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ETIHAD COMES OUT SWINGING

Etihad Airways "always had a life beyond airberlin and Alitalia" CEO Peter Baumgartner, reminds critics

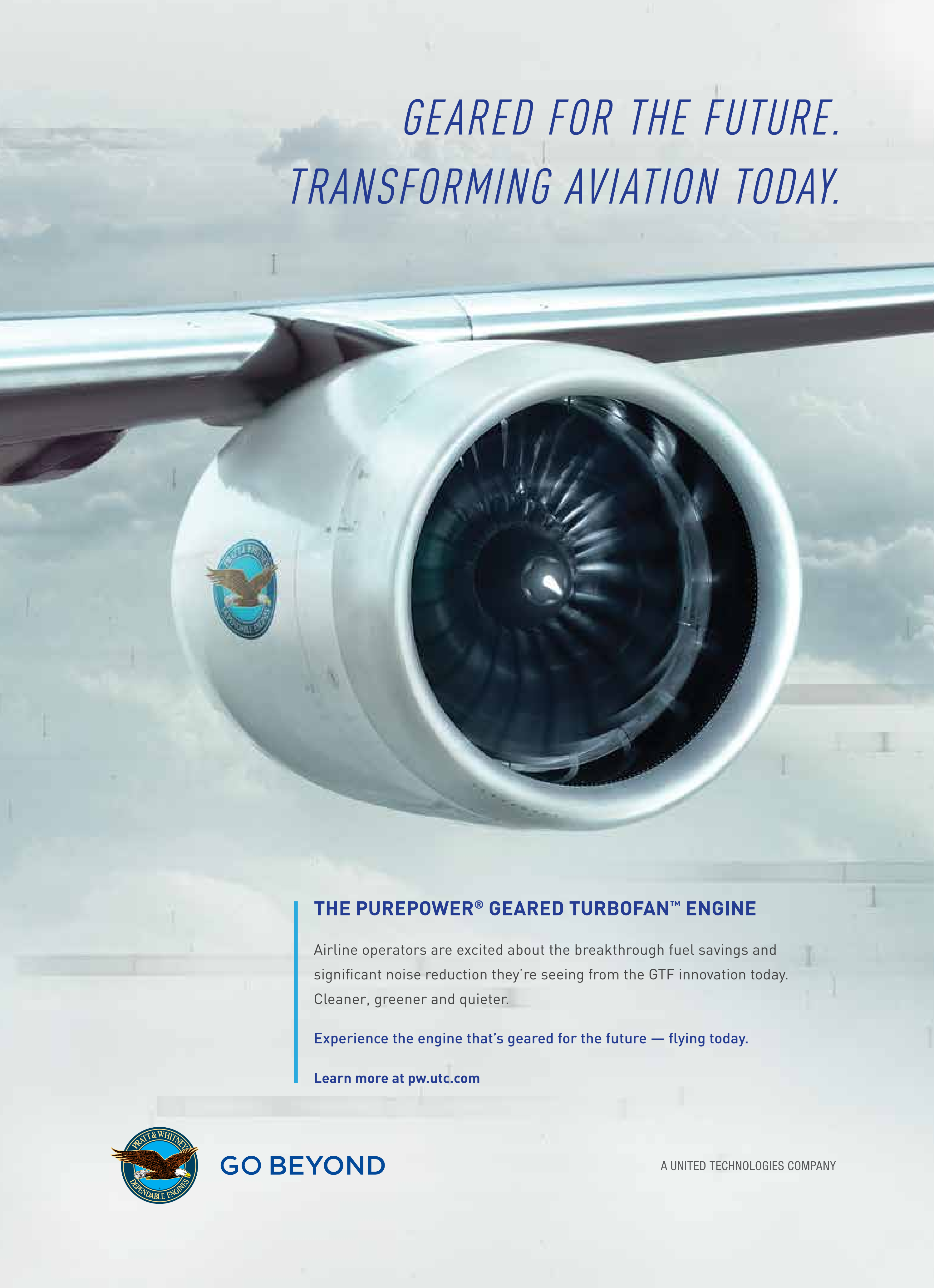
Orient aviation 24 YEARS

JAL announces major leadership transition

Records topple as Asia's carriers go ultra long haul

Putting glamour back into the cockpit

INDUSTRY INSIGHT REPORT
Singapore: top of Asia's aerospace league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COVER STORY

Challenges ahead for Airbus

Saved by the bell. Or at least by Emirates Airline. Only days after retiring Airbus Commercial Aircraft chief operating officer customers, John Leahy, publicly admitted the A380 production line could close unless a customer like Emirates did not buy more of the very large planes, the two parties made it across the line with a $16 billion order for 20 of the type plus 16 options. In return, Emirates won a commitment from Airbus to keep the A380 production line open for a minimum of 10 years.

Closing down the A380 line would have been a massive blow to Airbus as its proceeds through a management transition that has resulted in the resignation of chief operating officer and president of Airbus' commercial aircraft division, Fabrice Bregier, 56, and the pending retirement of sales chief, John Leahy. Bregier's successor is Guillaume Faury, 49, previously the chief executive of Airbus Helicopters.

Eric Schulz, from Rolls-Royce civil aerospace, is stepping into the very large shoes of Leahy as the commercial aircraft arm's chief of sales.

