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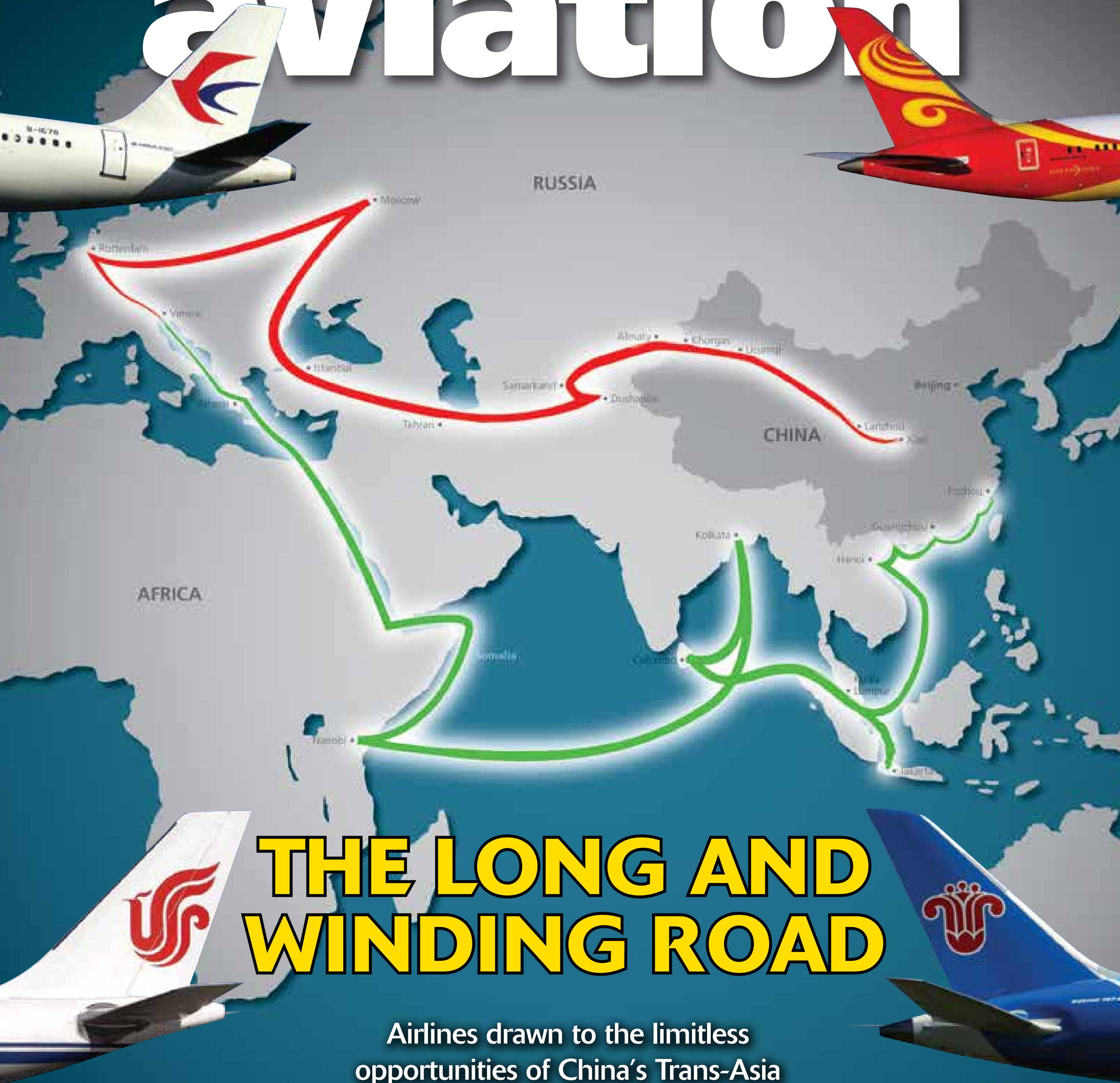

THE LONG AND WINDING ROAD

Airlines drawn to the limitless opportunities of China's Trans-Asia "Belt and Road Initiative"

Orient aviation 23 YEARS

"King of good times" and Kingfisher founder facing UK courts

Etihad Group chairman announces top management changes

Record profits for All Nippon Airways as Japan Airlines falters

INDUSTRY INSIGHT
Asia-Pacific Air Traffic Management: an update

Orient aviation 23 YEARS

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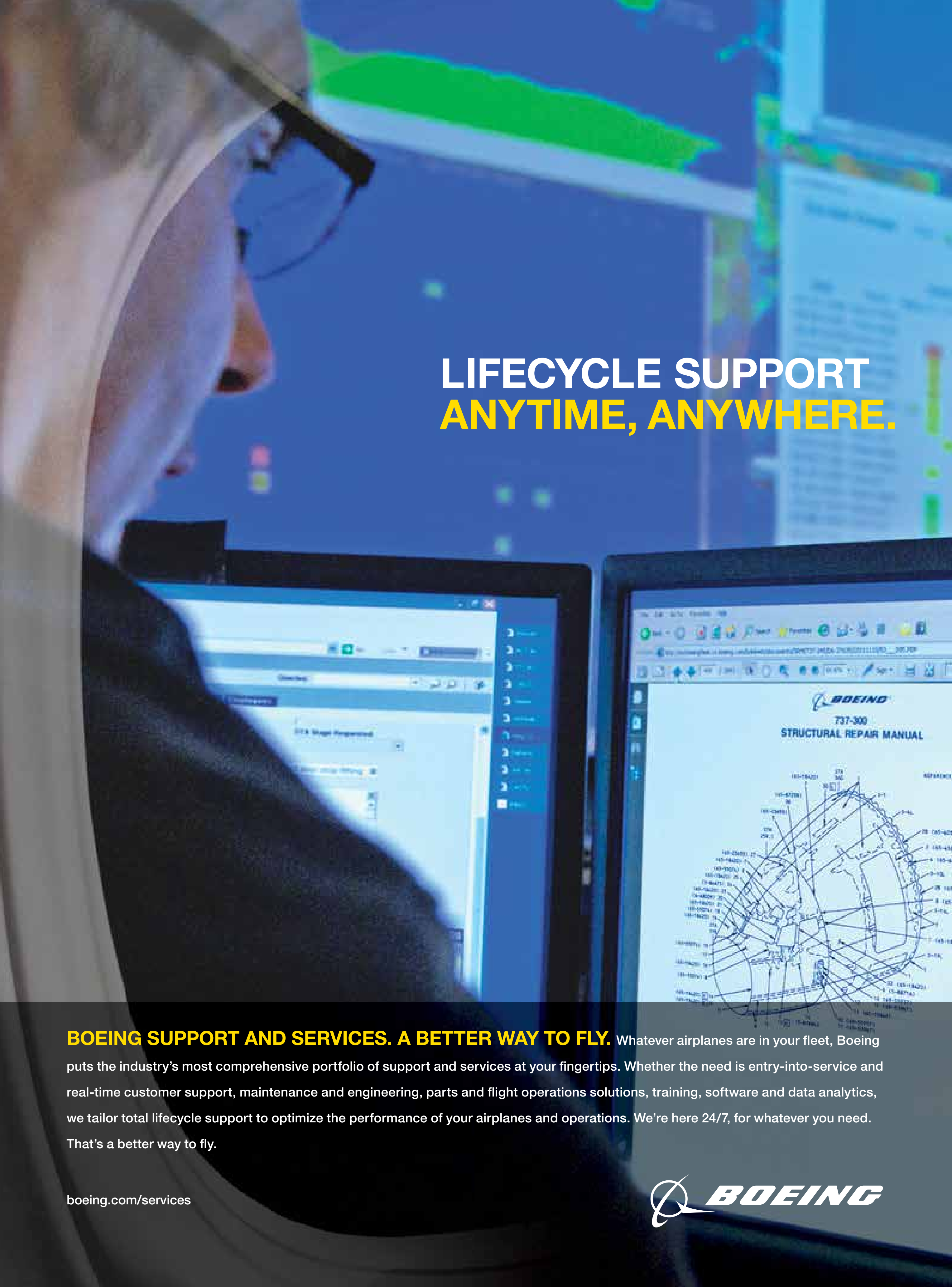
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Glacial progress of Seamless Asian Sky

Disappointment hardly describes the reaction of the airline industry to the very slow implementation of Seamless Asian Sky. Conceived nearly a decade ago as a solution to the region's rapid air traffic growth, it was intended to standardize the rules that govern air traffic management (ATM) across the region.

Through co-operation and discussion each country also would make compatible and necessary ATM infrastructure improvements that airlines needed to expand. The program would have saved tens of millions of dollars annually.

Instead, the Seamless Asian Sky initiative has advanced at a snail's pace, the International Air Transport Association (IATA) told Orient Aviation. IATA's Singapore-based Asia-Pacific regional director for safety and flight operations, Blair Cowles, said progress on standardization was "glacial".

A prime example of the situation is the rules governing separation between airlines in flight. In one country it can be five or ten nautical miles. In another 50.

Some countries are modernizing ATM systems, but it is largely being done with little regard to what the person next door is doing. Singapore, China and Japan are leading the way in co-operative arrangements. But these are the exceptions to the rule.

This is why ATM experts are pinning so much hope on a planned transport ministers meeting, set for the first half of next year in China. It has been confirmed to Orient Aviation that the International Civil Aviation Organization (ICAO) is arranging a gathering that will, for the first time, allow airlines to present their cohesive regional ATM structure case to transport decision makers. Let's hope they are heard. ■

TOM BALLANTYNE
Chief Correspondent
Orient Aviation Media Group

UK Court hearing for Kingfisher's "king of good times"

Indebted founder of defunct Kingfisher Airlines, **V.J. Mallya,** faces a case management hearing in the U.K.'s **Westminster Magistrate's Court** on May 17, following his arrest and subsequent release on bail of US$840,000 on April 18.

London police arrested the "king of good times" at his mansion north of London on behalf of the Indian authorities seeking his extradition and trial in India for fraud.

Mallya, whose **Kingfisher Airlines** collapsed in 2012, denied any money laundering operations and said: "I firmly believe they have no case against me whatsoever. Let the law take its own course", and added he was being used as a political football by India.

The former Indian MP fled India on March 2 last year and entered the UK on a valid British passport. Since then, he has refused to return of his own volition and denies he owes banks and other lenders $1.4 billion.

