the end. Leaving it on the ground for 18 months to do all the modifications created a terrible corrosion problem. Secondly, a lot of customers stayed away, not so much because of the Air France crash but more to do with 9/11. We had been operating with a 75% load factor. After it was put back in air it was 25%, so we decided to retire it.

"We took the decision about March 2003, but I knew a lot of people had it on their bucket lists so we ran it to October 2003. We put some cheap fares on it so people had a chance to fly on it [before it was retired]. It was a sad day, but it was the right decision." ■

Trump's unwinnable tariff war with China

How severely will the U.S. aerospace industry be impacted by U.S. President Trump's planned tariffs on Chinese imports? Chief correspondent, Tom Ballantyne, reports.

Business leaders worldwide know there is only one outcome of a trade war. "The thing about the tariff war is these things always end badly," Sir Rod Eddington, a former CEO of Cathay Pacific Airways and British Airways, said in a Sydney address last month.

"This one will be no different. Unlike the President of the United States, I don't think trade wars like this are winnable. Everybody loses and this will be no different."

U.S. president Trump has announced a proposed list of 1,300 products, mainly Chinese exports of mechanical and electrical products, but also including a 25% levy on steel and a 10% tariff on aluminum. The latter is critical to aircraft manufacturing.

Intended to address the US$375.2 billion trade deficit with China, it has resulted in an announcement by China that it would impose a 25% tariff on 106 products, including soybeans, cars, chemical products and passenger aircraft.

For now, these measures remain proposals and have not been passed into law. In the U.S. there is a 60-day period for the public to provide feedback on proposed legislation and the U.S. Senate and Congress also can

hold hearings on critical issues such as new tariffs.

Nevertheless, as a result of president Trump's decision, a trade war appeared inevitable and markets reacted accordingly. Boeing shares took a hit and there was talk of Chinese airlines cancelling orders of the manufacturer's aircraft. There was concern too that the dispute could have a serious effect on freight, which is critical Asia-Pacific airlines' income.

"Demand for air cargo continues to be strong with 6.8% growth in February," said International Air Transport Association (IATA) director general and CEO, Alexandre de Juniac.

"The positive outlook for the rest of 2018, however, faces some potentially strong headwinds, including escalation of protectionist measures into a full-blown trade war.

Prosperity grows when borders are open to people and to trade and we are all held back when they are not."

China Eastern Airlines did warn that a brewing trade war between China and the U.S. could prompt it to adjust capacity and frequency on associated routes. The trade war could have "a certain impact" on passenger and cargo business, said the airline's CEO, Ma Xulun.

Ironically, as the proposed tariffs were being debated, the world's largest express freight operator, FedEx, announced last month that for the first time it would operate directly from its hub at Memphis to Guangzhou.

So, what is the reality of the war of words about a trade war? JP Morgan analyst, Seth Seifman, wrote in a recent note that "the impact should be small as aluminum prices increased by more than 30% last year, significantly more than the proposed tariff and that [increase] had little or no discernible effect on Boeing and most major suppliers".

"If we assume aluminum accounts for 70% of the weight of a B777 or B737 - it is far lower on a B787 - and that materials account for 30% of the price of an aircraft, then a 10% increase in aluminum is a less than a two per cent increase in the price of more metal-intensive aircraft.

"Steel is such a small component of aircraft that the tariff impact should be negligible. Boeing will have to consider these higher costs in pricing future aircraft deals, but lots of cost and price variables move around all the time. So a low-single digit change does not seem like a showstopper."

As for aircraft orders, it is unlikely Chinese airlines would cancel aircraft orders or even draw back from future purchases, although there has been some rhetoric that hinted at such an action. In March, Guangzhou-based China Southern Airlines ordered 30 B737s for its Xiamen Airlines subsidiary.

At a press conference a week later, the airline group's chairman, Wang Changshun, said the order would be threatened if


the U.S. engaged in a trade war. The reality is Boeing and Airbus have huge backlogs for ordered aircraft that will keep their production lines churning out aircraft for a decade.

Seifman pointed out China's proposed aircraft tariffs appeared calibrated to avoid a major impact on Boeing. The threatened 25% levy on aircraft is based on an aircraft's weight. It would apply to planes that weighed between 15,000 kilograms and 45,000 kilograms. It is a range that targets a generation of B737s that are nearing the end of their production run. All but one model of the B737 MAX family would be exempt.

Even the argument that tariffs would present Airbus with an advantage over Boeing is doubtful, in part because China's practice is to balance orders between the two companies. "While both governments have outlined positions that could do harm to the global aerospace industry, neither has yet imposed these drastic measures," Boeing said in a statement. "We will continue in our own efforts to proactively engage both governments."

It should not be forgotten that Boeing, like Airbus, has a significant manufacturing and support structure in China that provides thousands of skilled jobs in China.

It also is far too early for Chinese airlines to turn the country's new single-aisle jet, the C919, into a replacement for western commercial passenger aircraft, especially as the aircraft had its first test flight as recently as December.

"In the best case scenario, COMAC would need another five or six years to reach respectable production capacity," said an analyst at AirInsight, Michel Merluzeau. "In the short term, China has no choice [but to keep buying non-Chinese aircraft] unless it wants to put the brakes on its air transport growth," he said.

As expected, China has not been slow in its reaction to U.S. threats. A Chinese Ministry of Commerce spokesman, Gao Feng, said Beijing would not hesitate to take all vigorous actions possible if faced with escalated trade friction with the U.S.

"The U.S. side has been fairly unreasonable, has seriously misjudged the situation and adopted extremely wrong actions to 'lift a stone, hitting its own feet'. The Chinese side is fully prepared and will not hesitate to fight back immediately with all options possible," Gao said.

By press time, tensions had eased and political positions had shifted. President Xi Jinping threw cold water on a full on trade war in a widely covered public address and added China's 25% tariffs on vehicles manufactured in the U.S. would be slashed.

More importantly, he said China would respect U.S. intellectual property rights and work for a meaningful solution. President Trump promptly thanked President Xi in a tweet!

"We're keeping a close eye on our supply chain, but at this stage and based on our preliminary assessment, we don't expect the direct impact of steel and aluminum costs to have any material effect. However, this is something we'll continue to watch," a Boeing Commercial Airplanes spokesman told Orient Aviation at press time.

"At this point we're assessing the situation and information available to determine how it may or may not impact us, but we're confident that dialogue will continue and we're continuing to proactively engage both governments." ■

Scoot joins the party in Berlin

Singapore Airlines budget arm, Scoot, will add a second European destination to its network in June. With the carrier's B787 fleet set to grow, more long haul cities are expected to receive the airline's flights, reports chief correspondent, Tom Ballantyne.

After a year of successful flying to Athens, Singapore-based Scoot will add Berlin to its network next month. Why the German capital? It is, Scoot chief commercial officer, Vinod Kannan, told Orient Aviation in a visit to Sydney last month, a city that suits the airline's image.

"It's a young city with a lot of millennials, young people. It's a design city. It has everything. It's a party city. It has history, it has tech and also is the biggest community of entrepreneurs in Germany," he said.

Importantly, he added, Scoot is part of the Singapore Airlines group and the parent carrier has a wide network in Europe. "We want to complement that. It is one part of Germany the group has not covered with SIA," he said.

"We [SIA] have Frankfurt, Munich and Dusseldorf, but Berlin resonates best with Scoot, given the image, and is a gateway to northern and eastern Europe."

Apart from Athens and soon Berlin, Scoot also flies to Honolulu, a route it launched last December. It now has a fleet of 16 B787-8s with two more of the type to arrive in time for the Berlin launch and another two to be delivered to the carrier in 2019. That, said Kannan, would open up opportunities for more long-haul routes.

"That will definitely be on the horizon. A lot depends on Athens and Berlin. Athens has been OK so far, but we are looking at Berlin as a bellwether. It is more of a balanced destination. We don't have a plan for the U.S. West Coast. Putting that aside, we will look at where we can fly.

"Where are we going to use the next two [B787s] in 2019? I can't tell you yet," Kannan said, but conceded European destinations not covered by SIA "are definite possibilities".

As well as its B787s, Scoot operates 24 A320s, which were inherited from low-cost carrier, Tigerair, after the merger of the two airlines last July. It also has ordered 39 A320neos, additions that will double Scoot's fleet in the next five years. At press time, the airline was operating to 63 destinations in 17 countries.

Kannan, who was vice president network planning at Singapore Airlines before he transferred to Scoot, pointed out through traffic from Australia and the rest of Asia is a key part of the success of its European flights.