The search also is on for a replacement for Tom Enders, 59. The Airbus group chief executive has announced he will leave Airbus when his current contract expires in April next year. And then there is Bombardier.

When all the legal hurdles are cleared for Airbus's 50.01% purchase of Bombardier's C Series jet program, the Toulouse manufacturer must prepare for a Boeing challenge to its Canadian 100-120 seat airliner investment, including some form of partnership between Seattle and Embraer.

Elsewhere, China, Japan and China and Russia in partnership are intent on taking market share from Airbus with their home grown airliners. China's COMAC alone has an order book of 600 plus for its mid-size C919 aircraft and is working on a larger airliner.

These are just some of the challenges ahead for the new leaders of Airbus. The industry spotlight never moves far from Airbus or Boeing, but with such a significant management shift ahead in Toulouse, Airbus strategy and products will be under even greater scrutiny at both airlines and at its manufacturing competitors in the next 12 months. ■

TOM BALLANTYNE
Chief Correspondent
Orient Aviation Media Group

Japan Airlines announces major leadership transition

Yoshiharu Ueki (65), the former pilot credited with leading Japan Airlines' recovery from bankruptcy, is to move up to company chairman, following the announcement that current chairman, Masaru Onishi, will remain on the group's board but will relinquish the chairmanship.

Ueki's successor at JAL is managing executive officer engineering and maintenance, Yuji Akasaka (56). The leadership changes will come into effect on April 1 and are subject to shareholder approval at the company's annual general meeting in June.

Ueki, who was the 2013 Orient Aviation Person of the Year, said at a press conference in Tokyo last month that he had set a six year presidential term as his goal. "I wanted to pass the baton to the next generation before my energy became empty and that came this year," he said.

Akasaka joined JAL in 1987, the year the carrier was privatized, and has held a number of senior engineering posts and the position of vice president corporate safety and security. "I want to continue developing our business with the intent of securing solid profitability, and not aimlessly pursue scale," Akasaka told Reuters.

The new president will have the tough task of clawing back market share from ascendant rival, All Nippon Airways (ANA), which overtook JAL as Japan's largest international airline in 2016. ANA's rapid and nimble response to JAL's weakened financial and operating conditions during the carrier's period of bankruptcy included winning crucial slots at Tokyo Haneda airport, achieving higher customer ratings than JAL and expanding its international network, particularly to North America. ■

Blow to Boeing as C Series 300% duty nullified

In a decision that surprised many in the industry, the U.S. International Trade Commission (USITC) announced on January 26 that it had voted unanimously in favour of Bombardier in a dispute with Boeing over subsidies for the Canadian manufacturer's new C Series jet. At press time, Boeing had yet to announce if it would take its case to the U.S. courts.

Boeing had argued its business was harmed when Delta Airlines received unrealistically low prices for its order of 75 C Series jets, with options for 50 more, in 2016. The global aerospace group said the deal could only have been possible because the Canadian government was subsidising the Montreal-headquartered company.

In a very public blow to the U.S. Commerce Department, the USITC said: "Today it was determined that a U.S industry is not materially injured or threatened with material injury by reason of imports of 100 to 150 seat large civil aircraft from Canada that the the U.S. Department of Commerce has determined as subsidized and sold at less than fair value.

"As a result of the USTIC's negative determinations, no anti-dumping or countervailing duty orders will be issued," it said.

The ruling made void the 299.45% tariff the U.S. Department of Commerce had imposed on Bombardier last October as a result of Delta's order for the Canadian aircraft.

Boeing said in a statement it was disappointed by the decision because "it did not recognize the harm Boeing has suffered from billions of dollars in illegal government subsidies". It added it would continue to record situations that damaged its business through illegal dumping and illegal subsidies.

The Canadian government has made a significant investment in Bombardier's aerospace development, including a US$280 million top up injection from a government aerospace and transport investment fund. From 2013, Bombardier has been proceeding through a painful restructuring of its aerospace and rail businesses that resulted in massive job losses across the group.

Despite leaner operations, Bombardier, and in particular the C Series program, has struggled when projected orders for the jet failed to materalise in the last 18 months.

In October last year, Airbus announced it would acquire 50.01% of the Bombardier C Series program and said it would move production of the 100-plus seat jet to the Airbus production facility in Mobile in Alabama. ■

HK Express adds new CEO to management team

Former chairman of HNA-controlled Suparna Airlines Co. Ltd, Luo Cheng, is the new CEO of low-cost carrier, HK Express. The Hong Kong LCC said Luo would work with its executive chairman, Zhong Guosong, and recently appointed president, Li Dianchun, on strategy, operations, customer service and flight operations at the airline. HK Express also is majority-owned by the HNA Group.

Luo has spent two decades in aviation, including a period in Ghana as co-chairman and chief executive of HNA Group sister company, Africa World Airlines, before he moved to Suparna Airlines in Shanghai.

Suparna Airlines began life as Yangtze River Express at Hongqiao airport in Shanghai in 2003. At the time, the HNA Group owned 85% of the cargo carrier. The airline's ownership was restructured in 2006 when 49% of its shares were sold, including a 25% holding to China Airlines.

With the changed name of Yangtze River Airlines, the carrier expanded its operations to passenger services in mid-2015 and launched its first passenger flight, between Sanya on Hainan Island and Shanghai, in December of the same year.