He is being pursued by India's **Central Bureau of Investigation** and the financial crimes agency, **the Enforcement Directorate**. India revoked his passport in April 2016 and commenced extradition proceedings a month later.

The scion of the founder of the gigantic Indian **United Brewer Group**, the 61-year-old argued he would not receive a fair hearing in India. He offered to pay $680 million to settle his debts with lenders but the offer was declined.

Last month Kingfisher Villa, a sprawling estate in North Goa where Mallya hosted extravagant parties, was finally sold to actor and businessman Sachiin Joshi. Funds from the sale will be put towards settling loans owed to Mallya's financiers.

The former chairman of Kingfisher Airlines also owned a Formula 1 racing team, **Force India**, and Indian Premier League cricket team, **the Royal Challengers Bangalore**. Kingfisher Airlines was the first Indian carrier to order the A380.

He sold his brewing company to global drinks conglomerate, **Diageo**, but was later removed as a director of the company. He was due to receive $75 million from Diageo, but the payment was blocked by the Indian government. ■

All Nippon Airways reports record profit as Japan Airlines falters

*Japan's **All Nippon Airways (ANA)** reported a record net profit of 98.83 billion yen (US$890 million) for its latest fiscal year as a result of cheaper fuel and an effective cost reduction program. ANA said for the year to March 31, consolidated net profit increased by 26.4% over the previous 12 months.*

Group operating profit rose 6.7%, also a record high, but sales declined 1.4% from lower surcharge revenue and a stronger local currency.

Mainline passengers increased 2.5%, to 52 million. The airline carried 9.12 million passengers on its international services, an increase of 11.6%, due to "brisk business flight bookings and solid demand from passengers flying to the U.S. from within Asia via Japan".

The airline said: "the overall aviation market environment during the year remained robust supported by a gradual recovery in domestic and overseas economies improved corporate profitability, a better employment environment and higher levels of personal consumption". The carrier forecast increased revenue and profits for the 2017-2018 year.

*"In the full service carrier business, which is the mainstay of the group's profitability, **ANA HOLDINGS** has worked to maintain profits on domestic routes," it said. "ANA will expand and improve its international network with the sustained development of its dual-hub for the Tokyo metropolitan region. It will also maintain its brand recognition campaign globally and boost its sales capacity."*

The group has a target of increasing international passenger and cargo revenues by 40% by 2020 and has revised upwards, by 10 fold, its growth projections for LCCs.

It also will increase its fleet from 268 aircraft at present to 335 by 2020; which is 35 more aircraft than announced in previous strategy update from the group. The airline has maintained its forecast of an operating income target of 200 billion yen in 2020 and predicted it would achieve a net profit of 125 billion yen in the current fiscal year to March 2018.

***Japan Airlines (JAL)** announced less favourable results than its energetic rival, with a 5.9% year-on-year fall in profit to 164.17 billion yen. JAL attributed the result to reduced fuel surcharges, a decline in international passengers and an appreciation of the yen.*

The airline carried 8.4 million passengers for the year, a drop of 0.8% over the previous 12 months. Domestic passenger revenue also declined, by 0.5%, in part because of powerful earthquakes in southern western Japan.

JAL is forecasting a consolidated net profit of 100 billion yen for the current fiscal year, a decline of 39.1%, over last year but sales are expected to increase by 3.9%. ■

Japan Air Commuter launches ATR services

Japan Airlines subsidiary, **Japan Air Commuter (JAC)**, launched its first **ATR 42-600** flight from Kagoshima to Yakushima, a mountainous island in the Amani archipelago, on April 26. The JAC aircraft also performed its first return journey between Kagoshima and another Amani island, Okinoerabu, on the same day. The new ATR operator is a breakthrough for the manufacturer in Japan, a key growth market for ATR. Visitors to Japan are expected to reach 40 million in 2020, the year of the Tokyo Olympics.

The Amani islands are a designated national park and are in line for UNESCO World Heritage listing in 2018. ATR's turbo prop aircraft are ideally suited to service the rugged approaches of the airports in this area of southern Japan, especially as 35% of Japan's domestic air routes are less than 300 nautical miles (555 kilometres) in distance. ■

Etihad announces top management changes

Board directors of The Etihad Aviation Group have appointed **Ray Gammell** as **interim group CEO** and announced that his predecessor, **James Hogan**, would leave the company on July 1. Additionally, it said senior vice president group treasurer of the Etihad Aviation Group, **Ricky Thirion**, would succeed **James Rigney** as **group CFO**, also on July 1.

The news followed the announcement in January that Hogan and Rigney would step down from their positions at the airline group in the second half of this year.

Etihad Aviation Group board chairman, Mohammad Al Mazroui, said the company is in "advanced stages of recruitment" for a new group CEO and that an announcement would be made "in a few weeks".

"Ray will now take full management responsibility for the Etihad Aviation Group and ensure a coordinated group approach. He will continue to advance the strategic review that was initiated by the board in 2016 to reposition the business for continued development in what we anticipate being a prolonged period of challenges for the global aviation," the board chairman said.

Before he joined Etihad's executive leadership team in 2009, Gammell held executive positions at **Intel Corporation** in Ireland and in the U.S. and the **Royal Bank of Scotland** and served as an officer in the Irish Armed Forces.

Thirion, who holds a master's degree in mechanical and aeronautical engineering, has overseen the Group Treasury at Etihad since 2007. Previously, he was group treasurer at **South African Airways** and a **Standard Bank Group** managing director.

Other appointments announced in the Etihad reshuffle are: new senior vice president with responsibility for international affairs and environmental affairs, **Ahmed Al Qubaisi**; senior vice president for the UAE and GGCC, **Hareb Al Muhairy** and vice president corporate affairs, **Amina Taber**. Leadership of Etihad's corporate social responsibility strategy has been added to the duties of vice president medical services, **Dr Nadia Bastaki**. ■

Airbus delays A330neo launch to 2018

Airbus announced on May 4 that it would postpone the launch of its **A330neo** to next year because of development delays at engine provider, **Rolls-Royce**. The Toulouse manufacturer said flight tests with Rolls-Royce Trent 7000 engines would now take place in the final quarter of this year.

"We will install it in the Summer and fly it at the end of Summer, **Airbus executive vice president and head of programs, Didier Evrard**, said.

TAP Portugal, the launch customer for the aircraft, indicated late last year that arrival of the aircraft at the carrier could be delayed. Before engine issues emerged at Rolls-Royce, TAP was scheduled to accept the first of 14 A330neos by next March 31. ■

PEOPLE

Vistara CEO extends his term at the carrier

India's **Vistara** has extended the term of its **CEO**, **Phee Teik Yeoh**, for three more years, in anticipation of the carrier's expansion onto international routes next year. The board of the **Tata** (51%) and **Singapore Airlines** (49%) joint venture announced the extension of Phee's tenure at the full service carrier on April 15.

India media sources said the airline, which holds 3.1% of India's domestic air passenger market, has a fleet of 13 single aisle aircraft which it hopes to expand to wide-body airplanes in coming months. ■

IATA's de Juniac defends airlines' overbooking policy

By Tom Ballantyne

Last month's video of a paying passenger being dragged from an overbooked United Airlines flight shocked viewers worldwide, but it should not be used as an excuse to stop carriers overbooking flights, the International Air Transport Association (IATA) said in a statement issued after the ugly incident.

Airlines should be allowed to continue long-established overbooking practices, IATA said. "The business is unique. Once a flight takes off the seats on that flight are no longer available for sale. It's a time-sensitive, perishable product," the association said.

"Airlines have sophisticated systems that tell them that on any given flight on any given day a specific number of passengers may not show up. They book seats in excess of the available capacity to protect against the aircraft departing with empty seats."

Some governments are considering regulations to restrict overbooking, but IATA said it is an economically important activity that should not be denied to the carriers. If the practice is stopped then consumers might lose access to more flexible fares, it added.

IATA director general, Alexandre de Juniac, wrote in his latest blog that everybody who watched the video of the passenger being dragged off UA flight 3411 was shocked.

"That includes me. Whatever the reason, what happened was clearly unacceptable. And United has recognized that," he said.

"My job is not to be an apologist for a truly regrettable situation. Nor is it to be a judge or arbiter between airlines and their passengers. But I do have the responsibility to defend the reputation of an industry that I am proud to call the business of freedom."

Each day, he said, some 10 million passengers board planes for 100,000 flights that will take them safely to their destinations. "That is no less than a modern day marvel of technology, coordination and dedication to safety. The 63 million people employed in making travel possible are human. Sometimes they make mistakes. In a service business amends need to be made swiftly and with the human touch.

"But the response must be more thoughtful than headlines painting an entire industry with the hue of a single and very regrettable incident."

De Juniac said questions have been raised about passenger rights, procedures for denying boarding to passengers, the actions of local law enforcement and overbooking practices.

"At the risk of sounding old-fashioned, the best results will not come out of angry, knee-jerk responses that seek resolution in 140 characters or a newspaper comment piece written before the entire incident has revealed itself," he said.

"Where do we go from here? United has pledged to take immediate concrete action to ensure this never happens again and has announced a thorough review of its relevant policies and actions in oversold situations. If there is something in this incident that requires changes at an industry level the next step is a robust dialogue," he said.

In the meantime, the chief executive of United, Oscar Munoz, announced he was planning a trip to China following the incident. The passenger involved was Dr David Dao, a U.S. citizen and a Vietnamese refugee who is a practicing physician in Kentucky.

His treatment angered many in the Asian community and triggered calls for a boycott of the airline by Asian groups in the U.S., Vietnam and China. Munoz visited the Chinese consulate in Chicago to smooth over the situation amid concerns the treatment of Dr. Dao would affect bookings from Chinese customers. United holds 20% of US-China air traffic and is in partnership with China's flag carrier, Air China. ■

Paying your way out of trouble

Atlanta-headquartered Delta Airlines has given airport employees permission to offer passengers almost $10,000 in compensation for giving up their seats on overbooked flights. Delta made it's decision as rival, United Airlines, struggles to recover from images of a passenger's forced removal from a sold-out Chicago to Kentucky flight last month.

In an internal memo obtained by The Associated Press, Delta said gate agents could offer up to $2,000 in compensation compared with the previous maximum of $800, and supervisors could increase their highest offer from $1,350 to $9,950.