"Australia through Singapore is doing very well. The majority of passengers (to Europe) are not originating from Singapore but from other parts of Asia including Australia, which is by far the biggest market supporting Athens. "We think it is going to be a similar profile with Berlin.

Scoot is happy with its merger with Tigerair. "No merger, acquisition or integration is going to be easy, but externally we have done a pretty good job. We tasked ourselves with a very ambitious goal of doing everything in one year, which we managed to do," he said.

"All the external customer touch points: your customer care, website and mobile have been migrated within that time frame. There were also all the regulatory issues we managed to get through within the year.

"Internally is really the biggest challenge. There are different cultures, a different mindset and different perspectives. But I am happy to say that although it has been a painful exercise, the team has done a great job of putting it together. The team we have at Scoot knows exactly where we are going whether they were from Tiger or from an earlier time at Scoot.

"Scale has doubled. Scoot had 14 aircraft. Immediately, it went to 40. Ways we had in the past had to be done differently. There have been instances where people decided this was not their cup of tea anymore and they left. But those who stayed understand the company vision." ■

INDUSTRY MUST ACT FAST TO REGULATE DRONE USE

Rapid growth in drones is an increasing risk to flight operations, but it also is a positive step forward in industry MRO processes and digital communications. Chief correspondent, Tom Ballantyne, reports on the need for standardization of commercial and individual drone use to ensure the safety of airline passengers, employees and civilians.

As Air New Zealand's NZ92 B777-200 was close to landing at Auckland Airport last month, its pilots were suddenly confronted with a crisis that is becoming increasingly common at airports around the world. Just five metres away, in the airplane's flight path, was a drone. It was so close to the aircraft the crew believed it might be sucked into an engine.

"NZ92 was just metres away from a serious incident. The pilots spotted the drone at a point in the descent where it was not possible to take evasive action," said the airline's chief operations integrity and standards officer, Captain David Morgan.

In the event the aircraft, with 278 passengers onboard, landed safely, but Morgan, like many in the industry wants tougher regulations on drone use. It was clear that "tougher deterrents" were needed to prevent "reckless drone use around airports", he said, and added there should be prison terms for drone operators who endangered lives.

Auckland, which experienced another drone near miss earlier in March that closed down flight operations for 30 minutes, is not the only airport to face drone disruption. There have been similar incidents across the world, including in China, Japan, South Korea and Dubai.

In China, 10,000 passengers were stranded for 24 hours last year after more than 240 flights at a Chongqing airport were disrupted by drones. Sixty flights had to be cancelled and 40 others were diverted to other airports because of the interference.

Chinese aviation statistics show the number of cases of drones affecting airport services across the country increased from four in 2015 to 23 in 2016, with the number understood to have risen again last year. In April, Hong Kong authorities launched an extensive consultation aimed at tightening the broad and rudimentary regulatory environment for drones. At present, they are banned from use within five kilometres of an airport.

Figures from a 2017 Australian Transport Safety Bureau (ATSB) report revealed that from 2012 to 2016, more than half of all drone incidents were near misses with aircraft. More than 60% of the incidents happened in 2016.

Last year, the problem escalated with a 75% increase in the number of drones in near misses with aircraft. The report said the number of incidents involving drones was "increasing exponentially".

In Singapore, the government passed a bill in May, 2016 to tighten rules on drone use. Then Transport Minister, Lui Tuck Yew, said there had been more than 20 incidents involving drones in the island state since April 2014.

With airlines and airports calling for urgent action the International Civil Aviation Organization (ICAO) is holding a major event – DRONE ENABLE – in Chengdu, China, in September this year.

It will focus on new solutions put forward by leaders in industry, academia and technology sectors to develop a structure to globally coordinate the development of drones. Its goal is to safely integrate drone traffic management systems with existing conventional air traffic management systems.

"Many new proposals and innovations are emerging on a daily basis regarding unmanned aircraft and their operations at low altitudes," said ICAO Council president, Dr. Olumuyiwa Benard Aliu, last month. "ICAO is the natural agency to bring together the best and brightest from government and industry to define how these aircraft can be safely integrated into modern airspace, in a way that optimizes their benefits globally for the wide range of public and private sector operators."

In preparation for the Chengdu event, ICAO has issued a second request for information (RFI) to expand on the guidance material developed after its first DRONE ENABLE in 2017. Interested parties can contribute to the 2018 ICAO RFI via the UN aviation agency's Unmanned Aviation category at www.icao.int/safety/ua.

In October 2016, during ICAO's 39th Assembly, governments requested that the aviation organization produce a practical regulatory framework for national drone activities in addition to the standards it was developing for international operations.

"Multiple States and regional groups have activities underway to establish an unnamed aircraft system (UAS) airspace management tool for lower altitudes. ICAO's work through this RFI process will help to facilitate harmonized solutions which are safe, secure, sustainable, and most importantly globally aligned," said ICAO Secretary General, Dr. Fang Liu. "Our overriding goal at ICAO is to better define the issues involved, whether technical, operational or legal, and also to ensure safety continues to remain our highest priority."

The International Air Transport Association (IATA) has encouraged airlines to consider operating their own drone divisions to transport cargo between their aircraft and customers as an alternative to ground transport. This transformation in the cargo industry would require a radical rethink on drone use within airport parameters.

IATA drew attention to the risks of uncontrolled drone use at the ICAO High Level Safety Conference (HLSC) in

Rules on drone use vary worldwide

Under New Zealand law, drones must be kept at least 4km from an airport. Individual drone operators who breach the rules can be fined up to US$3,600. In China, where drones that weigh between 7kg and 116Kg need to be licensed by the Civil Aviation Administration of China (CAAC). Fines can be as high as $15,500.

A drone flying in China that weighs more than 116Kg requires a pilot license and UAV certification for operation. In Japan, drones must be flown at least 9 kms from airports, but in South Korea, the limit is 5.5 km from airports or any area in which aircraft are operating. In the United Arab Emirates (UAE) the distance is 5 km, although airports in Dubai and Sharjah still regularly suffer disruption to operations because of drones.

Drone vigilantes

Drones have become such a danger to airline operations they have spawned defence systems capable of fighting the threat. Some of them, outlined by the CAPA consultancy, involve physically capturing the drone or manipulating its software.

OpenWorks Engineering, a group of British engineers, has invented the SkyWall100 portable counter-drone system. Equipped with a scope for aiming and a target lock function that reaches 100 metres, it shoots a net to capture drones in restricted areas.

The nets are paired with a parachute, meaning a falling drone would do less damage to bystanders after the captured drone hits the ground.

Sydney and Virginia-based counter UAV specialist, DroneShield, offers a different approach to containing rogue drones. Its DroneGun MKII uses radar jamming software with coverage up to 2km. It either lands a drone or redirects it to the operator, who can then be tracked. The DroneGun also immediately scrambles video transmission back to the drone, making it an appealing option for high-security zones.

Other drone detection systems involve installation of sensors for perimeter intrusion monitoring and protection. FORTEM Technologies has invented the 'SkyDome', which gives users a 360-degree true view of local airspace traffic, including drones. When paired with the company's 'TrueView' radar equipment, the systems can detect approaching drone activity up to 1km away, enough time to contain the drone.

IATA backs global drone registry

At the International Air Transport Association's (IATA) annual Safety and Flight Operations conference last month, the airline association expressed unqualified support for the development of a United Nations (UN)-led global registry for drones.

IATA's director of air traffic management infrastructure, Rob Eagles, said the association would consider collaborating with the International Civil Aviation Organisation by applying data analysis to the registry's information to improve safety. The UN agency is developing the registry as part of broader efforts to produce global standards for flying and tracking unmanned aircraft.

"An inclusion we would like to see in the registry, apart from compilation of data, would be incident and accident reporting," Eagles said. "A single registry would create a one-stop-shop that would allow law enforcement to remotely identify and track unmanned aircraft, along with each operator and owner."

"The intention at present is to merge this activity into the ICAO registry for manned aircraft, so the sector has a single consolidated registry network," said ICAO spokesman, Anthony Philbin.