The airline now operates both domestic and international services from Shanghai Pudong and also from a smaller hub in Xian. It was rebranded as Suparna Airlines in July last year and remains part of the HNA Group. ■

Olivia Wirth to succeed Jayne Hrdlicka at Qantas Loyalty

Qantas has recruited from its senior executive team to replace Qantas Loyalty boss, Jayne Hrdlicka. The former Bain consultant and recent head of Jetstar announced her resignation from the group last December after she accepted the position of CEO at Australasian diary company, the A2 Milk Company.

The new CEO of Qantas Loyalty is Olivia Wirth, the group's Chief Customer Officer, who has responsibility for brand, marketing and corporate affairs.

"Olivia has been on the group management committee for eight years and has very successfully led the Qantas brand, including managing the marketing function for the frequent flyer program," said Qantas group CEO, Alan Joyce.

"It's a business she understands well and that will benefit from her strong consumer analytics and marketing experience as this part of our portfolio keeps expanding." Executive manager of sales and distribution, Vanessa Hudson, is the new group Chief Customer Officer. Both appointments will take effect on February 12. ■

Lessor Aergo Capital hangs out shingle in Hong Kong

Dewey Yee, a key player in the launch of Hong Kong's fast developing aircraft leasing sector, will head the newly opened Hong Kong office of Dublin headquartered Aergo Capital. As Aergo vice chairman and managing director of Aergo Capital Asia Limited, Yee and his team will tap into growing demand for leased aircraft and related financial products across the region, a business that has acquired added allure since Hong Kong passed into law a range of new tax incentives that benefit the aircraft leasing sector. ■

Orient Aviation Person of the Year 2017

ANA Holdings chairman, Shinichiro Ito, will receive his Orient Aviation Person of the Year 2017 award at an invitation only dinner and presentation at The Ritz Carlton, Tokyo. Ito is the first person in the history of the award to have received it twice. This tribute to him tops a remarkable year for ANA and the parent group, including new daily Narita-Los Angeles route and flights to Mexico City.

The award honors Ito for his outstanding leadership at All Nippon Airways and then the parent company, ANA HOLDNGS Inc. in every area of operations from customer service to fleet innovation, global partnerships, visionary network expansion and outstanding management.

All Nippon Airways is a five star SKYTRAX Airline that was named "Best Airline Staff in Asia and World's Best Airport Services [for an airline] in 2017. ■

Indebted Air India in sell-off

By chief correspondent, Tom Ballantyne

Debt-ridden Indian airline group, Air India, will be restructured as four separate businesses with the intention of selling up to 51% of each of the new entities by year end, the government owners have announced.

The core airline businesses of Air India (AI) and low-cost carrier, Air India Express, will be offered as one company but the ground handling, MRO and regional domestic units will be sold separately.

In a move intended to achieve a sale, the Indian prime minister, Narendra Modi, announced that foreign airlines could buy up to 49% of the flag carrier. Previously, they could invest in domestic Indian airlines but not Air India. The rules of sale, to date, require that Air India retains management control. However, media reports have said the government would be happy with 26% of the group if and when it is sold.

With estimated debts of US$8.5 billion, buying into the flag carrier appears to be a risky venture. It has been widely speculated that Singapore Airlines (SIA) could be a suitor, but the airline has only said it is "keeping options open" on AI disinvestment.

The SIA group has an Indian based joint venture, full service carrier Vistara, in partnership with gigantic conglomerate, Tata. Vistara chief executive, Leslie Thng, said the airline's backers have an open mind about AI.

Another contender is Indian LCC, IndiGo, which is the country's largest airline by passenger numbers. Owned by InterGlobal Aviation, it has gone on the record as "interested" in the international business of AI and Air India Express. Commentators believed IndiGo may invite a foreign partner to join it in a bid for the carriers. Qatar Airways is a possible candidate for the joint venture as it already has expressed an interest in investing in IndiGo.

Qatar bought 9.61% of Cathay Pacific Airways from Kingboard Chemical Holdings late last year. It also controls 20.01% of the International Airlines Group (IAG), 49% of Meridiana and 10% of Latam. Turkey's Celebi Aviation Holdings also publicly said it had an interest in buying some of Air India's businesses.

The two other "Big Three" Gulf carriers are unlikely to be attracted to AI. Emirates Airline president, Sir Tim Clark, has focused the Dubai-based airline on organic growth. At the Emirate's biennial air show last November, Etihad Airways CEO, Peter Baumgartner, said his Abu Dhabi carrier had ceased its strategy of investing in foreign carriers. The airline owns 24% of India's Jet Airways.

New Delhi's decision to allow foreign airline investment in AI was welcomed by most commentators. It was announced not long after India's Parliamentary Standing Committee on Transport, Tourism and Culture released a report that concluded the government should review its decision to privatize or disinvest the airline group and explore the possibility of "an alternative to disinvestment of our national carrier which is our national pride". The report wanted the sell-off delayed for five years, a recommendation the government chose to ignore.

The International Air Transport Association (IATA) said India's amended Foreign Direct Investment (FDI) policy was a step in the right direction. "It removes the exemption that had been prevalent in the policy which was related to a single airline. At the same time, it is important the government ensured airlines in India have the most conducive operating and regulatory environment to compete effectively," an IATA Asia-Pacific spokesman said.