Tough times ahead for wide body market

Certainty about the short term market for wide bodies has been eroded by reduced regional economic growth, an unstable security environment in Europe and hits to airline bookings from the Trump bans on travel and digital devices.

Dominic Lalk reports

"Now I agree with John that the B787-9 is small, but I'm sure John knows that we have a B777X." That was the riposte from Dinesh Keskar, Boeing's senior vice-president sales Asia-Pacific and India, at the Orient Aviation Person of the Year dinner in March when the Airbus super salesman, John Leahy, quipped the Dreamliner was too small for non-stop flights from Australia to Europe.

Good natured ribbing aside, many in the industry hold the view that the wide body sector is saturated. Instead of more orders, deferrals, conversions and cancellations are ahead.

In April, Boeing stoked speculation there was a fall off in appetite for wide bodies when it reduced the standard three-class layout for the B777-9X to 349 passengers. The change aligned the initially 400-plus-seater B777X closer to the 366-seat A350-1000 variant.

Until 2014, global sales were booming, with any fears of a capacity glut cast aside. The outlook was positive, no matter whom you asked. But events in the past 18 months have again left the industry in "challenging operational environments".

Slower than predicted growth in China, a politically turbulent and insecure Europe and the Trump administration's travel and electronics-on-flights bans have hurt more than just the Gulf carriers.

At the Airline Economics Growth Frontiers conference in Dublin in January, AerCap CEO, Angus Kelly, said the industry was in for "big deferrals in the wide body market" and that in the short term there is over-ordering because many airlines are chasing the same passengers.

Kelly said Airbus and Boeing order books do not reflect "what is going to be delivered" and that some carriers could cancel orders despite traffic growth continuing in the right direction.

"We see excess capacity in wide bodies as we look to the future of the industry," said Ed Bastian, Delta Air Lines' CEO, during a quarterly earnings call in April. He added the airline was in discussions with OEMs to tackle the issue.

"I think you could anticipate some reductions, broadly over the next several years," he said. Delta has orders for 25 A350-900 and 25 A330neo wide bodies, but no Boeing jets.

The A350s were earmarked to replace Delta's B747-400s on routes to Asia.

United Airlines (UA) has questioned its own order for 35 A350-1000s, due for first delivery in 2018. "That's an order we're paying a lot of attention to and are considering different alternatives," said chief financial officer, Andrew Levy, in February. United ordered the A350 in 2009 to replace its venerable B747-400s, but then announced a surprise order for 14 B777-300ERs last year. It planned to take delivery of all 14 of these jets by August. It has begun flying the aircraft from Hong Kong to San Francisco in lieu of its B747s. The San Francisco-Narita route will operate the -300ER from June.

American Airlines is in no hurry to take the A350. At press time, the Dallas/Fort Worth-based carrier again deferred delivery of its 22 on-order A350-900s by two years and now will take delivery of them from 2020 to 2024. Last July, American deferred the A350s from Spring 2017 to late 2018. The U.S. carrier also deferred two B787-9s from the second quarter of 2018 to the first quarter of 2019.

According to American chief financial officer, Derek Kerr, the deferrals are a response to economic slowdowns abroad and to a decrease in the carrier's near-term capital spending.

Emirates cancelled an order for 70 A350s in 2014 after reportedly being unhappy with weight and range changes Airbus made to the series. While Emirates might recommit to the A350 or weigh it against the B787-10, this seems very unlikely in the wake of Trump's travel bans and their repercussions on Gulf carriers.

Last month, Emirates announced a significant reduction of its U.S. network.

Asia-Pacific (excluding China)

A350-1000	B777X
Asiana Airlines 10	All Nippon Airways (ANA) 20
Cathay Pacific Airways 26	Cathay Pacific Airways 21
Etihad Airways 22	Emirates Airline 150
Iran Air 16	Etihad Airways 25
Japan Airlines 13	Qatar Airways 60
Qatar Airways 37	Singapore Airlines 20
Total: 124	**Total: 296**

Mainland China

A350-900	B787-8/-9
Air China 10	Air China 15
China Eastern Airlines 20	China Eastern Airlines 15
China Southern Airlines 20	China Southern Airlines 20
	Donghai Airlines 5
	Hainan Airlines 40
	Juneyao Airlines 5
	Ruili Airlines 6
	Xiamen Airlines 12
Total: 50	**Total: 118**

Flights to Boston, Los Angeles and Seattle will be reduced from twice daily to daily and Dubai to Fort Lauderdale and Orlando will be cut from daily to five-weekly.

Perhaps having bitten off more than it could chew with its order for 150 B777X, the airline is mulling single aisle aircraft for the first time, as Qatar Airways did last year when it ordered 60 B737 MAXs.

The A350-1000 programme was launched in 2007, six years before the B777X. Airbus has 211 orders globally for the -1000, including 124 from Asia-Pacific and Middle East airlines. The -1000's market proposition is for 366 passengers in a standard three-class layout and a maximum range of 7,950 nautical miles.

Compared with the A350-1000, the B777X series secured more endorsements in a much shorter lead time following its launch at the 2013 Dubai Air Show. First delivery is on track for 2020 with 326 firm orders placed for the aircraft to date.

Of these, all but 20 of the airplanes are for Asia-Pacific and Middle Eastern airline customers. Emirates' order makes up almost half of the book, with 150 B777Xs, which ties the programme's success to the Gulf carrier. When the B777X was launched, it was meant to be larger than the -1000. Boeing pitched it as a 400-plus-seater with a range of 7,600nms.

Singapore Airlines (SIA), ever the trendsetter in the industry, ordered 20 B777Xs in February, having previously said it was considering the B777X and a further stretch to the A350—the -1000 and the "-2000".

Boeing's tell-tale April design modification for the B777X is sending the aircraft closer to the -1000 and even its own end-of-line B777-300ER. The B777-9X holds 349 passengers in a standard three-class cabin design, so the significantly reduced real estate is a more prudent and popular choice for customers in the uncertain wide body segment.

Although the B777-9X shares an external fuselage cross-section with the B777-300ER, Boeing engineers re-sculpted the internal sidewalls to carve out an extra 102mm of internal diameter: every little bit helps in a standard 10-abreast economy class cabin.

Boeing secured its 326 orders for the B777-9X quickly, but the majority of these orders are from the Middle East, which undoubtedly compromised its design for customers not operating in very hot conditions.

"The clean sheet designed A350-1000 is optimized for all types of operations," Airbus' Leahy told Orient Aviation. "It is 35 tonnes lighter in OWE, offering a 7% lower cost per seat and 400 nautical miles of additional range. As a result, it has double the customer base of the B777-9, with its 12 customers," Leahy said.

The A350-900 is a different story altogether. It goes head-to-head with Boeing's B787 series.

In the Asia-Pacific, in gross orders, the B787 series undeniably comes out ahead of the A350-900. Boeing received 1,211 global orders for the Dreamliner series to March 31. Of these, 559 orders, or 46%, were placed by carriers from this region and the Middle East.

Despite lengthy delays, the B787 had a head start on the A350. The first Dreamliner was delivered to All Nippon Airways

(ANA) in September 2011. The first A350 entered service with Qatar Airways in January 2015. Nevertheless, the gap in development and production should no longer have any bearing on the current order backlogs.

Boeing's 559 Asia-Pacific and Middle East orders for the B787 program compare to 313 orders from these regions for Airbus' A350-900. The -900 had received 602 global orders as this issue went to press. With 313 going to Asian customers, 52% will operate from this region.

As such, one cannot blame Airbus for the B787 purchase bias. The culprits are the B787 arriving in the market three years earlier than the A350 and the continued success of the A330 in the region. However, the Dreamliner has been much more popular with Mainland Chinese carriers than the A350.

Air China has 15 B787-9s on order. China Eastern Airlines signed for 15. China Southern will receive 20. Juneyao Airlines has confirmed up to 10 -9s. Xiamen Airlines has twelve in its books. Ruili Airlines has booked six. Donghai Airlines will take five and the HNA Group carriers have confirmed orders for 40 B787s.

This compares to 10 and 20 A350s orders from Air China and China Eastern, respectively. After an unwelcome order drought, China Southern Airlines announced an order for 20 A350-900s on April 26. The Guangzhou-based carrier said the order will be delivered in three stages: six of the airplanes will arrive in 2019, another six in 2020, with four deliveries each in 2021 and 2022.

Airbus derives comfort from the fact that its A330 series, in production since the 1990s, continues to be popular with Mainland carriers. The OEM has sold 185 A330s to China since the launch of the B787 programme and there are more than 570 A330s in service at airlines across the region. The last big order was placed in October 2015, when Beijing committed to 30 A330s for its state-controlled carriers.

Airbus believes the A330's popularity on the Mainland will ultimately translate into more Chinese orders for the A350. Its common type rating makes the A350 the perfect replacement and complement for A330 operators.

Whatever the computations are for the region's airlines, the general concensus among analysts is that for the rest of 2017 and into 2018, there will be a substantial wide body capacity glut in the market, both in the Asia-Pacific and the rest of the world.

Clearly, it is too late for Airbus and Boeing to cancel either the A350-1000 or the B777X. They would be ill-advised to do so anyway. Peaks and troughs come and go, but the general trend remains positive. Boeing expects demand for 9,100 wide bodies through to 2036. Airbus thinks there will be room for 9,543 large aircraft.

But the next two years will be tough. Airbus is predicting a book-to-bill ratio below 1 for 2017, meaning it expects fewer orders than deliveries for the first time in eight years. "We are fully booked in the years to come so it is not a surprise that the book-to-bill could be lower for some time," Airbus and Airbus Commercial Aircraft chief financial officer, Harald Wilhelm, told a shareholder meeting in April. "At the same time, we are bringing up the production rates. In the long term, the outlook remains very positive."

Also in April, Airbus's Tom Enders said the Toulouse-based manufacturer expected to deliver more than 720 aircraft in 2017, a slightly improved forecast than its official guidance of "more than 700" deliveries.