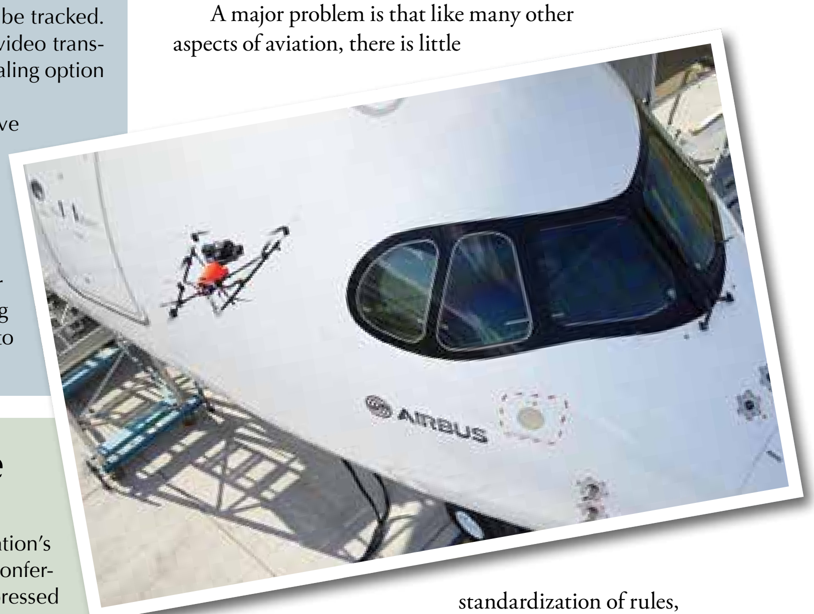
February 2015. Its concerns were safety, security, spectrum, access to airspace and regulatory considerations. The association has been working with key industry partners to develop coordinated positions in each category of concern.

"Remotely-piloted aircraft systems (RPA), commonly known as drones, are increasingly used for commercial operations and recreational purposes. This has coincided with an exponential increase in reports of RPA operating dangerously close to manned aircraft and airports.

"As a result of growth in both commercial and recreational markets, RPA manufacturers and operators are seeking greater access to airspace, including where commercial aircraft operate," it said.

IATA has collaborated closely with ICAO, civil aviation authorities and industry partners to develop a toolkit that provides states with operational guidance and regulations in order to ensure the safe and efficient integration of UAS into shared airspace.

A major problem is that like many other aspects of aviation, there is little



standardization of rules, regulations and penalties governing drone use. But drone registration is being considered in many countries.

The FAA requires all recreational and commercial drone operators to register their details online. In Australia, the Civil Aviation Safety Authority (CASA) is evaluating responses from interested parties for work on a "regulatory road map" for the integration of drones into the country's airspace system. Solutions to be considered are an "unmanned traffic management" system and "detect and avoid" technologies that prevent drone collisions.

Drones are an increasingly vital tool in airline maintenance, repair and overhaul (MRO), particularly for aircraft inspections in the hangar. Yet rules that ban their use within certain distances of airports are a stumbling block to more efficient MRO operations. When one aviation IT provider wanted to conduct trials with drones in an airport hangar it could only do so if the drone was tethered by a cable "to avoid escape". ■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CRACKING THE MAINLAND MARKET

A major shareholder in Virgin Australia, the HNA Group, is rushing through an asset sell-off to meet pending loan calls. But CEO and managing director of the Australian carrier, John Borghetti, remains confident the Chinese equity partnership will bring benefits to the group's bottom line. Chief correspondent, Tom Ballantyne, reports.

With flights already operating from Melbourne to Hong Kong and services from Sydney to the Special Administrative Region (SAR) to commence on July 2, Virgin Australia Airline Group (VA) CEO and managing director, John Borghetti, told Orient Aviation last month he could not be happier with his Mainland investors, China's colourful HNA Group and the Nanshan Group.

Insiders agreed it was unlikely HNA would sell its 20% of VA because it needed to preserve cash generating core activities to service its debt and the Australian airline group is one of them.

Speaking after the Brisbane-headquartered group had reported a post-tax interim profit of US$3.5million to December 31, Borghetti said he had "no concerns" about the HNA Group's present cash shortfall. "The relationship is exceptionally good with both Chinese partners. HNA has been instrumental in assisting us through its subsidiary, Hong Kong Airlines, to operate into Hong Kong," he said.

"We would not be doing it [flying to Hong Kong] unless we had them as a partner. We would not have the feed. All I can say, from our side, is they have proved to be exceptionally good shareholders and very supportive."

The relationship deepened last month after VA signed a six-year term agreement with HNA Group's majority-owned Gategroup, the parent company of global airline caterer, Gate Gourmet.

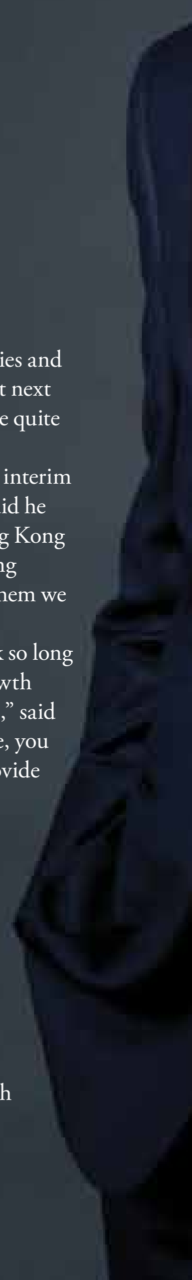
"They have other companies we use so the synergies and benefits are good. The agreement will come into effect next month. Nanshan, likewise, is a terrific partner. We are quite privileged to have them with us," Borghetti said.

Speaking to Orient Aviation in the lead up to the interim profits announcement earlier this year, the VA boss said he had been surprised by the success of the airline's Hong Kong flights. "To a large extent, that's because of Hong Kong Airlines and the HNA Group. If it had not been for them we would not be going to Hong Kong," he said.

If there is a question to be asked it is why VA took so long to spread its wings to Asia, given the region is the growth engine of global aviation. "Wherever you are going to," said Borghetti, "whether it is Hong Kong or anywhere else, you must have somebody, an alliance partner that can provide feed to you. We did not have an alliance partner in China until HNA bought into us.

"Working with HNA it became clear we could make a go of it in Hong Kong. Hong Kong Airlines has a very strong network and great distribution. The decision is bearing fruit. If you look at our loads, almost half of the passengers are buying tickets at the other end. We are very happy with that."

With a wide body fleet of five B777-300ERs and six A330-200s, VA had previously focused on long-haul to Los Angeles. "We have a partnership with Delta Air Lines, which gives us strong entry into the U.S. market.



> Now we have a diversified business, a great loyalty program and frankly, the best domestic product in the world. Qantas has a great product as well. In fact, Australia is lucky. They have two airlines at the top end. Terrific airlines with great service and great product, even though I think ours is better. And Australia has two low-cost or leisure carriers that are very competitive. We have a good domestic structure

John Borghetti
Virgin Australia Airline Group CEO
and managing director

Abu Dhabi headquartered Etihad Airways (20%), also a VA shareholder, offers a network into the Gulf and on to Europe. Until recently, VA flew three times a week to Etihad's home base, but the service has been withdrawn.

Its other partner and shareholder is Singapore Airlines (20%), which provides VA customers with an alternative route to Europe. "International for us is interesting. The bulk of our long haul flights are all America and Hong Kong. We pulled out of the Gulf and we have no plans to go back," Borghetti said.

"If we look forward, say five years and probably beyond, the only two areas of the globe that we will fly to will be America and Asia, or let's say Greater China. For us, if you look at China and America, China is the biggest inbound market and America is a critical market for the Australian and American business communities.

"We are very lucky. We have what I consider to be the best American carrier as our partner. They give us enormous reach. Its a very strong relationship."

Expansion into Asia comes as VA finally appears to have achieved its transition from its founding low-cost model, Virgin Blue, to a full service rival to market leader Qantas Airways.

After a long run of losses, the airline posted an underlying interim profit, to December 31, of US$79.80 million, compared with $33.8 million for the same months

in 2016. Net profit was $3.5 million against a $17.2 million loss a year earlier. Expectations for the full year, to June 30, are positive.

"Trajectory is very important. If you look at the trajectory of our balance sheet, our debt, our leverage, our cash flow are pointing in the right direction. It gives me confidence," he said. "While these profits are small, they must be seen in the context of the investment required to fund our shift to a full service carrier.

"Basically, we built this airline on debt. About two years ago we said 'ok now it's time to get the balance sheet right' so we raised capital. We started paying down debt and we have deleveraged the company.

"We turned what I would call a one-sector airline, basically a low-cost carrier with around 80 aircraft and 5,500 or 6,000 staff, to a group that employs 10,000 people. We have 40 aircraft. We have a domestic business, an international business and an LCC business (Tigerair Australia). We have fly-in-fly-out charter operations for Australia's mining industry. We have started a cargo business.