India's Minister of State for Civil Aviation, Jayant Sinha, said most public sector airlines, including Lufthansa, British Airways and Qantas Airways, have been disinvested by their governments. "They are now actually private sector airlines because the private sector can run airlines far better than governments can run them. It is why we are going through the strategic disinvestment process with Air India," he said.

Investor interest in AI was being publicly sought at press time, when the government was expected to release the group's core and non-core debts and assets.

Sinha said last month that local investors will retain management control of the airline and that the Indian government would add most of the AI debt to its own balance sheet. A special purpose vehicle will hold the unsustainable debt of the airline and the government is making "every effort" to protect employees, he said. ■


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IATA fights new tourism taxes in Japan and New Zealand

By chief correspondent, Tom Ballantyne

Proposed new taxes on airline passengers in Japan and New Zealand have provoked a sharp response from the International Air Transport Association (IATA). It argued the additional charges contradicted the International Civil Aviation Organization's (ICAO) international policies on taxation.

New Zealand has proposed a tourism tax on international visitors, a plan IATA has asked to be reconsidered. In Japan, where the introduction of a Tourism and/or Solidarity Tax is being discussed by Japanese authorities, IATA has prepared a position paper arguing against implementation of the tax.

"Making air travel more expensive by charging a tourism tax could reduce international passengers to New Zealand by 78,000 annually. It would have a NZ$100 million (US$70.2 million) negative impact on the country's GDP and result in the loss of 1,200 jobs," IATA's Regional Director for Member and External Relations, and Airport, Passenger, Cargo and Security, Asia Pacific, Vinoop Goel, said.

ICAO rules on tourism tax income

A Signatory nation to the Convention on International Civil Aviation (Chicago Convention) and a Contracting State of the International Civil Aviation Organisation (ICAO) is obliged to adhere to:

* Article 15 of the Convention which states that no fees, dues or other charges shall be imposed by any contracting States in respect solely of the right of transit over or entry into or exit from its territory of an aircraft of a contracting State or persons or property thereon.

* Policies on Taxation in the Field of International Air Transport, contained in ICAO Document 86321, states that each Contracting State shall reduce to the fullest practicable extent and make plans to eliminate all forms of taxation on the sale or use of international transport by air, including taxes on gross receipts of operators and taxes levied directly on passengers or shippers.

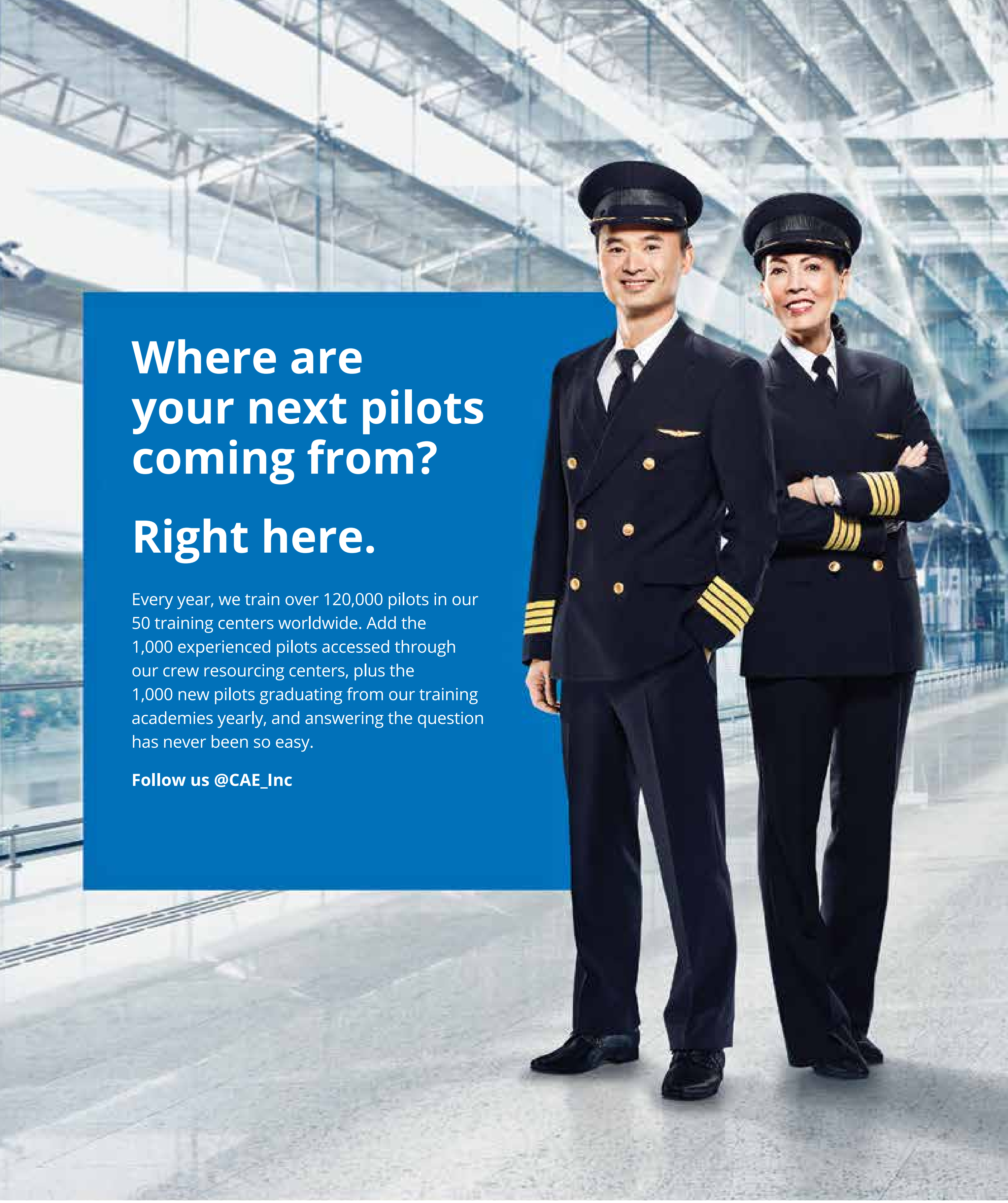
Data compiled by the World Travel and Tourism Council revealed New Zealand's travel and tourism sector contributed 17.5% to the country's GDP and generated more than 580,000 jobs. By 2027, revenue from tourism is forecast to produce 18.2% of GDP and create 712,000 jobs. "The potential increase in GDP and jobs is put at risk by the proposed tourism tax," he said.