There has long been talk of an even larger A350 variant, dubbed the "-2000" by Leahy. When last speaking to Orient Aviation, Airbus COO and president of its commercial aircraft division, Fabrice Brégier, remained ambivalent about the "-2000". He said the OEM was studying its feasibility and was unsure if there was sufficient demand for a such a large aircraft. ■

At the Airline Economics Growth Frontiers conference in Dublin in January, AerCap CEO, Angus Kelly, said the industry was in for "big deferrals in the wide body market" and that in the short term, there is over-ordering because many airlines are chasing the same passengers. Kelly said Airbus and Boeing order books do not reflect "what is going to be delivered" and that some carriers could cancel orders despite traffic growth continuing in the right direction

Boeing targets Asia's LCCs for B737 MAX business

Boeing's latest single aisle aircraft, the B737 MAX, is the fastest selling aircraft in the company's history. The U.S. planemaker is confident it will increase its market share in the Asia-Pacific, particularly at the region's budget carriers.

Tom Ballantyne reports

When Boeing's newest single-aisle aircraft, the B737 MAX 9, completed its first flight of two hours and 42 minutes over Puget Sound near Seattle on April 14, the plane maker's executives were exuberant.

As rival Airbus continues to struggle with delays to its A320 neo program, mainly because of missed engine delivery deadlines from Pratt & Whitney, the April 14 flight confirmed the new series outperforms its rival at almost every level of competing assessments. The overall program is also ahead of schedule.

After the first MAX 9 flight, which tested flight controls, systems and handling qualities, landed, Boeing vice president, Keith Leverkuhn, said: "The 737 MAX team continues to fire on all cylinders". The MAX 9 has a maximum capacity of 220 passengers and a range of 3,515 nautical miles (6,509 kilometers).

But Airbus is not dragging its feet. The third member of its best-selling A320neo Family – the A319neo – performed its maiden flight on March 31, when it took off from Hamburg-Finkenwerder Airport and touched down five hours later at Airbus in Toulouse.

The shortest fuselage member of the A320neo product line is equipped with CFM

International LEAP-1A engines – one of the two power plants available for the aircraft type. Airbus said that when the airliner is in service, it will provide the same remarkable fuel efficiency as the longer-fuselage A320neo and A321neo versions and also allow airlines to choose between three aircraft sizes of 100 to 240 seats.

"The choice allows carriers to match capacity with demand, covering the entire single-aisle jetliner segment from low and high density domestic operations to longer-range routes," the manufacturer said.

But with more than 3,700 firm orders from 86 customers, including 870 orders from the Asia-Pacific, Boeing is certain its B737 Max 9 is a winner. Chief engineer and deputy program manager for the MAX, Michael Teal, said: "The MAX is designed for the fuel burn advantage. When you look at the MAX it flies higher and further. It flies faster. Its lighter weight burns less fuel and has less maintenance than the competitor."

The launch flights of the -8 and -9 will be followed next year by the flying debut of the smaller -7. Another version of the type, the MAX 200, is being built. Basically, it is the same as the -8 with the additional feature of a mid-entry door that allows LCCs to install 11 more seats on the plane.

Another member of the MAX family, the larger -10 or 10X, looks closer to manufacture as Boeing believes it will attract big sales at budget carriers in Asia. At present, said Teal, the -10 "is offerable". "We will launch the aircraft when customers are ready to buy it. If customers like the -10 it will likely be deliverable in 2020," he said.

"When we talk about range capability, the MAX 8 has more range than the A320 and the MAX 9 has more range than the A321. The MAX 10 will have a range equivalent to the Boeing -900ER of today so the range capability of the MAX family is further than the competitor's airplane.

"We also do it for a lot less fuel. So yes, I am optimistic we will make significant inroads into that market space in Asia. We are adding two more seat rows, or up to 12 passengers, on the MAX 10.

"Airlines looking for a range equivalent to the 900ER or better as well as the addition of two seat rows will have the choice of an aircraft with the lowest seat mile costs of any of the competitors' aircraft. It also will bring in revenue from 12 more seats."

Chinese airlines are "very interested" in the -9 and particularly the -10 because of its operating economics, Teal said.

Powered by the new CFM LEAP 1B engine, Boeing said the MAX series cuts fuel burn by 20% compared with its predecessor, the B737 NG. It also can fly between 400 to 500 nautical miles further than its rivals.

Asia-Pacific orders for the MAX series are: BOC Aviation (50), Korean Air (30), Lion Air (201), Virgin Australia (40), Silk Air (31), Nok Air (8), Okay Airways (6), Garuda Indonesia (50), Jet Airways (75), Air Niugini (4), VietJet Air (100), Malaysia Airlines (25), Fiji Airways (5), SpiceJet (205), Silk Way Airlines, Azerbaijan (40). ■

Ruili Airlines chooses Cambodia for first international offshoot

By Dominic Lalk

Cambodia has a new airline, JC International Airlines, named after its Mainland Chinese parent, the Yunnan JingCheng Group, which launched Ruili Airlines in 2014.

Ever the shrewd businessman, Jingcheng founder and chairman, Dong Lecheng, saw a gaping hole in the Cambodian commercial aviation market: There is no airline with a noteworthy international network and 'flag carrier' Cambodia Angkor Air's seven active aircraft are more often found performing charter services to China than flying scheduled routes.

General director of Cambodia's State Secretariat of Civil Aviation (SSCA), Kao Sivorn, said JC International Airlines received its air operator's certificate in March and launched revenue operations on March 17 with a return flight between Siem Reap and Macau.

"The main target of JC is Chinese passengers," said Sivorn, although the airline has applied to the SSCA to fly to Bangkok, Singapore, Kuala Lumpur and Hong Kong as well as domestic hops from its Phnom Penh base to Siem Reap and Sihanoukville.

The SSCA boss said JC's management has laid out plans to operate a fleet of 20 Airbus aircraft by 2020. The carrier launched services with two A320ceo on lease from Avolon - one is brand new and

the other almost new following a short stint with airberlin. The aircraft have an all-economy class configuration of 180 seats. JC said it expected to receive another two or three A320s before year-end.

The Jingcheng Group and airberlin have developed close ties in the last three years. The majority of Ruili's fleet are aircraft formerly in service with the struggling German airline. Nonetheless, Jingcheng broke with tradition when inaugurating its Cambodian venture: unlike Ruili's all-Boeing fleet, JC has opted for Airbus.

JC International Airlines described itself as a "local International airline in Cambodia invested exclusively by Yunnan Jingcheng Group Co Ltd," with its main operating base at Phnom Penh International Airport. It has registered capital of US$1 million with the Cambodian Ministry of Commerce, but its total investment is US$100 million, according to Sivorn. The full-service start-up is led by CEO Huang Dongyan.

There are five airlines registered in Cambodia: 'flag carrier Cambodia Angkor Air; Sky Angkor Airlines; Cambodia Bayon Airlines; Bassaka Air and JC International Airlines. Only JC has outlined a significant growth strategy, leaving the country's air travel segment with much to be desired, but also with business opportunities long gone in other Asia-Pacific markets.

Ruili Airlines continues to spread its wings with plans to establish a secondary branch in the north-eastern city of Shenyang, the capital of Liaoning province in China. It signed a strategic agreement with Liaoning Airport Management Co. Ltd. to cooperate on launching routes and building airport infrastructure.

Ruili flies from Shenyang to Kunming, Yulin and Hohhot and plans to add routes to Lanzhou and Wenzhou when it receives the necessary permits. It intends to base eight aircraft in Shenyang in 2018.

The Civil Aviation Administration of China (CAAC) has approved Ruili's application to launch international services in 2017. It will first fly to Hong Kong, Macau and Taiwan before it adds services to southeast Asian destinations in Thailand, Malaysia and Vietnam. It operates 13 B737 aircraft and has 30 B737 MAXs (plus 30 options) and six B787-9s for long-haul operations in its order book. ■

Japan Airlines emerges from banker protection

It seemed unimaginable at the time, but in January 2010, Japan Airlines (JAL) filed for bankruptcy protection and requested a government bailout to keep flying. Seven years later, the flag carrier has emerged from government supervision and is racing to win back lost market share from its nimble rivals.

Tom Ballantyne reports

On the face of it, when Japan Airlines (JAL) flew its first Tokyo Haneda – New York service on April 1, the destination appeared to be no more than a smart expansion onto a key global route. But for JAL it was a very significant day in its operating history. Finally it was free of seven years of restrictions attached to the multi-billion bailout the carrier received from the government.

On that day in January 2010, Japan was rocked by the news that one of the country's iconic businesses had filed for the largest non-financial bankruptcy petition in the nation's history. The consequent negotiations for government support required the carrier to embark on a painful restructuring that saw thousands of jobs disappear and expansion contained at the airline and its affiliated companies.

Restrictions imposed on JAL included curtailed ability to launch destinations and allocation of fewer slots than its arch rival, All Nippon Airways (ANA), at Tokyo's popular near down town Haneda airport.

As a result, ANA has had a full service carrier monopoly on the lucrative route for several years. It capitalized on JAL's setback by rapidly expanding its international network. In

2015, almost 30 years after it commenced international services, ANA overtook JAL in the number of international passengers carried.

Freed from the government's Enterprise Turnaround Initiative Corporation supervision, JAL must expand its international network in its battle with its nimble international rival.

After its bankruptcy filing, JAL outperformed its initial goals for recovery when its shares were re-listed on the Tokyo Stock Exchange in September 2012. But Japan's transport bureaucrats stipulated the airline must continue to be supervised by the state because it had received generous public support that could distort the market. It also required JAL to repay several government loans before it could return to operations as an independent corporate entity.

Last January, Japan's transport minister, Keiichi Ishii, said the government's supervision had achieved its purpose. "Through the allocations of new takeoff and landing slots, a sound competitive environment has been ensured."

ANA does not agree. It continues to argue against financial protection JAL has received and said it does not believe the latest development changes this situation. "We can't say the competitive environment has been corrected," said ANA HOLDINGS president and CEO, Shinya Katanozaka.

In the meantime, JAL and ANA have become two of the most profitable airlines in Asia. After doubling its profit to $722 million in its last fiscal year, ANA reported a net profit of $890 million for the current year, to March 31.

JAL reported a drop in net profit this year after booking a 17% profit rise a year earlier. While lower fuel costs and increased visitors to Japan have fueled both airlines profitability, JAL is far ahead in earnings.

And that, ANA argued, is because of the benefits JAL has exclusively enjoyed, including reduced corporate taxes and lighter depreciation charges. ANA executives said JAL "receives a boost of some 100 billion yen a year and the cumulative impact amounts to, perhaps not one trillion yen, but hundreds of billions of yen".