"We now have a loyalty program that is north of 8.5 million members, compared with two million in the past. So, you take a step back and say we have created a number of businesses here."

Borghetti admitted the transformation took far longer than expected, a situation partly caused by its long, financially draining capacity war with a stronger Qantas. "This has always been about the marathon and not the sprint," Borghetti said. "The trouble was that in the early years, and certainly the later years, everyone was expecting everything immediately – that is miracles.

"You know as well as I do that aviation does not work that way. It takes time. Having said that, I am very pleased we are where we are today. Sometimes I am asked 'did you think it would take this long'?

"The honest answer is probably not. I expected for us to be where we are today a year or two ago. As I reflect on why that is the case, I suspect predominantly it comes down to two factors: Firstly, I certainly underestimated the duration of the war, so called, we had to have with Qantas.

"I really did not think it would be as prolonged as it was because it was not logical to me. That's probably one thing I underestimated. I knew it was going to happen, it was a question of how long would it last.

"Secondly, what caught me out, and also many others, was that the Australian market was quite subdued for some time, particularly at the leisure end. Constant domestic market growth of four to five percent, which we had experienced for decades, was not happening. Combined, they made the transformation go a bit longer."

Back in 2010, when Borghetti arrived at Virgin Australia, the company was not in a strong financial position. "We had to transform the company basically with debt," he explained, "otherwise we would not have survived. The Virgin Blue model was terrific and it worked very, very well. But like everything else, it has to cap out at some point and it had obviously capped out.

"The model was being stretched and there was very little stretch left. Either you had to be satisfied with what you had and accept you probably would be trumped over time by the pincer of Qantas and Jetstar or you countered the threat.

"As well there was Tiger (budget carrier Tiger) that had started out with a lower cost base. So, we were caught. We could have said 'you know what, we'll sort of retreat a little bit and hope that we survive' or we could radically redesign the business that is more than one sector of the market. Hopefully, you make the transition and survive."

Clearly, despite some setbacks along the way, the latter approach was adopted and the airline group position is strengthening. "We are paying down debt faster. Cash flows are better. Our domestic market share is pretty good. We did not set out to achieve a particular market share in total, but the other day I checked to see where we were. I was surprised

Moving to a single fleet type

'We have a very young fleet. The average age of our A330s is just over four years and the way our leases, on the aircraft that are leased, are structured we have the A330s and the B777s almost coinciding around 2023. We don't really need to make any decisions on changing that fleet composition until then'

"When the time comes, the objective would be to have one type. Whether that's one fleet type with a couple of variants or not will depend on the aircraft chosen. Certainly the intention will be to consolidate into one fleet type. Under consideration will be Boeing's B777X and B787 and the Airbus A350.

to see we were at 38%, which is fine," he said, "we were around 27%."

"What is important is critical mass. The standard line people are sick of hearing me repeat is that market share should be the result of strategy, not THE strategy. Some people will argue that's not the right way to go. It happens to be the direction I believe in. But you have to have a certain critical mass to get the efficiencies."

Critical mass may take a temporary hit after Air New Zealand announced it would end its trans-Tasman alliance with VA from October. Agreed at the end of 2010, the alliance allowed the two carriers to code-share, feed passengers on to each other's domestic networks, share lounges and ground facilities and frequent flyer benefits.

After the news broke, Borghetti said VA would compete vigorously on trans-Tasman routes and that the terminated agreement "provides opportunities for the Virgin Australia Group over the Tasman, including operating both Virgin Australia and Tigerair Australia brands in the market".

From October, VA will upgrade its Trans-Tasman services, including two new routes and increased frequency into key markets.

The carrier has a domestic fleet of 80 B737-800s and two B737-700s as well as eight ATR 72-600s. Low-cost subsidiary, Tigerair, operates 14 A320-200s. Ultimately, they will be returned to their owner, Scoot, and be replaced with B737-800s. On order are 40 B737 MAX 8s scheduled for delivery from 2019 to 2021.

Like all airlines, VA is not ignoring the value of new technologies. Borghetti said: "It is absolutely important. We are doing a lot of stuff behind the scenes. But you have to be careful you don't regard it as the panacea for all problems because it is not. It is assistance. It's something you have to do to be competitive. Fundamentally, it won't replace the basics of running an airline, which are having clean aircraft that are full of people, airplanes that leave and land on time and a business with the right margins."

VA is not planning significant network expansion in the near term partly because of slot shortages in key Asian airports. Borghetti said the slot situation in Hong Kong is a very big issue. "Frankly, if we had another seven slots we'd fly another seven slots. We'll just keep working and earning our right to operate in that market," he said.

"For a long time, the Australia-Hong Kong route has not had as strong a competitive dynamic as it could have had. We brought that along. The two carriers were both making good money there as I understand it but fares were very high. "With us coming in you see what has happened. They've dropped by well over 20%. Bringing competition to routes like that is good."

He also is interested in operating into China "with our own metal". "Obviously, Shanghai and Beijing are there, but so are other cities. But with the slot situation it is going to take a bit of time. We will eventually get them. Is Singapore another potential destination? His response may say it all: "I'm not going to comment", Borghetti said.

VA is the midst of a three-year Better Business Program, which aims to reduce costs by US$273 million by June next year. It also is targeting improved operating efficiencies across all of its operations.

"The interim profit result "demonstrates the success of our long term strategy" however there is more work ahead to ensure we continue to deliver", Borghetti said. ■

The Borghetti view

What lies ahead for VA? "It is easy to say the biggest threats are always the oil price or the exchange rate. Of course they are big risks and they could be issues but every carrier has those issues," he said. "It is down to how well you hedge or how good the market responds and all the rest of it.

"To me, the biggest issue is to never lose sight of making sure, given all the hard work all the staff have done, that our people continue to do that. It's my biggest dilemma. The moment you lose your people you lose your edge. If you asked me what is our competitive edge today, the answer would not be the airplanes we fly, the airports we fly out of or the routes we fly because others do that. Our competitive edge is our people."

Above all, Borghetti said, the airline has earned its right to exist. "Full stop. We are here to stay. We are a big employer. We have a good network. We have a good reputation. It is a very solid company that is good for Australia. It is certainly good for us. I am proud of what we've done. Nine out of ten people seven or eight years ago would have told you we wouldn't be here today, let alone be winning awards and doing all sorts of things. I think our staff have done a remarkable job."

While international operations draw more public attention, domestic flying is really the core of VA's business. "We are predominantly a domestic carrier. Sixty five per cent of our business is domestic. It is the mother ship of our business so whatever you do has to have a purpose linked to that," he said. One of the reasons international operations are focused on the U.S. and China is that they provide a strong flow of traffic to VA's domestic network," he said.

China Southern Airlines choses CTT's new business class cabin climate system

Leading aircraft humidity control manufacturer, **CTT Systems**, will equip the business class cabins of 20 A350-900s at **China Southern Airlines** with its climate control systems.

CTT Systems vice president sales and marketing, Peter Landquist, said last month "the well-being era, debuting with new generation wide body aircraft, has made great progress in lowering cabin altitude, reducing noise and vibrations and generating fresher air. The last frontier to significantly improve well-being is a significant increase in humidity."

The CTT inflight humidification system in business class achieves relative humidity of 22% compared with a former level of 6%-8%.

CTT has equipped five China Southern A380s with crew rest humidifiers and 10 of its B787 flight deck and crew rest zones with its systems. China Southern has selected CTT humidifiers for its B787-900 fleet. They are scheduled to commence arriving at the Guangzhou-based carrier in the next three months. ■

Boeing and SIA Engineering joint venture to service Scoot and SIA fleets

Boeing Global Fleet Care integrated service agreements for 27 Singapore Airlines B777-300ERs and Scoot's 20 B787s have been transferred to **Boeing Asia-Pacific Aviation Services Pte Ltd (BAPAS)**.

Boeing Global Services president and CEO, Stan Deal, said the joint venture between SIA Engineering and The Boeing Company would "create more efficient customer and customer focused service solutions by combining our resources and intimate understanding of airframe recycle with knowledge of current and emerging requirements in the Asia-Pacific".

BAPAS will provide engineering services, maintenance planning and scheduling, operations control centre services, materials demand planning and spares support for airlines.

The joint venture will tailor maintenance and reliability programs for its clients and input for aircraft modifications.

BAPAS also will offer engineering, material management and fleet maintenance solutions to Asia-Pacific airlines with B737, B747, B777 and B787 aircraft in their fleets. ■

Asiana Airlines and Lufthansa Technik signs ten year maintenance deal

Lufthansa Technik has signed a 10-year total Component Maintenance (TCM) program with **Asiana Airlines** that covers the nine aircraft of the type in the South Korean carrier's fleet.