ICAO does not support the collection of airline sourced taxes if they are not invested in the airline industry. It is a policy IATA follows. "We strongly oppose any form of tax or fee where the resulting revenue is not reinvested in aviation services or infrastructure. This tax clearly increases general government revenue," the global airline association said.

IATA said if the government did introduce the New Zealand tax, it should take direct responsibility for its collection. "The proposed tax calls for New Zealand citizens and residents to be exempt from the tax. Such exemptions cannot be automated when tickets are purchased. It would be an administrative burden, a cost and a nightmare if airlines had to process the tax manually. The practical approach is for the authorities to collect the tax on arrival or departure so applicable exemptions are granted accurately," IATA said.

Following a reported plan for a tourism tax in Japan, IATA said: "Improved airline services and the availability of attractive air fares to the travelling public have been important factors. By assisting in the development of tourism and foreign trade, airlines can make an important contribution to the local economy.

"As the economic benefits from tourism accrue to the wider economy, levying a discriminatory tourism tax on an enabling sector like aviation is an ineffective and ill-conceived policy choice. Government funding of tourism and tourism-related initiatives should be achieved through less distortionary means such as general government revenue." ■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Records topple as Asian carriers go ultra long haul

By chief correspondent, Tom Ballantyne

When Qantas Group CEO, Alan Joyce, challenged Airbus and Boeing last year to produce an aircraft that could to fly non-stop between Sydney and London, a distance of 16,991 kilometres, it was not a Blue Sky chat -and aircraft manufacturers were listening.

Airlines already are breaching distance barriers with the new crop of twin jets, the Airbus A350 and the Boeing B787. These technologically advanced aircraft will reduce the tyranny of distance for Australasian and Tasman carriers and are forecast to erode the dominance of big hub airports in the region.

Qantas will launch its direct Perth-London flights in March with its new B787-9. It will be a journey that will save passengers three hours and one stop transit procedures. It is expected the nonstop flight of 14,498 kilometres will take 17 hours.

Last October, Singapore Airlines (SIA) launched direct services to San Francisco, a journey of 13,593km that could take between 14.5 hours to 17.5 hours depending on seasonal factors. Cathay Pacific will soon enter the fray with nonstop flights to Washington DC's Dulles International Airport, which will connect Hong Kong to the U.S. capital for the first time. It will be the longest flight in the carrier's network, a 13,122 km route, and will be operated by the airline's

new A350-1000.

Qatar Airways presently holds the record for the longest commercial airline flight, with its 14,535 kilometre Doha-Auckland route. But it is a record that won't last long. Airbus and Boeing are developing new aircraft, to be available in the next five years, which will fly longer distances. SIA intends to use a longer-range version of the A350 to fly nonstop Singapore-New York. It flew the route previously but terminated it in 2013.

The A350 has a maximum range of 15,000 kilometres and the B787 14,140 kilometres. Airbus is working on extending the range of the A350. Boeing's B777X is expected to be able to fly up to 16,110 kilometres nonstop.

Qantas' Joyce has publicly challenged manufacturers to increase the range of the A350 and 777X family of aircraft to complete "the last frontier" of commercial flying by 2022.

In a speech at the Royal Aeronautical Society in London last year, Joyce said both manufacturers had reacted positively to his challenge, but the ability to fly the aircraft on offer with a full commercial load had yet to be achieved.

An aircraft configured with

300 seats would provide Qantas with the highest possible revenue and fleet flexibility, Joyce said. "Aircraft can do it today, both the B777 and the A350, but we believe they can't do it with a full payload," he said. "More work is needed on both aircraft to get there." Earlier last year, Joyce said the airline would evaluate the A350 and 777X for 12 months before issuing a formal tender, with the number of aircraft ordered still to be decided.

Airbus vice president for the Pacific, Iain Grant, appeared to squash industry speculation the European manufacturer may revive the smaller A350-800, which had been put on ice after poor sales. Grant said at a recent media briefing that talks with Qantas were about the A350-900ULR. "We are bringing in our A350-900ULR, which is going to do the Sydney-London mission. We are very comfortable with that and we will continue to work with Qantas to meet their requirements," Grant said.