JAL is expected to invest its profits in network expansion. The carrier's midterm management plan will highlight a "scenario for constant growth", JAL president, Yoshiharu Ueki said.

Both airlines can look forward to a surge in business from the 2020 Olympic Games, which will be held in Tokyo. Japan's transport ministry is considering an increase in daily round trip flights at Haneda to around 53 in the run-up to the games. These slots are highly sought after, not only by ANA and JAL, but by smaller carriers, particularly Japan's fast-growing budget airlines. ■

THE LONG AND WINDING ROAD

China's "Belt and Road" Initiative is fueling expansion of China's airlines as the supremely ambitious program forges improved sea, road and air links in the country's south and south west, marches on to the Mainland's Asian neighbours and stretches its reach to Europe, Africa and, ultimately, the South Pacific.

Tom Ballantyne reports

They are going across the Pacific. They are flying everywhere in Europe. They are serious players in Australia and New Zealand and now Chinese airlines are expanding their networks to the cities along the gigantic Belt and Road Initiative, a pet project of China's president, Xi Jinping.

And they are ready for the challenge. Common opinion has been that Chinese airlines have a long way to go before they catch up with their Western rivals. Such thinking no longer reflects the facts.

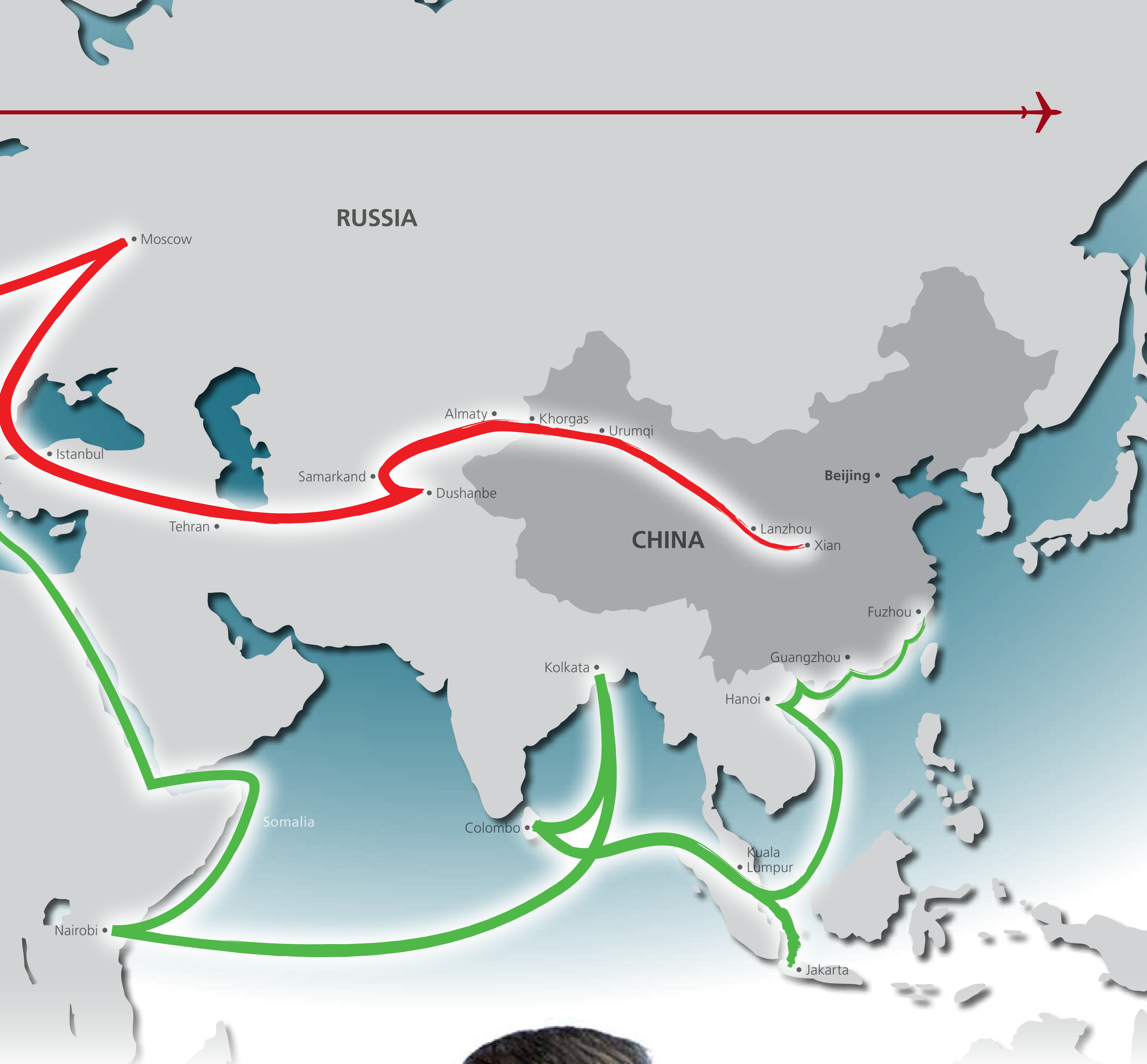
In 2017, in terms of network growth, fleet expansion, inflight service and potential for growth, China's major carriers have arrived in the Asia-Pacific and are advancing on Central Asia, Europe and North America.

If the latest government statistics are a reliable guide, 2017 will be yet another year of frenetic expansion at Mainland airlines. The Civil Administration of China (CAAC) has reported domestic and foreign airlines will open more than 100 international routes to cities in regions covered by the Belt and Road Initiative in the next six months.

"During the coming season, domestic airlines plan to open 70 routes to facilitate transportation between China and cities along the Belt and Road Initiative, mostly in Russia, and in countries in Central, Southeastern and Southern Asia and the southern Pacific Ocean region," the CAAC said.

International airlines will open 35 international routes with 34 of them planned to connect China with cities in ten countries along the new Belt and Road route, also including Russia, as well as Thailand and Vietnam.

China's airlines, which now operate more capacity across the Pacific to North America than their U.S. competitors, are turning their attention to meeting Beijing's demands to increase penetration in dozens of international markets



covered by the Belt and Road plan.

The multi-billion dollar project, also known as "One Belt, One Road" brings together the landside Silk Road Economic Belt and Maritime Silk Road developments and airline routes.

The strategic development will connect China with Central Asia, Russia and Europe (the Baltic), link China with the Persian Gulf and the Mediterranean through Central Asia and West Asia and connect China with Southeast Asia and South Asia.

Launched by president Xi in 2013, it will revive ancient trade routes, boost China's economy and enhance communication among economies, the government said. CAAC director, Feng Zhenglin, said the initiative is a major State strategy and the civil aviation sector will actively provide services for the development plan.

"China has signed bilateral aviation transportation agreements with 61 countries along the Belt and Road Initiative and has opened flights with 43 countries." he said. The Mainland has signed a new open skies pact with Australia. It lifted all capacity restrictions on airlines from the two countries and gave Chinese carriers unprecedented

access into the South Pacific – the final link in the Belt and Road Initiative.

The rewards for Chinese airlines and anyone in partnership with them is enormous. The latest GDP figures report the country is experiencing growth of 6.7% this year. China's middle class, who have an insatiable appetite for travel, will reach 600 million by 2022.

Passenger traffic expansion is outstripping GDP, rising by an annual average of 10.4% annually. China's commercial fleet has grown from 1,047 planes to 2,645 since 2012.

CAAC air traffic statistics for January this year, which are the latest to be publicly available, reported air passenger trips for the month increased 17.6% year-on-year, to 43.9 million. The expansion was faster than growth of 11.8% for the full 2016 year. The figures for the first month of the year include the Lunar New Year holiday, but bookings support demand momentum.

Domestic air traffic rose 17.4% year-on-year, to 38.96 million for the month, while international traffic soared 19.1% to 4.97 million.

Buying into a big business

China's enormous potential market, coupled with forecast access through Chinese partners to the traffic that will be fed through the Belt and Road regions has produced another development: the major U.S. airlines have cast aside any caution they harboured about establishing deeper ties with Chinese carriers.

In March, American Airlines agreed to buy 2.68% of Guangzhou-headquartered China Southern Airlines (CSA) for $200 million. Two years ago, Delta Air Lines spent $455 million for 3.55% of Shanghai's China Eastern Airlines (CEA).

While these investments are important to the U.S. carriers in building more market share in the region, they are important to Chinese airlines too.

At the formal signing of the agreement with American Airlines, CSA chairman Wang Changshun , said: "American Airlines is very much in need of a partner in emerging China and the Asia-Pacific. We believe China Southern Airlines is their best choice." Having American as a strategic investor would help CSA expand internationally and allow the State Owned Enterprise (SOE) to explore mixed ownership, Wang said.

American Airlines president, Robert Isom, said CSA's extensive network within China touched cities that only a Chinese carrier could reach. "Those coming from China will have access to American Airlines' network of North American cities and customers flying from the U.S. to China will have access to 40 destinations beyond Beijing and more than 30 destinations beyond Shanghai," he said.

CAAC deputy director, Wang Zhiging, said China is the fifth largest source of foreign visitors to the U.S. and is forecast to become the third largest market for inbound U.S. travel, after Canada and Mexico, by 2021. The International Air Transport Association (IATA) predicted China will surpass the U.S. to become the biggest airline passenger market by 2024.

"Chinese domestic airlines have aggressively expanded their international capacity in the last two years and the fare per passenger is falling. But I see a general balance of capacity and supply in China's airline industry"

Andrew Herdman
Director general of the Association of Asia-Pacific Airlines

Chinese airlines themselves are in a sweet spot. In March, CSA, Asia's biggest carrier, reported a 35% leap in profit for the full 2016 year, to $731 million. Beijing's Air China earned $989.2 million and China Eastern had a $653.6 million profit for the year. Aggressively expanding Hainan Airlines, the Mainland's fourth largest carrier, reported its profit rose 4.5%, to $456 million, in 2016.

These results, a combined $2.85 billion profit, were achieved despite significant foreign exchange losses and a program of accelerated fleet expansion. The three carriers said that despite a slowdown in China's economic growth, they expected their businesses to expand.

CSA is planning for a fleet of 1000 aircraft by 2020, up from 700 aircraft at press time. Air China envisaged "profound structural changes in China's air passenger market" in an earnings statement filed with the Hong Kong Stock Exchange, where the "Big Three" have share listings.