Asiana Airlines executive vice president corporate support, E-Bae Kim, said: 'we are convinced of Lufthansa Technik's customer-aimed support that already has proved its value during our long-term partnership.

Lufthansa Technik vice president corporate sales Asia-Pacific, Gerald Steinhoff, said: "this new agreement further strengthens the longstanding, trustful cooperation between Asiana Airlines and us."

The German headquartered MRO and South Korea's second international carrier have been working together for 25 years. Lufthansa Technik also provides integrated component support for the airline's A320s, A330s and A350s, heavy maintenance support for Asiana's A380s and V2500 and CF56 engine support.

Asiana Airlines operates to 62 passenger flights to 21 countries and 24 cargo routes to 25 regional and international destinations.

Separately, Lufthansa Technik will participate in a pilot program with Artificial Intelligence company, **Arago**, and aviation digital software platform, **AVIATAR**, that aims to progressively automate the airline MRO industry. The trial will be carried out at the base maintenance division of Lufthansa Technik with the application of Arago's Artificial Intelligence platform, **HIRO TM**.

The end goal is to use algorithms to formulate automated MRO planning that is expected to cut costs and time in the hangar for aircraft.

Arago founder and CEO, Chris Boos, said "we are pleased to be taking a fundamental step, together with AVIATAR, to digitalise Lufthansa Technik's aircraft overhaul processes in such a groundbreaking way".

Arago, partially backed by global private equity company, **KKR**, is based in Hamburg and supported by offices in the U.S., Exeter

and Bangalore.

AVIATAR is an integrated software platform that offers digital products and services to the aviation industry.

Also at Lufthansa Technik, the company will establish a division dedicated to building radomes for all sectors of the airline industry.

Radomes are a critical element in aircraft connectivity installations. In addition to integrating such connectivity into aircraft, Lufthansa Technik will pursue opportunities in the hardware market. ■

Gulf's flynas planning LEAP-1A engine order

Saudi Arabian carrier, flynas, has signed a US$6.3 billion Letter of Agreement (LoA) with **CFM** for 160 LEAP-1A engines along with a long-term pay-by-the hour services contract. The CFM Services agreement will guarantee maintenance costs on a dollar per flight basis. The Gulf carrier announced an order for 80 A320neo in January with first deliveries scheduled for year end.

The budget carrier has been a CFM customer since it began flying in 2007 with CFM56-5B powered A320ceos. It now operates 30 A320ceos to 17 domestic and 53 international destinations from bases in Riyadh, Jeddah, Dammam and Abha. ■

Airbus's Skywise builds Big Data client base

Since Airbus launched **Skywise** at the Paris Air Show last June, the aviation data platform has attracted five customers for its shared value agreement for its Big Data services and seven for its premium predictive services.

At a U.S. MRO show last month, **Allegiant Air** became Skywise's first North American customer. It has since been joined by **WOW Air** (Hungary), **Small Planet** (Lithuania), **Primera Air** (Iceland) and **LATAM** (South America.

Six of Skywise's 12 clients are Asia-Pacific and Gulf carriers. Shared value agreement Skywise Core customers in the two regions are **Bangkok Airways**, **Emirates Airlines** and **Peach Aviation**.

Asia-Pacific and Middle East premium Skywise Predictive Services airline customers are AirAsia, Asiana Airlines and Etihad Airways.

Skywise Core offers airlines a cloud-based platform where carriers share operating data from their Airbus fleets that it is cost free for access.

Participating airlines can integrate their operational, maintenance and aircraft data into the Skywise cloud as well as store, access, manage and analyse their own and selected Airbus data.

Skywise Premium provides customers with more detailed Big Data analytics to allow them to make more informed decisions about their MRO requirements.

Independently, Airbus and **Rockwell Collins** have developed a new onboard data capture and transmission module, **FOMAX**, which increases recorded aircraft data on an A320 from 400 parametres to approximately 24,000. Installation of FOMAX in line fit and retrofit will commence in the current quarter. ■

China approves CFM LEAP type certificate

The **Civil Aviation Administration of China** has issued a Validated Type Certificate for **CFM International LEAP 1A** engine, a critical milestone leading to A320neo operation in China.

The CAAC ruling validates the **European Aviation Safety Administration (EASA)** type certificate issued in May 2016.

"Teams from both our parent companies worked diligently with the CAAC and EASA to achieve this certification as quickly and efficiently as possible," **CFM president and CEO, Gael Meheust**, said.

"We are looking forward to our many customers in China reaping all the efficiency and asset utilization benefits the LEAP-1A will to their operations."

In Europe, EASA has approved MRO **AFI KLM E&M** as a supplier that will support the official entry into service of the engine with its airline customers.

Support varies between airlines but is expected to include line maintenance, aircraft/engine consultancy, tooling and equipment support, quick turns and shop visits. ■

Mandarin Airlines adds to ATR partnership with global maintenance agreement

Taiwan's Mandarin Airlines has become a customer of **ATR's** repair, overhaul and pooling services of line replaceable units as well as the turboprop OEM's delivery service of spares to the airline's MRO facilities.

The **Global Maintenance Agreement (GMA)** covers the China Airlines subsidiary's nine ATR 72-600s in a pay by the hour maintenance package

Mandarin Airlines president, Jenny Tsao, said that in terms of maintenance and repair, the ATR GMA allowed the carrier to minimize its own inventory level while maintaining an adequate level of protection.

"Most of all, ATR's support is proving extremely useful by offering recommendations as we phase in our new fleet and learn how to make the most of it," Tsao said.

ATR senior vice president programs and customer service, Tom Anderson, said: Our partnership with Mandarin Airlines is a great example of ATR's commitment to anticipate and answer the various requirements of our clients across the world. Mandarin Airlines will benefit from continuous monitoring of the aircraft configuration to enhance safety and reliability." ■

GE and Rolls-Royce to bid for China's twin jet engine

GE engines and **Rolls-Royce** are expected to join the first round of bidding for the engine to power the planned twin aisle jet, the **CRAIC CR929**, the **China Daily** reported last month.

Responses to a request for proposal for the supply of the engine for the joint venture also are expected from other engine makers.

Until recently known as the CR929, the twin jet is being developed by the **Commercial Aircraft Corporation of China (COMAC)** and Russia's **United Aircraft Corporation**. The project's new title is the China-Russia Commercial Aircraft International Company (CRAIC).

China's narrow body jet, the **C919**, completed its maiden flight last November. The larger jet is planned for launch by 2025 with first deliveries between 2025 and 2028. ■

Sabre rolls out Red Workspace worldwide

Global travel technology provider, **Sabre**, is progressing through the introduction of its **Sabre Red Workspace**, the company's intuitive driven point of sale tool for travel agencies.

Red Workplace, which has undergone pilot testing in several markets, will offer travel agencies quality content and data driven insights that Sabre said "will take the work out of the workspace".

Sabre said the new platform can present airline products with rich visual graphics and content that will allow suppliers to differentiate their offers. "And as airlines introduce future New Distribution Capability (NDC)-based offerings, Red Workplace will assistant to seamlessly present this new content," Sabre said.

Said Sabre Travel Network president,

Wade Jones, "the initial feedback from our early customers is fantastic. We are eager to release Sabre Red Workplace globally with regional language versions.

"The solution will change the way travel agents work by combining rich content with flexibility, simplicity and ease of use." ■

TRAINING

ALSIM unveils multi-purpose hybrid simulator

Flight simulator manufacturer, **ALSIM**, has produced its largest flight simulator in its 24-year history, The Airliner. It is aimed at high end flight academies focused on A320 and B737 pilot training courses.

Airline pilots entering the market will increasingly fly A320s or B737s the simulator manufacturer said. ALSIM hybrid technology's Airliner meets airline demand for the single aisle aircraft by training pilots on the two aircraft types early in their career, the company said. ALSIM and **Aviation Performance Solutions** also are updating upset prevention and recovery training that will be incorporated into The Airliner simulator. ■

Europe's BAA Training decides on Vietnam

Lithuania's **BAA Training** has commenced construction of a US$60 million pilot training academy in Vietnam's Ho Chi Minh City. The training academy will install its first A320 simulator by year end. It plans to have four full-flight simulators and an Ab Initio flight school operating at the academy by 2023. Simulators for the A320neo and Boeing B737 MAX are planned to be assembled by 2020.