For Asian hubs such as Hong Kong and Singapore, the increasing number of long-haul flights that overfly their airports is a threat. As a consequence, SIA and Cathay are tapping into new direct markets. Cathay Pacific CEO, Rupert Hogg, said the new service to Washington DC would cater to greater demand for travel to the capital region of the U.S. It also would provide U.S.-based passengers with more convenient access to key destinations in Asia and beyond through the airline's home in Hong Kong.

"Our customers have told us they want greater options and increased flexibility and we have listened. Much like Hong Kong, Washington DC is a vibrant and dynamic destination. We are thrilled to soon be providing the only direct flights between these two great cities," he said.

"Establishing direct air links to destinations not already served from Hong Kong enhances our city's status as Asia's largest international hub and allows us to secure new and important sources of revenue."

It is understood Cathay is looking at other non-stop ultra-long routes, including Miami and Mexico City, destinations from Hong Kong that are not yet in reach.

With its A350-900ULRs beginning to arrive this year, SIA CEO, Goh Choon Phong, said customers had asked the carrier to re-start non-stop U.S. flights and that Airbus was the right aircraft to do it in a commercially viable fashion.

"This is another example of how we strive to meet and exceed our customers' expectations by remaining at the forefront of product and service innovation in our industry. It will further strengthen the Singapore hub by providing the fastest and most convenient air connectivity between North America and Southeast Asia," he said. SIA is the launch customer for the ultra-long-range variant of the A350 aircraft.

The carrier has placed firm orders for 63 A350s. Seven will be upgraded to A350-900ULRs. It has options to purchase 20 more aircraft and four of them will be converted into firm A350-900 orders. This will increase SIA's firm orders for A350s to 67 as of September last year. ■

WINNING WAYS

Structural shifts in both ownership and senior management at Airbus and Boeing herald a consolidation in the aircraft industry that had not been anticipated. Chief correspondent, Tom Ballantyne, reports on the possible impact of Airbus's recent investment in Bombardier, its Emirates A380 deal and Boeing's interest in Embraer.

Only days before his retirement, Airbus chief operating officer customers, John Leahy, and his team signed a deal the manufacturer had been chasing for months – a Memorandum of Understanding (MoU) for 36 more A380s with the aircraft's biggest customer, Emirates Airline.

Soon to retire Leahy had made it plain the program was in jeopardy. He said the company would have "no choice" but to stop producing the plane if it could not work out a deal with Emirates Airline for more A380s.

"Quite honestly, if we can't work out a deal with Emirates, I think there is no choice but to shut down the program," he said. "I am hopeful we will work out a deal [with Emirates] and that others can add airplanes on top of that. "Emirates is probably the only one with the ability in the market place to take a minimum of six [A380s] a year for up eight to 10 years. And we can add some on top of that."

The MoU for the A380s, announced on January 18, is a commitment for 20 A380s with 16 options, at list prices of US$16 billion. Deliveries will commence in 2020.

"This new order underscores Airbus' commitment to produce the A380 at least for another ten years. I am personally convinced more orders will follow Emirates' example and that this great aircraft will be built well into the 2030s," Leahy said at the announcement in Dubai.

During the Dubai Air Show last November, Emirates president, Sir Tim Clark, said an A380 deal with Airbus was "very much down to them. I think the ownership here [at Emirates] is concerned about continuation of the A380".

"They need some copper-plated guarantees that if we buy some more, then the line will be continued for a minimum period of ten years. They are fully aware of the consequences of cancellation and leaving us high and dry."

Elsewhere in the group Airbus has expanded customer choice for its aircraft with a planned majority purchase of Bombardier's C Series jet program. In October, the Toulouse manufacturer announced it would acquire 50.01% of the Canadian commercial jet program, subject to regulatory and government approvals, in a deal that involved zero up-front cash from Airbus and provided it with a multi-billion dollar, ready-to-fly regional jet pretty much for free.

Several thousand miles away, Boeing reacted to Airbus's part acquisition of Bombardier with the news, in late December, that it had approached Embraer about buying into the Brazilian aircraft manufacturer.

It was reported in the week leading to Christmas that the two companies had agreed to terms of sale that valued Embraer at US$28 per share. Clinching the deal, however, could be quite another matter.

> Our goal is a step-change improvement in supply chain management to support Boeing's aspiration to be a global industrial champion. Its design focuses on improving strategy development, procurement processes, contracting and fulfillment operations, in addition to streamlining bureaucracy that impacts on Boeing teams and suppliers. Boeing's supply chain accounts for 65% of the cost of every airplane

Employees at the Embraer's main production campus at Sao Jose dos Campos oppose the Boeing offer out of fear that the purchase would risk the jobs of 16,000 Embraer employees in Brazil.

Embraer was privatized in 1994, but the Brazilian government has retained a Golden Share in the company that gives it a veto over any transaction that would transfer control of the former state-owned business to a new owner.

Brazilian President, Michael Temer, said the government welcomed new investment in Embraer, but would not permit a change in control of the company.

Another issue hindering a Boeing deal is Embraer's strong ties with the country's military establishment. People familiar with the matter said Boeing would have to agree to safeguard Embraer's defence unit. In response, Boeing has said the deals it has written in Australia and Britain show it could operate defense businesses without compromising military strategy.