"Notwithstanding the decelerating pace of its economic growth, China's aviation market continued to enjoy a strong demand with huge market potential," Air China said.

While expansion and improved links into North America and Australasia have been extremely important for Chinese airlines, a large part of their growth will come from the 68 countries included in the Belt and Road Initiative.

Air China has announced it would open Beijing to the capital of Kazakhstan, Astana, in June, initially with three weekly flights. Two other international routes will be launched between China and cities in Europe. "The opening of these routes will help establish a new air network between China, Central Asia and Europe, benefiting economic and trade exchanges between China and economies along the initiative," Air China said.

China Eastern Airlines general manager, Ma Xulun, said earlier this year that Chinese carriers should open flights to all the economies along the Belt and Road Initiative. "Such a rapid increase of international air routes caters to the expanding personnel and cargo exchanges between China and countries along the Belt and Road Initiative," he said.

China's total value of trade with the countries associated with the initiative was about $953 billion last year, which accounted for 25.7% of China's foreign trade.

This expansion is not helping everyone. Chinese airline expansion was a factor in Cathay Pacific Airways' $74 million loss in 2016, its first red ink result for eight years. To address the losses, the carrier has undertaken a three-year transformation program intended to cut costs by $500 million.

As Chinese airlines' international networks offer more direct flights to Asia,North America, Europe and Australia and New Zealand, travelers are bypassing the traditional hubs of Hong Kong, Singapore, Tokyo and Seoul.

For years, the easiest and most comfortable way to fly to a second or third-tier city in China was to transit through Hong Kong, Shanghai or Beijing and onto the final Mainland destination.

But a new world order has emerged. Carriers in China's secondary cities, with their new long range aircraft, are flying directly to overseas destinations.

China's "Big Three" still control 80% of the traffic flown by China's airlines, but their grip is weakening. Hainan Airlines, controlled by billionaire, Chen Feng, operates to 10 U.S. destinations and flies to eight European cities.

Chinese passengers, who prefer to fly on a Chinese carrier, can fly non-stop to all the major European, Gulf and North American cities. In 2016, air routes operated by Chinese carriers jumped 35%, to 660, the CAAC said.

The carriers are not only focusing on flights to Los Angeles, London, Paris and Frankfurt. They are flying to Las Vegas and San Jose, Madrid, Adelaide and Queensland's Gold Coast.

The growth trajectory has it downside. Chinese airline yields have fallen because of increased capacity and the resultant fare decline. But it is generally agreed that Mainland carriers' improving operational sophistication will allow them to handle the bumps along the way to their growth targets.

It is increasing clear that the expansion of Chinese and Indian aviation is overshadowing and not just challenging the big legacy carriers of the U.S., Europe and the Asia-Pacific.The mighty Pan Am Airways once ruled the airline world, but is now a distant memory.

Could the same fate await the First World carriers of today if they cannot counter the competition of Asia's future airline behemoths? ■

The fickle customer

Recently Orient Aviation heard a story that illustrated the increasing influence of Chinese airlines in Australia. Until last year, this affluent family of professionals travelled from Sydney to the home city of their parents, Aberdeen, in Scotland, on Qantas and/ or Cathay Pacific and British Airways.

Last year, they flew on Etihad to Aberdeen when a family emergency required quick decisions on ticket bookings. But when planning a Christmas trip to Scotland, they found much cheaper fares on the China Southern website and decided they would try the Guangzhou-headquartered carrier. "It was absolutely fine," she said (a lawyer). And our connections to Aberdeen from Europe were easy. I would fly them again."

Errant subsidiaries brought into THAI fold

By Tom Ballantyne

Thai Airways International (THAI), which reported a meagre profit of $440,000 in 2016, is to run THAI, Thai Smile and Nok Air with a joint management and a single board of directors.

Under the joint framework, THAI would be the major international operator carrier; THAI Smile the domestic and Indo-China network carrier and Nok Air the budget domestic partner.

THAI's executive vice-president for corporate strategy and sustainable development, Flt. Lt. Montree Jumrieng, said co-operation between the carriers would include routes, marketing campaigns, ground services, allocation of parking bays and aircraft maintenance services.

"In the future, the three airlines will form an aviation network," said Flt. Lt. Montree, who added the carriers would feed transit traffic onto each other's airlines.

At THAI's annual general meeting last month, directors told shareholders the airline is implementing the second phase of its transformation plan, "Strength Building", which began in 2016.

To date, "Strength Building" has improved its revenue management systems, facilitated the introduction of its new business class product, launched Bangkok-Tehran and Phuket-Frankfurt, resumed Bangkok-Moscow and increased frequencies to some of its European destinations.

THAI has taken delivery of two A350-900XWB aircraft that primarily operate on intercontinental routes and will decommission two B777-200s in December. In 2016, the available seat kilometres of THAI and its subsidiaries increased by 1.9% and revenue passenger kilometres rose by 2.5%. Average load factor was 73.4% compared with 72.9% a year earlier. Passengers carried rose to 22.3 million, a 4.8% improvement.

While the 2016 profit was a marginal number, it was a significant turnaround from a year earlier when the airline group reported a $38 million loss. The transformation plan appears to be taking hold. Shareholders were told total expenses decreased by 7.1% and fuel costs declined by 28.3%, to $521.5 million.

Non-fuel operating costs did rise by 3.9%, mostly due to increases in maintenance and overhaul expenses. THAI reduced its debt level by 7.4%, to $7.3 billion, for the reported period.

THAI acting president, Usanee Sangsingkeo, said the State Enterprises Policy Commission has expressed satisfaction with the company's reform plan. The firm's expenses had declined in line with its target for the first two months of this year, she said, but it had not met its target for revenue growth.

Usanee said THAI's improved seat and ticketing booking systems had increased revenue by $29 million over the first two months of this year. "THAI needs to quickly draw up a plan to increase revenue to present at the next committee meeting," she said.

At Nok Air, shareholders have agreed to the issue of 625 million ordinary shares that will raise 1.5 billion baht (US$43.5 million) for the loss-making LCC. THAI, with a 39% holding in the carrier, will contribute 600 million baht to the share issue. Nok has employed consultants to write a rehabilitation plan for the carrier after it reported several consecutive quarters of losses. For the full 2016 year, the LCC lost $95.7 million. ■

Thai AirAsia receives new Air Operator's Certificate

Last month, Thai AirAsia became the second Thai airline to receive its Air Operator's Certificate (OAC) recertification, a requirement of the International Civil Aviation Organisation (ICAO) after it red flagged Thailand in 2015 for its poor safety oversight.

All Thai carriers must be recertified to meet ICAO compliant standards. The nation's flag carrier, Thai Airways International, was the first Thai airline to be recertified.

Mobil Jet Oil 387 goes network wide with Singapore Airlines

ExxonMobil has secured the contract to supply Singapore Airline's fleet with its synthetic High Performance Capability turbine engine oil, **Mobil Jet Oil 387**. "Singapore Airlines' decision to use Mobil Jet Oil 387 across its entire fleet is a powerful recognition of the many performance benefits our oil can deliver,"**Exxon global aviation lubricants sales manager, Vipin Rana**, said. "We are confident that Mobil Jet Oil 387 will be a valuable fleet-wide lubricant solution for Singapore Airlines and can be for other carriers as well."

Mobil Oil has accrued almost one million hours of on wing performance and protects more than 250 airliners at carriers worldwide. The lubricant is produced at a 90,000 square foot facility in Baton Rouge in the U.S. where full time production commenced in 2016. ■

Navitaire unveils world's first Virtual Reality travel search engine

Amadeus company, Navitaire, has developed a virtual reality (VR) travel search and booking experience that allows travelers to spin the globe for future travel experiences without leaving virtual reality. The concept, which has a patent pending and is still in a project phase, allows travelers to operate in a 3D world as they identify destinations, book hotels, restaurants and transport and pay for their trips. "We live in a 3D world, why shouldn't we shop for travel that way," said **Navitaire user experience developer, Justin Wilde**, who created the concept in four months.

Using the VR search engine, a traveler selecting a flight can walk through the aircraft cabin to find the right seat and try different vehicles before they choose a rental car. Wilde completed his first VR booking on December 31, last year. ■

SITAONAIR wins contracts from Malaysia Airlines and Philippine Airlines

Philippine Airlines and **SITAONAIR** are developing a crew tablet for the carrier that will allow cabin crew to deliver more personalized and efficient service to passengers.

PAL president and chief operating officer, Jaime Bautista said: "As we work towards our vision of becoming a full service, five-star carrier, PAL is focused on the benefits that new technologies can bring. We are very pleased to be working towards expanding our connected aircraft relationship with SITAONAIR. With our customerised CrewTab, we will definitely take our inflight customer service to the highest standards.

"We are thrilled to have been chosen by our longstanding customer PAL to bring on their cabin crew digital transformation," **SITAONAIR vice president Asia-Pacific, Katrina Korzenowski**, said. "At a time when 60% of airlines still use paper-based cabin crew processes, CrewTab is an obvious companion for PAL's SITONAIR-enabled connected aircraft."

In Kuala Lumpur, **Malaysia Airlines** will become the first SITAONAIR airline customer to benefit from a flight tracking partnership that will provide the airline with real time minute by minute 100% global aircraft tracking.

The new tracking service enhances **SITAONAIR'S AIRCOM Flight Tracker** by adding **Aireon's space-based Automatic Dependent Surveillance-Broadcast (ADS-B) data** made available from **FlightAware's** multiple global sources. It also complements Future Air Navigation Systems (FANS) activity data.

"Real time global aircraft tracking has long been a goal of the aviation community," **Malaysia Airlines chief operating officer, Captain Izham Ismail**, said. "We are proud to be the first airline to adopt this solution using space-based ADS-B data as part of SITAONAIR'S AIRCOM Flight Tracker.

"With access to up-to-the minute reporting, Malaysia Airlines will know the location, heading, speed and altitude of all aircraft in its fleet at all times and also be alerted to any exceptions, **AIRCOM , at SITAONAIR, portfolio director, Paul Gibson**, said. The new service will be active from 2018 after the completion of the **Iridium NEXT** satellite constellation. ■

Embraer partners with Uber to develop flying taxis

Jet aircraft manufacturer, **Embraer SA**, and Uber have agreed to explore the **Uber Elevate Network**, which aims to assess the potential of small electric vertical take-off and landing vehicles (VTOLs) for short urban commutes.