"The Vietnamese aviation market has been growing by an average of eight per cent a year and is expected to continue its growth in the upcoming 20 years. By establishing BAA Training Vietnam we aim to share our exceptional know-how, built through years of experience of BAA Training operations, as well as securing a reputation in the region for offering transparent and high standard aviation training for corporate and private clients", **BAA Training chief executive, Egkle Vaitkeviciute**, said. ■

Fiji and Qantas to invest in flight academies

Fiji is building a US$45 million cockpit crew training centre, the **Fiji Training Academy**, adjacent to the island nation's international airport at Nadi. Part of Phase 1, to be opened next March, will house two **CAE Full Flight Simulators** for B737 MAX and A330 aircraft.

The US$20 million Qantas Pilot Academy, scheduled to begin training programs in 2019, will initially train 100 pilots a year, mainly for its aircraft fleets. It is planned for the facility to graduate 500 pilots a year in five years and include third party clients in the student intakes.

Also on the radar for the academy are aviation technical courses, including for MRO engineers. **Qantas Group CEO, Alan Joyce**, said he wanted the group's pilot school to be one of the largest airline training facilities in the southern hemisphere.

No site for the academy had been decided at press time, but there is great support for the academy with more than 9,000 potential students registering an interest in the school's coures with women making up 15% of potential applicants. ■

Airbus Singapore training centre booms

Airbus Asia Training Centre (AATC), after only two years in operation, has its six full flight simulators booked 24 hours a day seven days a week. Simulator training offered includes the A350XWb on one of the units. Two more simulators will arrive at the Seletar campus by next year, Airbus said.

The 9,250 sq m temperature-controlled facility, opened with an initial outlay of $125 million in April 2016, is a joint venture between **Airbus** (55 per cent) and **Singapore Airlines** (45 per cent). ■

Big players, bigger profits

For our insight report on aircraft leasing and finance in the Asia-Pacific, Orient Aviation asked leaders in the industry for their views on the sector as it continues to thrive in the region.

ISSUES TO BE DISCUSSED

- ***How will the new tax incentive schemes in Asia influence lessors and investors in their choice of cities in which to set up?***
- ***How is Ireland/Dublin's position as the world's leading centre for aircraft leasing being affected by the increasing numbers of lessors setting up in Asia, particularly as several China funded lessors have entered the market in Hong Kong and Tianjin?***
- ***As a result of the above, are these emerging lessors forcing a downward trend in deals/margins because of the cut rates they can afford to offer the market?***
- ***If this is so, is more M&A lessor activity expected in the sector?***
- ***Is consolidation on the way in the Mainland domestic leasing sector as low rates cut out small-time China lessors?***
- ***One analyst said recently that a flood of capital from China "will reset the market place for aircraft leasing and change the airline industry forever". He also forecast Chinese capital would fund a third of global aircraft leasing by 2022-2023. Agree? Disagree? Why?***
- ***Dublin is recognized as having the talent pool or soft power to service global aircraft leasing. What skills do lessors not headquartered in Ireland need to develop to become a high performing part of the industry?***
- ***In the present geopolitical environment, what do you believe are the risks to the industry?***
- ***Taking into account your thoughts on the last question, what is the general outlook for lessors in the next 12 months and further into the decade in the Asia-Pacific?***

Increased numbers of aircraft lessors are setting up in the Asia-Pacific, with growth centred around Tianjin, Hong Kong and Singapore. Each of these cities is offering competing tax and legal benefits to lessors to encourage them to set up in their jurisdictions, reports Orient Aviation.

"In my opinion, said an industry veteran who wished to remain anonymous, "Hong Kong and the region has to get more tax treaties in place if it wants to be a centre of leasing business. "I think Dublin has 74. Here, they don't have half of that.

"As well, some work has to be done on depreciation allowances. Again, in Dublin, it's eight years.

"And another point to consider, in Hong Kong at least, is the shipping industry. They are going to wonder why they are not being treated in the same manner as leasing."

So close to a year after the Hong Kong legislature passed into law a new tax regime to attract aircraft lessors to the Special Administrative Region of China, what is its impact locally and in the region?

"Hong Kong's new tax regime for aircraft leasing offers leasing companies and lessors a choice of jurisdiction to grow, particularly if a signfiicant part of their busines is with airlines, along with other lessors or financiers in the Asia-Pacific, the president of Hong Kong Aircraft Leasing and Aviation Finance Association, Stanley Hui, told Orient Aviation.

''The new incentive schemes

will interest some lessors and investors in aircraft. Aside from the tax incentives, there are obvious benefits in proximity to one of the fastest growing aviation markets in the world and access to a vibrant capital market," said SMBC Aviation Capital chief financial officer, Barry Flannery, writing from Dublin.

''Hong Kong also has much to offer businesses in terms of connectivity, transport and an excellent education system. The region also continues to grow its network of tax treaties, which is critical to a thriving aircraft leasing industry.''

Hong Kong aims for 18% of global lessor market

"CALC and other industry players are set to benefit from the enactment of a dedicated tax regime to reduce the profits tax liability of qualifying aircraft lessors and aircraft leasing managers," said the chairman of the Hong Kong Aircraft Leasing and Aviation Finance Association (HKALAFA) and CALC, Chen Shuang,

"However, for Hong Kong to achieve its goal of gaining 18% of global market share [of the sector] in the next 20 years, it needs to leverage its proximity to China. The key is to ensure it becomes the top choice for Chinese airlines, which are set to accept hundreds of aircraft deliveries in the years to come.

"Chinese capital, according to aviation data provider, FlightGlobal, accounted for 27% of the US$261 billion lessors have put into the market. Chinese airlines' international growth rate of above 20% - combined with Hong Kong's efficiency – entrenches my belief that the city can capture a significant portion of Chinese capital and reach the 18% market share milestone by 2037."

Chen continued: "one of our aims [at HKALAFA] is to unify efforts of other market players in strengthening China's aircraft leasing platform, ultimately yielding better economic benefits regionally. Hong Kong, as a major gateway to China, can capitalize on its geographic advantage to complement domestic free trade zones that together can forge an integrated aircraft leasing platform that is globally competitive."

Another Hong Kong-headquarterd lessor added another view to the issue. ''In my opinion, Japan and Russia are very important to the market, but Ireland will remain the most important aircraft leasing centre in the short to medium term because it has so many double tax treaties, which means a much lower effective tax rate."

''Aircraft leasing is a global business and the success story of Dublin as the world's aircraft leasing hub for more than 30 years has made it clear what is needed for a city or a country to develop as an aircraft leasing centre," said Hui.

''The key factor is low cost of doing business, particularly low corporate tax. Ireland lowered corporate income tax to 12.5% for aircraft leasing companies from the 1970s.

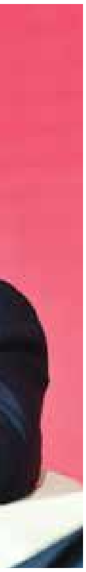
''Singapore learned from Ireland but came up with a slightly different model. Essentially, however, it offered low tax for leasing companies in Singapore. The low tax regime coupled with a fast asset depreciation allowance (for tax purposes) for high value aircraft assets has led to very low or even zero income tax being paid by leasing companies."

Hong Kong, the HKALAFA argues, is an international financial center that possesses the favorable conditions necessary for developing aircraft financing: use of English in business, a sound banking and legal system (common law), world standard accounting and taxation services, mature and diversified capital markets, excellent aviation infrastructure and a strong talent pool.

Above all, under Hong Kong's One Country, Two System regime, the Special Administrative Region is uniquely connected to the rest of China. The Close Economic and Partnership Arrangement (CEPA) with Mainland China means qualified companies may access the Mainland China market in different ways.

The deferred tax agreement between Hong Kong and China for the sector means aircraft leasing only attracts a rate of 5%, which is the lowest rate to date between China and any DTA Treaty partner countries.

"Learning from the experience of Ireland and Singapore, the Hong Kong



Ever vigilant in volatile world

Aircraft lessors who responded to the Orient Aviation's special report questions said they constantly deal with geopolitical shifts and sudden swings in economic volatility by compiling constant risk management assessments.

"A number of disruptors will affect aircraft leasing. Any disruption to economic growth, be it regional conflicts or geo-political instability, will bring about a negative impact on economic growth and therefore aircraft leasing," the Hong Kong Aircraft Leasing and Aviation Finance Association told Orient Aviation.

"Aviation grows with economic development, regional and global, and above all globalization of trade. The World Trade Organisation (WTO) has facilitated a period of high aviation growth on the back of economic globalization. Any setback in this respect would disrupt growth."