According to sources, representatives from both companies and Brazil's government are exploring defense protections that would give Boeing full access to Embraer's product lineup.

Boeing also is pledging to retain the Embraer brand and to include the Brazilian company's engineers on programs such as the potential jetliner, known as the "new mid-market airplane".

BNDESpar, the Brazilian state development bank's investment arm, is among Embraer's largest shareholders, with 5.4% in equity. Other investors include state-controlled banks Banco do Brasil SA and Caixa Economica Federal SA.

At the same time, Boeing is planning a major reorganization of its critical supply chain that will consolidate four departments into one supplier management group. Like the restructuring of many components of Airbus's manufacturing divisions, the changes will add up to a new era in commercial jet innovation and production at Boeing.

In Toulouse, a management transition that commenced when Leahy announced last June that he would retire in early 2018, continues. Airbus chief operating officer and president Airbus Commercial Aircraft, Fabrice Bregier, 56, steps down this month. He will be succeeded by Guillaume Faury, previously the chief executive of Airbus Helicopters.

Airbus group chief executive, Tom Enders, 59, has announced he will depart the group at the end of his current contract, in April 2019. Plans to identify a successor to Enders are underway. Former president of civil aerospace at Rolls-Royce, Eric Schulz, has taken over from long-serving Leahy.

In China, the president of Airbus Commercial Aircraft China, Eric Chen, has moved up to chairman of Airbus China following the retirement of Laurence Barron.

George Xu, who was chairman of the board of the Airbus Tianjin A320 Family Final Assembly Line has been appointed chief executive of Airbus China. In his role as country head, he is responsible for all Airbus commercial aircraft activities and for leading the company's helicopter, defence and space businesses on the Mainland.

Enders said in his retirement statement Airbus needed "fresh minds for the 2020s" and that he would use the remainder of his time to ensure a smooth transition to strengthen the company's ethics and compliance programs.

Authorities in Britain and France are investigating alleged fraud and bribery related to Airbus use of outside consultants for commercial aircraft sales, with the company warning that the investigations could lead to "significant penalties". It has promised to stop working with middlemen. Austria is also investigating suspected fraud in the government's purchase of Airbus combat aircraft.

The governments of France and Germany, both with holdings in Airbus, are paying close attention to the management changes and the progress of the legal investigations.

"We obviously need to keep an eye on our strategic interests and (Airbus) governance, which must be exemplary," said French president, Emmanuel Macron. Speaking in Brussels alongside German Chancellor, Angela Merkel, Macron insisted the two governments would not "interfere politically to return to a role in the daily management of the company", but added he wanted the Airbus board to provide clarification about the executive shakeup.

Boeing would not be drawn on details of its supply chain restructuring, but said it would represent a "step-change improvement" to supply chain management. "Just as we work with suppliers to improve their operations, we also are taking action within Boeing to improve performance and efficiency," a company spokesman said.

Amidst all of these changes, the good news is that the market for commercial jets continues to boom. Last month, Airbus announced it had delivered 718 aircraft to 85 customers in 2017, more than 4% higher than the 688 airplanes delivered a year earlier. It received 1,109 net orders from 44 customers, which produced a revised backlog to December 31 of 7,265 aircraft, valued at more than $1 trillion.

Boeing topped Airbus in deliveries for the year with 763 aircraft accepted by customers for the 12 months. It also reported a record order backlog. With the Asia-Pacific market on track to become the biggest growth market for jets, one in every four Boeing aircraft, including one in every three B787s, was delivered to customers in China, Boeing Commercial Airplanes vice president marketing, Randy Tinseth, said.

"It's a market that is underserved by any calculation. We are not talking about a couple of planes, but hundreds of airplanes," he said. China is the largest market for the B787, where 20% of all B787 flights are to, from or around China. Some 40% of Boeing's record 5,864 airplane backlog, which represents about seven years of production, is from Asia-Pacific customers. ■

ETIHAD COMES OUT SWINGING

Last year was not pretty for Etihad Airways, but CEO, Peter Baumgartner, says the carrier's critics should not judge its performance solely on the collapse of two of the group's airline equity partners. Chief correspondent, Tom Ballantyne, reports.

Etihad Airways Swiss-born CEO, Peter Baumgartner, wants to make one point very clear to both detractors and supporters. The collapse of Etihad Aviation Group investments, airberlin and Alitalia, was not the end of the world for the Abu Dhabi headquartered airline group. Nor was its 2016 year $1.87 billion loss, reported in a delayed announcement mid last year, he told Orient Aviation last month.

"There was always a life beyond airberlin and Alitalia. It is important to understand and differentiate. Our financial figures for 2016 were not pretty, but when they are analysed you can see they were primarily driven through impairment that related to structural things that happened," he said.

The huge loss was heavily influenced by one-off impairments that included $1 billion on aircraft and $808 million in exposure to Alitalia and airberlin, "but that was not illustrative of the operational performance of Etihad Airways", he said.

"We had an OK year operationally in 2016, very much impacted with like everyone else in the industry, if not more, by overcapacity, but we weathered the storm quite well relative to our peer group. In 2017, we certainly delivered in line with our expectations and I am very bullish about 2018. That's the reality of Etihad Airways. It should not be blurred by our investment challenges."