The preliminary partnership has been generated by the **Embraer Business Innovation Centre**, recently set up by Embraer in Melbourne, Florida and supported by offices in Boston and Silicon Valley.

"We firmly believe we need to explore several new business concepts that may impact air transport in the future," **Embraer CEO, Paulo Cesar de Souza e Silva**, said.

"This is a unique opportunity to complement the air transport knowledge of a visionary and revolutionary ground transport company. We will be developing new technologies, new products and new business models which could generate opportunities for Embraer in the future."

Embraer 's leadership roles in commercial and business aviation were attained through the introduction of disruptive aircraft and services. We are confident that our DNA will add value to new concepts in urban transportation as well," said **Embraer's vice president for Corporate Innovation, Antonio Campello**.

Along with Embraer, Uber has established partnerships with vehicle developers **Aurora** and **Pipistrel**, and **Bell Helicopter** and battery provider, **Charge point**, with the aim of conducting the first aerial urban taxi tests in Dubai and Dallas, Texas, in 2020.

Airbus' innovation team has produced a conceptual image of a self-piloted take-off and landing passenger aircraft, **Vahana**, which will be electric powered. ■

ADB SAFEGATE wins Colombo Airport contract for LED runway

Srilanka's **Bandaranaike International airport** in Colombo has awarded airport solutions provider, **ADB SAFEGATE**, a multi-million contract to install **LED airfield ground lighting systems (AGL)**,lighting control monitoring, airfield signs and power management systems as part of its upgrade of the airport's 30-year-old single runway. "Economic growth and a surge in tourism arrivals in the last decade are driving Sri Lanka to invest in infrastructure development and upgrades," the airport's **head of civil engineering (project and design)**, **G. Withanage**, said.

"Bandaranaike International Airport, especially its single runway, needed an upgrade to keep up with demand but we were conscious of the importance of minimizing environmental impact. ADB SAFEGATE has proven itself a trusted partner and has end-to-end experience in LED AGL design and delivery, an ideal combination for powering South Asia's first full LED runway."

ADB SAFEGATE and the airport's sub-contractor, **CATIC-ENG**, will supply, test, commission and deliver the new runway lighting system. The project, which has commenced, is the first time overlay work has been carried out on the runway since it was opened in 1986.

Other infrastructure improvements at the Colombo airport gateway are construction of two pier buildings that will add 16 boarding gates and more parking bays, a multi-story car park, a cargo complex and a train link from the airport to downtown Colombo. Separately, construction has been approved for a second international airport terminal that will increase annual passenger capacity from nine million to 15 million.

"Bandaranaike International Airport's decision to choose LED airport ground lighting as it modernizes its existing runway is a clear indicator of its commitment to sustainable airport operations. Our vision is to enable airports to operate more safely, efficiently and sustainably and we are happy to strengthen our longstanding partnership with the airport. The project strengthens our association with Chinese partners as we make inroads into Southern Asia," ADB SAFEGATE CEO, Christian Onselaere, said.

Belgium headquartered ADB SAFEGATE services 2,500 airports in 175 countries and has more than 900 employees across its global network of offices. ■

Shenzhen Airlines evaluates Inmarsat-Cobham broadband flight deck system

Early this month **Shenzhen Airlines** will commence inflight evaluation of **SwiftBroadband-Safety (SB-S)**, Inmarsat's next generation IP-based broadband service for the flight deck. The SB-S platform will be installed on the southern Chinese airline's A320 airplanes using **Cobham Avionic's AVIATOR 300D** hardware.

The joint venture partners are **Inmarsat, Beijing Marine Communications and Navigation Company** and the **Aviation Data Communication Corporation**. The system must be found to be in compliance with the relevant **Civil Aviation Authority of China** mandates. Three core capabilities will be tested: satellite voice communications, integral global flight tracking and ACARS over IP (traditionally used to communication with the airline operations centre and air traffic control). ■

Airbus wins China leasing order in april

Asia dominated **Airbus**' new business for April for its A320 family aircraft from four customers: They are **China Aircraft Leasing Company** (5) and **AirAsia** (3). The other buyers are **Nile Air** (2) and an undisclosed customer with four A319neo. Airbus booked 25 orders for the month from its A320, A330 and A350 XWB portfolios and made 46 deliveries. Orders for the A350XWB increased after an unclosed customer's acquisition of 10 A350-900s.

Deliveries in April were: 36 A320 family airplanes, six A330s and four A350-90s. **Asiana Airlines** accepted its initial A350-900 and in doing so became the 12th airline to introduce the new airline type into its fleet. Airbus' order backlog is 6,715 aircraft, which represented approximately eight years of production, the manufacturer said. ■

Singapore approves second TRU Simulation + Training Full Flight Simulator

The **Civil Aviation Authority of Singapore (CAAS)** has approved a second **B737 MAX TRU Simulation + Training full flight simulator (FFS)** at the **Boeing campus in Singapore**. The regulatory authority announced the approval on March 30.

The CAAS qualification marks the second of four B737 MAX FFS that TRU will provide in 2017 to Boeing's worldwide network of training campuses. It is part of a 10-year agreement between TRU and Boeing to deliver multiple B737 MAX FFS to its training centres.

Textron subsidiary TRU, which is based in the U.S.'s South Carolina, said its FFSs offer weight reductions that optimize motion capabilities, require 80% less wiring than traditional training simulation devices, reduce motion downtime and spare parts requirements and are a less expensive and easier to maintain turnkey solution. ■

Australian research leader and Boeing sign A$35 million agreement

Australia's CSIRO and Boeing have signed a five-year A$35 million contract to research advanced materials and manufacturing projects and space science. It is the largest commitment made by the global aerospace company outside the U.S.

"Boeing celebrates 90 years in Australia this year and for nearly a third of that time, we have partnered with the CSIRO on advanced technologies that have made a real difference to the aerospace industry, **President Boeing Australia, New Zealand and the South Pacific, Maureen Dougherty**, said. "We are excited to see that relationship move forward as a result of this agreement."

Boeing and the CSIRO have invested more than $170 million in 190 research projects, including manufacturing processes, fire retardants, biofuels and software. In April, Boeing named the CSIRO its 2016 supplier of the year. ■

Avtrade staff drive to Mongolia for charity

Four Avtrade UK headquarters staff, Luca Galelli, Dan Gravenor, Kylie Levoi and Scott Pedersen, will join the **Mission Mongolia** car rally later this year in a 10,000 mile drive across two continents in the **Go Help 2017 Mongolia Charity Rally**.

The Avtrade team's preparations for the journey have included a 2,500 mile weekend training trip in Europe, hostile environment awareness training and extensive modifications

to the rally vehicle, a four wheel drive **Ford Transit van**.

The ultimate destination for the rally competitors will be Mongolia's capital, Ulaanbaatar, with a stop along the way at Avtrade's recently opened office in Guangzhou, southern China. Go Help's goals are to provide access to education and healthcare throughout Central Asia. ■

China's small airports setting records for growth

Growth at China's major airports continues, despite major air traffic congestion. But with little fanfare, the country's smaller facilities are expanding at a much faster rate.

Tom Ballantyne reports

Mainland China's top 25 airports, which handle 76% of the nation's air traffic, grew an impressive 10% in March compared with a year earlier. But in the same month, airports ranked from 26 to 50 outstripped their bigger brothers by recording growth of more than 100% for the month.

Further down the scale in the number of passengers handled, airports below the top 50 expanded at an average 40% for the 12 months to March 2017. As a result, the share in capacity at the top 25 airports declined from a past 78% of seats processed to 76% last month.

The China Air Travel report, released last month by scheduling and aviation statistics consultancy, OAG said 18 of China's smallest airports have more than doubled their capacity in just 12 months. The largest growth was recorded at Tongren Fenghuang Airport (TEN) in Guizhou province. The airport said 46,700 seats have been added to its handling services in the last 12 months, the equivalent of 1,500 extra seats a day.

Compared with March 2016, China has four new airlines operating in its domestic market: Air Guilin based in south east China; Colorful Guizhou in China's southwest Guizhou province, Nanchang's Jiangxi Air in the southeast and Longjiang Airlines in the northern province of Heilongjiang.

These carriers are improving connectivity beyond China's biggest cities. Colorful Guizhou, for example, operates 18 routes and boosted Guiyang province's destinations served from 53 to 61.

In March, the Civil Aviation Administration of China (CAAC) reported that for the 12 months to March 2017, airline capacity grew at 10.9%, to reach 733.6 million seats. For March only, capacity was 62.3 million seats, 9.4% more than a year ago.

At China's biggest airports growth varied. Guangzhou, Chengdu and Kunming airports reported expansion of between 12%-14%. Kunming Airport was top of the table with 15% more seats available in March compared with 12 months ago. Lucky Air, China Eastern Airlines, Kunming Airlines and Ruili Airlines spurred the growth.

With the exception of Chongqing, the Mainland's biggest airports reported a fall in on-time performance (OTP) in February compared with the same month in 2016. Among the top ten Mainland airports, Xian Xianyang recorded the highest OTP in February, with 79% of flights arriving on time. Next best was Chongqing, at 74% OTP for its flights.

A government source told local Shanghai media another airport will be built in the city to relieve pressure on the existing facilities, Pudong and Hongqiao. A director of the East China branch of the Civil Aviation Administration of China (CAAC), Jiang Huaiyu, said the new airport would primarily be for private aircraft and business jets.

"It is necessary for Shanghai to build a third airport to satisfy demand," Jiang said on the sidelines of the Asian Business Aviation Conference and Exhibition in the city last month. The city's fathers, the airport authority and CAAC have started researching a plan for the airport, he said.

In 2016, Pudong and Hongqiao airports handled 6,136 business jets, up 10% year-on-year. To satisfy demand, a business jet hangar is being built at Hongqiao and a similar facility is planned at Pudong. Last year, Shanghai became one of only five cities in the world to handle more than 100 million air passengers. ■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Seamless Asian Sky stuck in the slow lane

It has been almost a decade since the Seamless Asian Sky Initiative was established to improve air traffic management efficiency in the region. But as chief correspondent, *Tom Ballantyne,* has discovered it is falling far short of its stated goals.