SMBC chief financial officer, Barry Flannery, said: "We are a truly global industry and we are constantly dealing with different geopolitical pressures in different countries. We have demonstrated our ability over many years to manage these well because of the emphasis we place on risk management. It includes discipline around asset types in which we invest and our emphasis on credit risk. Our team is constantly on the ground in our various markets meeting airlines and assessing external factors."

"Current political unrest will have a decisive impact on the industry. If there is a reassurance in the situation, this will lead to a further increase in global air traffic as well as stronger demand for modern aircraft, especially in the wide body sector. For this reason Dr. Peters is particularly active in the wide body market," leading German lessor, the Dr. Peters Group, said.

"There are the obvious risks, but they don't only apply to aircraft leasing – terrorism, rising interest rates, a sudden geo-political situation with global implications, and safety. Post Brexit, the British government might decide to set up a competing aircraft lessor regime. I know which city I would choose and it's London," said a lessor operating in the Asia-Pacific who requested anonymity.

Government has provided a tax regime, with no capital gains tax, that is as competitive as possible – from 16.5%, to 8.25% from July, 2017, Hui said.

The taxable income is 20% of the rental income after deducting relevant expenses (excluding depreciation). According to the accounting firm PwC, this brings the effective tax rate In Hong Kong for lessors to about 3%-4%.

The association recognised Hong Kong must have more double tax treaties. It has 38 in place and is actively working toincrease that number. It also understand its must join the Cape Town Convention.

It is generally agreed that as the region rapidly moves towards holding 40% of the world's airline market, it is logical that more interest in the sector would be shown by Chinese origin capital, includng Chinese banks. More than 1,000 aircraft, primarily destined for Chinese airlines, have been leased through the Tianjin free trade zone platform in the last eight to ten years.

Since the introduction of the favorable tax regime for aircraft leasing in Hong Kong, a number of leasing companies are setting up an office in the SAR. Major Chinese lessors such as CDBC and ICBC have moved significant divisions of their operations from China and more are expected to do so. ''Suffice to say, given the growth of the aviation market and the related leasing and finance market, there will be adequate business for everyone to share, including Hong Kong,'' HKALAFA said.

Globally, aircraft leasing has experienced downward pressure on lease rate factor (LRF) in recent years as more lessors enter the industry. Given funding and staff costs and high stakes negotiations between lessors and manufacturers, large leasing companies tend to have competitive advantages over smaller ones.

As a result 80% of all leasing business is done by the top 20 global aircraft lessors. There has been M & A activity with Avolon, AWAS and CIT and it is expected there will be more of that. The size of the leasing company, apart from all else, is clearly a huge competitive advantage in the business, but it takes time and resources to build.

''But it does not mean small lessors will be totally out of business because there will always be space for niche players. Some lessors may want to deal with regional propeller aircraft or mid age aircraft,'' said analysts.

An increasingly popular arrangement is for airlines to sell aircraft to leasing companies, and agree to lease it for a period of eight to 12 years, the Lease Back (SLB) arrangement. Given the preferential pricing aircraft manufacturers tend to give to their airline customers, all airlines tend to make a good profit on such SLB arrangements.

The HKALAFA said several Chinese or Asian owned lessors such as Avolon, BOC Aviation,

Optimism reigns supreme

Definitely optimistic is the collective view of aircraft lessors about the growth of the sector in the Asia-Pacific. "It is just a matter of how fast it grows," said one local lessor. "The demand is there, said another lessor, "and it will get bigger."

"Given the present political stability in the region, and assuming the current trade dispute between the U.S. and China will be resolved satisfactorily, there is only one way to go and that is a bright future for aircraft leasing. The Hong Kong aircraft leasing industry will contribute strongly to the future growth of the industry, particularly in this part of the world in years to come,"said the Hong Kong Aircraft Leasing and Aviation Finance Association.

"We are seeing higher levels of disposable income across the Chinese and Indian economies that will bring a greater appetite for travel, in particular air travel as the preferred mode of transport over long distances. We also are seeing strong growth in Latin America and we expect that these markets will continue to deliver growth for us and other lessors in general, said SMBC chief financial officer, Barry Flannery.

"As a European player," Dr. Peters Group said, "we can only assess the Asian market from an external position. In principle, we see great opportunities for lessors in Asia. Discussions with our Asia-Pacific airline and business partners further support our confidence. Overall, we expect to see long-term effects, rather than short term movements. Distinct trends and important developments only will become apparent in coming years."

Dublin maintains its lustre for lessors

"Ireland's position as the leading hub for aircraft leasing has been built over 40 years. It supports close to 5,000 jobs both directly and across a network of specialised professional services that assist the industry. Ireland also operates in very favourable time zones for dealing with America and Asia," SMBC Aviation Capital chief financial officer, Barry Flannery, told Orient Aviation. SMBC is a lessor ultimately owned by Japanese banks from 2012.

Additionally, he said, Ireland has a strong MRO (Maintenance Repair and Overhaul) market that facilitates the transition of aircraft from one airline to another.

Most critically, all contributors to this report agreed that Ireland's main advantage was the 74 tax treaties it has signed. Another significant factor was the unfailing support the industry receives from the Irish government. For these reasons, lessors believed Ireland would continue to maintain its dominance in the sector for the foreseeable future.

The Hong Kong Aircraft Leasing and Aviation Finance Association agreed there was a strong education system in Ireland that supports aircraft leasing, for both aviation finance and the technical side of aircraft maintenance. It understands that at this stage Ireland's structural strength is a differentiating factor for the two centres.

"For historical reasons, Dublin and to some extent, Singapore, have developed a pool of professionals in aircraft leasing and financing," the association told Orient Aviation.

"In Taking Flight 2018, PwC Dublin reported the skills required for aircraft financing are corporate finance, legal, taxation, accounting, lease management, technical knowledge of aircraft and relationships with airlines – both marketing and commercial - and original equipment manufacturers.

"People with these fundamental skills are available in Hong Kong, but they need to have industry experience. Leasing companies based in Hong Kong are bringing in experienced aircraft leasing professionals from all over the world to work for them.

"These executives will be tasked with training young talent interested in developing a career in the trade.

"Universities are planning programs on aviation finance. With all these efforts and with the opportunities presented to the right people by the aircraft leasing and financing industry, the pool of professionals in the sector will grow quickly in Hong Kong. There are tremendous opportunities for aircraft leasing and financing here and these opportunities will attract talent to the industry."

A spokesperson for the Dr. Peters Group, a leading German lessor with several clients in the Asia-Pacific, said in a written reply to Orient Aviation that the lessor "repeatedly sees how important experience as well as sustainable know how is for our clients. This, together with a mix of innovation and digitalisation will secure our leading position permanently".

"Dublin has the Smurfit Graduate Business School at University College. It offers a masters degree in aviation finance that has a big focus on leasing. Lessors fund scholarships there and also research projects," said an expatriate lessor in Hong Kong. "This place needs something like that. Probably other places in the region too."

BoCom Leasing, CDB Aircraft Lease Finance, ICBC Leasing, Orix, SMBC, CALC and AirAsia Leasing have large order books with manufacturers, but the funding for these aircraft comes from international financial markets and investors all over the world.

Banks around the world, including Chinese banks, and investors see aircraft leasing as a good investment. Apart from bank financing, more sources of funding are being channeled into aircraft leasing through financial vehicles such as special aviation funds, Asset Backed Securitization (ABS), IPOs, bonds issued by lessors.

The influx of more than $70 billion to the leasing industry from Chinese banks and other investors in the last decade is helping airlines to expand their fleets quickly. The HKALAFA forecasts the proportion of Chinese funding will continue to rise to 25%-30% of the global leasing industry between 2023 and 2028.

Said SMBC's Flannery, "Given the current momentum, it is conceivable that Chinese capital could fund up to a third of the leasing industry in this time frame [of five years]."

Dr Peters Group head of communications, Ulrike Germann, told Orient Aviation: "The important aspect to highlight is that low interest rates have to be sustainable in order to see any key market trends.

"Also, the Chinese offer has to prove sustainable before we can talk about concrete and possibly longer term effects on the industry. It will then also depend on how the offers are accepted internationally, as agreements do not just depend on interest rates, but on a whole range of many decisive details."

She continued: "additionally, with the increase of lessors setting up in Asia, Dublin certainly faces tougher market competition and has to assert its leadership position. But it must also be noted that the growing number of Chinese lessors settling in the market can also have a stimulating effect on the industry", Germann said. "The Chinese market will definitely have a decisive influence on the global leasing market." ■

Data dominance shapes passenger experience

Singapore Airlines opts for STELIA B787-10 business class seat

Singapore Airlines (SIA) has chosen **STELIA Aerospace** as the business class seat supplier for its B787-10 aircraft. The new SIA airliners are configured with 36 business class and 302 economy seats.

The seat has direct aisle access, full flat 76 inch beds, seat pitch of 44 inches, a seat width that extends to 26 inches when the retractable arm rests are lowered, adjustable dividers between alternative rows of centre seats, an 18 inch touchscreen monitor and a large meal table.

STELIA Aerospace vice president cabin interiors, Thierry Kanengieser, said: "This new business class seat has been closely developed for months with Singapore Airlines as their best in class world leading new business class seat."

STELIA also announced last month that three airlines in the Asia-Pacific and Africa have ordered its **OPAL** business class seat that it launched last year. ■

Airbus and Zodiac develop cargo deck sleeper berths

Airbus and Zodiac are developing sleeping berths that will fit in aircraft cargo compartments, with plans to bring the options to market by 2020. The prototype lower deck sleeping berths will be interchangeable with regular cargo containers during a typical turnaround. An aircraft's cargo floor and cargo loading system would not be directly affected by the sleeping berths because the passenger modules would sit right on them, Airbus and Zodiac said.

Airbus head of cabin and cargo programs, Geoff Pinner, said: "We have already received very positive feedback from several airlines on our first mock-ups."

"Initially, airlines will be able to choose from a catalogue of certified solutions on the A330 for retrofit and line-fit markets." Sleeper compartments on the A350 XWB also are being studied. ■

RECARO wins prestigious Asia-Pacific airline seat orders

China's largest carrier, **China Southern Airlines**, will equip its A350-900s in all three classes of the aircraft type with **RECARO aircraft seating**. The order is for CL6710 business class seats, PL3530 premium economy seats and CL3710 economy seats.

RECARO has been a China Southern Airlines supplier for nine years. Ten China Southern A330-300s have been equipped with RECARO seats as have aircraft serving regional routes for the Guangzhou-headquartered airline.

Japanese low-cost carrier, **Peach Aviation**, has ordered the seats for 14 of its aircraft. The lightweight nine kilogram SL3510 seat will be available on part of 320ceo and A320neo fleet of the All Nippon Airways subsidiary from early 2019. The seat has a pre-defined angle of 15 degrees, an adaptive backrest for the spine and a reduction in components that facilitate ease of maintenance.

Peach Aviation CEO and representative director of the carrier, Shinichi Inoue, said: "After a profound evaluation, our young team has selected the RECARO SL3510 for its impressively low weight, design and comfort. Combined with the quality and performance RECARO is known for, it is the right product for our new aircraft." Peach flies 20 A320s on 15 domestic and 14 international routes in north and southeast Asia.

RECARO Aircraft Seating CEO, Mark Hillier said: "We are pleased that our proven, sturdy, SL3510 seat will soon be flying for the first time in the Japanese market with Peach Aviation. The fact that 125,000 seats of this model have been sold worldwide confirms its significant benefits in economy and reliability." ■

Boeing – Adient joint venture to "disrupt" aircraft seating industry

Boeing and global car seat manufacturing, **Adient**, are developing airline seating prototypes for their new aircraft seating joint venture, which was announced in January. The partners are intending to leverage the new technology and trends in the automotive industry and apply them to aircraft seat design and manufacturing

"Our ambition is to satisfy airline seating needs from tip to tail. We are already working on multiple classes of seats and cabin layout strategies," said **nominated Adient Aerospace chief operating officer, Jason Fahlbush**. The company said "it was particularly interested in how smart seats interact with passengers to give a greater degree of comfort, innovation, features and functions". ■

SIA Engineering signs IFE maintenance contract with Thales

Leading Asia-Pacific MRO, **SIA Engineering Co. (SIAEC)** has signed an Inflight Entertainment and Connectivity maintenance agreement with **Thales**. The contract will maintain the **Thales AVANT IFE** system installed on the Singapore Airlines fleet of A350s flying its medium haul network.

The initial contract is for ten years and will include line maintenance, software and media content loading and support. **SIAEC executive vice president operations, Ivan Neo**, said: "SIAEC is pleased to partner with

Thales. This agreement reaffirms the strong relationship between Thales and us. With our comprehensive range of IFE maintenance services, augmented by specialist support from our esteemed partners, SIAEC is well positioned to provide one-stop turnkey maintenance solutions for all our customers."

Thales Singapore country director and CEO, Kevin Chow, said: "As the world's best airline, SIA holds the highest standard of passenger service, including top notch inflight entertainment. Thales' upkeep of these systems, using technology and connected data, will ensure passengers continue to have that exceptional experience in the air."

SIAEC has approvals from 26 national aviation regulatory authorities to provide MRO services for aircraft registered worldwide, including in the U.S., Europe and China. ■

Video libraries for IFE eliminate hardware cabin upgrades

Software company, **Cadami**, has introduced technology to the airline IFE market that will increase the number of movies it offered to passengers via a software upgrade.

Cadami has developed a system that saves band width of between 50%-80%. This allows an airline to use its existing hardware to make available more video content to passengers without sacrificing viewing quality.

"Airlines need to provide more choice of video content. Provided cost and aircraft downtime are not issues, an airline can upgrade IFE hardware on any plane to increase video storage and transmission. Cadami's pioneering technology only requires a software update to provide a higher volume of high quality content, which is much more effective," **Cadami sales officer, Thomas Kuehn**, said. ■

Lufthansa Technik and Diehl Aviation broaden collaboration

Two leading aerospace companies, **Lufthansa Technik** and **Diehl Aviation**, intend to put their co-operation on a much broader footing following their successful joint development of individual cabin equipment.

Diehl and Lufthansa Technik presented their first joint products in 2017. They included a completely redesigned bar module and integrated galley toilet and a cabin crew working space for the A320 family rear cabin area.

"During our work on these products, we experienced the synergies that cooperation can offer. Diehl Aviation has unique know-how in producing cabin elements and Lufthansa Technik is the expert in modification programs, approval processes, repairs and logistics," said **Lufthansa Technik's senior director engineering aircraft and modification division, Henning Jochmann.** ■

Emirates' passengers exceed 1,000,000 IFE sessions in March

Emirates Airline and **SITAONAIR** reported last month that the Gulf carrier's passengers consumed 1,037,016 internet ONAIR sessions from March 1-31 across its B777-300ER and A380 fleets. In partnership with **ONAIR**, Emirates offers its customers a six continent network on 98% of its aircraft.

Achievement of this milestone follows the extension of the SITA ONAIR-Emirates Airlines partnership, signed last year, and the roll out of personalized inflight connectivity for members of the airline's loyalty program, Emirates Skywards. ■

BRIEFLY ….

* **Qatar's Hamad International Airport** has completed the second stage of its digital transformation project, said the **Doha airport's chief commercial officer, Badr Al Meer**, said at a seminar in Hamburg last month. The new biometric system allows passengers to pass through the airport without showing their passport or boarding pass.
* **Qantas Airways** is the first customer of **A380 Cabin-Flex**, a cabin door area rearrangement on the aircraft type's upper deck that is now available for line-fit or retrofit. It will be installed on the Australian international carrier's A380 fleet from mid-2019. A380 Cabin-Flex can add 11 premium economy or seven business class seat to the A380 cabin. Qantas has opted for the premium economy option.
* Indonesian low-cost carrier, **Citilink**, and **Inmarsat**, **Lufthansa Technik**, **Lufthansa Systems** and **Mahata Aero Teknologi** have signed a contract to retrofit 50 of the **Garuda Indonesia's** subsidy's A320s with Inmarsat's **GX Aviation's** inflight broadband service.
* **GKN Fokker** and cosmetic company, **Rituals**, are launching cabin scenting systems to favourably influence the mood of airline passengers.
* **Singapore Airlines** is the launch customer of the **Panasonic Avionics** airline onboard loyalty platform, **NEXT** loyalty. Panasonic Avionics also has concluded a partnership for its new retail platform, NEXT Marketplace, with gategroup.
* **Qatar Airways** will launch its new business class seat, **Qsuite**, on its Doha-Shanghai route from mid this month. The seat offers the industry's first double bed in business class as well as private cabins with stow away panels that allow up to four passengers in adjoining seats to enjoy their own private space. Qatar operates 31 flights a week from Doha to six Chinese cities: Beijing, Chengdu, Chongqing, Guangzhou, Hangzhou and Shanghai. ■