Asia's airlines hope a planned meeting of the region's transport ministers next year will provide the political muscle needed for the Seamless Asian Sky Initiative to finally clock up some results. The air traffic management (ATM) program, established almost a decade ago and intended to introduce common ATM standards in the region has been going nowhere fast for several years.

Despite concerted lobbying by airline associations and other interested parties, many of the more than 40 nations covered by the program lack the political will to move the program forward.

At the December 2016 Director Generals of Civil Aviation (DGCA) meeting in Colombo, it was agreed that action to make the Seamless Asian Sky effective must be taken to a higher political level of advocacy.

Details of the meeting have not been officially announced, but the International Civil Aviation Organization (ICAO) Bangkok-based regional director, Arun Mishra, confirmed to Orient Aviation it will take place in the first half of 2018. "The dates, along with other arrangements, are being finalized with the hosts, China," he said.

International Air Transport Association (IATA) Singapore-based Asia-Pacific regional director for safety and flight operations, Blair Cowles, said the meeting will address a key gap in the program's progress.

"In my line of work we deal very much with the director generals or their staff, but we also need to engage with political or senior bureaucratic level individuals. We view the proposed meeting as a positive step in bringing regional transport ministers into the discussion," he said. The meeting will allow IATA to present the airlines' agenda to key decision makers from across the region.

Airlines, IATA and the Association of Asia Pacific Airlines (AAPA) have spent hundreds of hours lobbying to resolve serious issues with the Seamless Asian Sky. They include major disparities in regulations imposed by various Asia-Pacific countries. thay range from differences in separation rules for aircraft in flight and rising air traffic control charges, to uncoordinated aviation regulations and poorly planned investment in air traffic management (ATM) infrastructure.

Cowles said: "We are seeing little implementation of the provisions of the Seamless Asian Sky. It was a good idea and a good framework, but it appears to exist as a document rather than something that is living and breathing and can guide investment and equipage decisions. So the snapshot is: we are disappointed with the lack of implementation of the plan."

Cowles was direct. "Our theme this year is that there is a lack of joined up thinking. States, Air Navigation Service Providers (ANSPs) or other interested groups are looking within their own borders but they are not looking beyond their own borders to their neighbours or to develop inter-regional solutions.

"Joined up thinking ensures that what you are doing in your jurisdiction fits with what is happening in other jurisdictions," he said.

In the latest edition of

the Civil Aviation Authority of Singapore's (CAAS), Bridging Skies, Chiang Hai Eng, director Asia-Pacific Affairs for the Civil Air Navigation Services Organization (CANSO), said Asia-Pacific ANSPs are at vastly different stages of development.

"Many of them recognize the need to build up their capabilities to keep pace with air traffic growth, but there are developing ANSPs that struggle to do this because of insufficient funding and expertise. There also are many advanced ANSPs with ambitious modernization plans."

To complicate matters, ANSPs do not exist in isolation. Flights crossing national borders and multiple flight information regions are controlled by more than one ANSP with varying levels of ATM services, he said.

Chiang said multilateral co-operation to maximize the use of modern aircraft technologies and synchronize airborne and ground-based automation is crucial. "It is imperative ANSPs work closely with their neighbours to ensure that ATM systems and procedures are harmonized and interoperable.

Cowles said there also is a lack of meaningful consultation with airspace users (airlines). "It's no good investing in technology if the airlines are not going to use it. While emphasizing joined-up thinking we are pushing for consultation and collaboration with the airspace users," he said.

It's not all bad news. Cross-border initiatives include the Distributed Multi-Nodal Air Traffic Flow Management (ATFM) Network, a multi-nodal ATM project involving Singapore, Thailand and Hong Kong, with China, Indonesia, Malaysia and other Asia-Pacific nations contributing to it.

There also is a North Asian version of the project between China, Japan and Korea. "They are good examples, but they are exceptions rather than the rule," Cowles said.

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Blair Cowles
International Air Transport Association (IATA)
Asia-Pacific regional director for safety and flight operations

There are a host of ATM projects underway, but the absence of coordination is evident. They mostly involve developments within States and not between States. NAVBLUE, the new Airbus subsidiary dedicated to flight operations and air traffic management, has finalized a contract to implement the ATM cooperation program in Vietnam.

It will enhance safety and efficiency and focus on the country's two largest airports: Ho Chi Minh City and Hanoi. With forecast air passenger annual growth of 16% to18% in Vietnam, the VATM and Civil Aviation Authority of Vietnam (CAAV) believed it was necessary for the country to start building procedures, technologies and skill sets that will support the increase in demand at Tan Son Nhat International Airport (HCM) and Noi Bai International Airport (Hanoi).

In Myanmar, the Department of Civil Aviation has signed a Memorandum of Understanding (MoU) with Aireon to develop a concept of operations and benefits analysis for the deployment of Aireon's space-based Automatic Dependent Surveillance-Broadcast (ADS-B) service.

Separately, in March this year, Myanmar completed site acceptance of Comsoft Solutions' AIM system that transformed their aeronautical information management and now supports their increased air traffic.

Air traffic in Myanmar has been rising dramatically, with international passengers increasing by more than 65% between 2012 and 2015. It is predicted the nation will welcome more than 7.5 million tourists by 2020.

India has officially launched its Central Command Centre, Air Traffic Flow Management (C-ATM), becoming the seventh country in the world to implement the Air Traffic Flow Control (ATFM) measures. The C-ATFM system will primarily balance capacity against demand to achieve optimum use of airport, airspace and aircraft at every Indian airport with capacity restraints.

Malaysia's Technology Depository Agency (TDA) has teamed up with Boustead Heavy Industries to develop a national airspace policy in addition to establishing an airspace management centre.

The Civil Aviation Department (CAD) of the Hong Kong Special Administrative Region is using technology developed by NAV CANADA for its Air Traffic Services Data Management System (ATSDMS) to manage, integrate and display real-time air traffic control (ATC) information.

The CAD handled a record high number of overflights during the busy Lunar New Year holidays in late January and early February. Flights travelling across the Hong Kong Flight Information Region peaked at 939 flights in one single day (January 25). The previous record was set on August 3, 2016, with 936 flights. A new record also set in handling over 2,000 was daily flight movements for 11 consecutive days.

There also have been several joint initiatives launched. Airways New Zealand and the Civil Aviation Authority of Singapore (CAAS) signed an MoU last year to improve capabilities in air traffic management, including the exchange of information and expertise, professional development and collaboration on research. Airways chief executive, Ed Sims, said the MOU demonstrated the importance of closer Asia-Pacific collaboration.

"The Asia-Pacific is facing a period of unprecedented growth with demand for highly skilled aviation professionals only set to grow. Airways New Zealand is delighted to share its expertise in aviation training with CAAS," he said.

CAAS also has signed an MOU with the Civil Aviation Bureau of Japan (JCAB) to jointly promote air traffic management transformation in the region. CAAS director general, Kevin Shum, said it developed CAAS's vision to make Singapore a Centre of Excellence (CoE) for ATM.

"With our combined experience and expertise in the region, I am confident we will be able to develop valuable ATM solutions for our countries and the Asia Pacific region."

The head of JCAB, Hitoshi Ishizaki, is convinced Singapore and Japan could gear up both ATM modernization and Seamless Asian Sky realization by reinforcing mutual cooperation in this area.

While all of these developments represent advances in ATM, industry insiders said many of them don't contribute directly to the Seamless Asian Sky initiative and they don't necessarily gel with what is happening in neighbouring countries.

> The communications links are good but we are using large procedural separations, from our point of view for no valid reason. That's where the lowest common denominator really comes in. It's no good having five miles (separation) at one end, five miles at the other and 50 to 100 miles in the middle because you default to that large separation standard because you have to achieve it before the aircraft enters the piece of airspace where that's the standard. So, very, very slow progress. There have been a few incremental improvements, particularly over the last 12 to 18 months, but that area of separation standardization is a key focal point for us to avoid that unnecessary inefficiency being introduced into the system

IATA's Cowles described progress in achieving standardization aircraft separation as "glacial". There have been incremental improvements, he said, particularly on the main trunk routes and there is willingness by most countries or ANSPs to address the issue.

"But we still have fully surveilled pieces of airspace. They are within radar radius coverage. The communications links are good, but we are using large procedural separations, from our point of view for no valid reason. That's where the lowest common denominator really comes in. It's no good having five miles (separation) at one end, five miles at the other and 50 to 100 miles in the middle because you default to that large separation standard. You have to achieve it before the aircraft enters the piece of airspace where that's the standard," he said.

"So, very, very slow progress. There have been a few incremental improvements, particularly over the last 12 to 18 months, but that area of separation standardization is a key focal point for us to avoid unnecessary inefficiency being introduced into the system."

There also is a "a really bad problem" in the region with increased air charges, he said. Air space users are not being consulted. "If you are trying to fund a gold-plated ATM investment scheme that isn't going to generate any service benefits for your airspace users then its a waste of resources and places an unnecessary burden on the airlines," said Cowles.

"We have Equilibrium, which emphasizes collaboration with the airspace users as you go about setting your charges, particularly when determining your investment programs and infrastructure improvements. In the region we are seeing many investment decisions that provide no discernible improvement in service."

Cowles said it is like buying the very latest iPhone and only using it for messaging. "It's no good having the best system in Singapore and the best system in Hong Kong if all the airspace in between is behind the times and using big separation," he said.

"Don't be afraid to come and talk to us or AAPA or your airline customers for guidance about airspace user's requirements.

"Through ICAO and regional co-operation agreements there is a lot of willingness on the part of the thought leaders in the region, like Singapore, China and Japan, to share best practice and to help to bring our overall system performance up. We have to cut across broader sovereignty or State issues that transcend aviation."

While it can't be used as a direct comparison, one study showed that fragmentation of Europe's airspace and lack of harmonization between airspace blocks resulted in European ATC costs of $1,050 per flight compared with $600 in the U. S.

Put another way, of the $17.7 billion paid by airlines to European ATC each year, about $4 billion was the result of inefficiency. On average, a flight was 12% longer than it needed to be.

Given that there are more traffic flows along major trunk routes in Asia-Pacific than in most other parts of the world, the savings that could be generated from Seamless Asian Sky would be enormous, and that does not include fuel costs.

With the Asia-Pacific fast heading towards being the world's largest aviation market, there will be a huge increase in aircraft needed to carry them. So swifter implementation of an Seamless Asian Sky is imperative. ■