Baumgartner joined Etihad in 2005 and took charge of the airline in May 2016 after James Hogan, the architect of the ambitious foreign airlines strategy, moved up to chief executive of the overall Etihad group. Hogan formally departed from the company last year amidst headlines the major Etihad shareholder, the Abu Dhabi government, was unhappy with its airline equity investments and wanted to ditch the entire strategy.

Baumgartner told Orient Aviation he was always troubled when journalists reported Etihad had "pulled the plug" on its strategy of buying equity in other carriers. "With airberlin, we have been very supportive of the airline and of the management over a long period of time, but when there is no hope, at some point you have to take the consequences," he said.

"Alitalia was slightly different. Again, we were ready to support the management and the board and had recommended an approved business plan. In the end, it was down to staff voting against the plan that kind of pulled the plug."

Baumgartner also wants to downplay reports that Etihad was going through a huge strategic review. After almost 15 years since the launch of Etihad in November 2003, he said it was appropriate to go through its five and ten-year business plans to make sure the airline was positioned for the future. Reviewing strategy is not the result of recent events, he said, but a natural and ongoing part of the business.

As for its other investments – in India's Jet Airways, Air Serbia and Virgin Australia – they will be maintained, he said. Virgin Australia has not been making much money, but Baumgartner said it remains extremely important. "Virgin Australia is the feeder of our ultra-long-haul Australian network and is commercially extremely important," he said.

"The comprehensive network we offer

to our customers across Australia is an important part of filling our long-haul capacity. So commercially it is a very important partnership for the airline.

"Jet Airways also is successful. The Indian subcontinent has vast growth potential that has started to deliver very, very strongly. It is an enormous, growing travel market. We are offering, together, with Jet Airways, the most comprehensive network in and out of India.

"It is a strategic opportunity that arrived at the right time for us. It is a highly successful and very carefully managed partnership. We make sure we can take advantage of the full potential on both sides. It's a very happy marriage."

Baumgartner made another point to Orient Aviation. "It is important to understand we have more partners than just our investment or equity partners. We have around 50 code-share partners and many of them involve very tight, close commercial co-operation. They are highly successful and making a major contribution to our revenue. You don't need to have an equity investment to have a well-performing commercial relationship with another airline," he said.

"Equity investment allows you to go beyond certain areas of course, but these partnerships are continuing and our portfolio is expanding in the sense of how closely we work with some of the key airlines in that code-share portfolio. Code-shares are expanded and optimized to our mutual needs. This very successful model is not changing."

Renowned for its service levels and, given its short life, its record as the fastest growing airline in commercial aviation history, its fleet orders are always industry headliners. But now there is a hiatus in fleet acquisitions – and for a reason.

The airline ordered 200 aircraft, worth some $52 billion, with Boeing and Airbus in 2013 to cover its requirements going forward. Today, it has a fleet of 119 aircraft with 172

"In 2017 we certainly delivered in line with our expectations and I am very bullish for 2018. That's the reality of Etihad Airways. It should not be blurred by our investment challenges"

Peter Baumgartner
Etihad Airways CEO

on firm order: 58 B787s, 25 B777s, 62 A350s and 26 A320s.

The operational fleet is made up of A319s, A320s, A321s, A380s, B777-200LR, B777-300ER and B787-9s. Its cargo fleet is five A330-200Fs (stored) and six B777Fs.

Like most airlines, Etihad has been suffering a yield decline. Baumgartner described the last 12 months as "very intense" for the entire industry, but especially in the Gulf, given the economic climate and the contraction of the oil-based economies of the region.

"It had an impact on the traffic mix, especially in 2016 and the first half of 2017. For us, as airlines, as hub carriers, you can compensate declining local demand with flow traffic, but that had an impact on our route economics," he said.

"The so-called point-to-point traffic, or the direct flights between Abu Dhabi and the destination and vice-versa, is the higher yielding traffic. The more content you lose in the mix, the higher the impact on your economics. That was something that certainly put us under pressure along with an accelerating over-capacity situation which we saw."

Airlines everywhere have introduced much more rational and responsible capacity planning, he said. "Capacity growth in 2017 was flat and 2018 is also flat. That will certainly help us get back to a better place in terms of commercial efficiency," he said.

Etihad has experienced a turnaround in yields from mid last year. "It is driven by two factors. Yield is always a function of fare levels and fare levels came down dramatically in past years. The trend accelerated in 2016 because of a stronger than usual over-capacity situation," he said.

"When you have an overcapacity situation, airlines chase market share through price and fare levels go down. What has augmented this is a traffic mix impact. When you have more flow traffic as a percentage of the total traffic that you carry, the local content is missing.

"You compensate that by taking more connecting travelers and connecting travelers come at a lower yield and that leads to a drop in fare levels. But from mid-2017, we saw a very, very encouraging turnaround at Etihad in fare levels. It was market and industry driven."

Elsewhere, Etihad is one of many airlines that must deal with the trend towards ultra long haul routes that can overfly the Gulf hubs. Is it something that concerned Etihad, which relies a great deal on through hub traffic. "Networks are always adjusted in line with the technical capabilities of aircraft, demand and developments of markets," Baumgartner said.

"Ultra long haul flying enabled by the latest aircraft technology is as much an opportunity for us as something that might impact our hub. To be honest, in our part of the world when you look at existing traffic streams and emerging traffic streams, the upside for us as a hub carrier is immense.

"When you look at South America, Southeast Asia, the Asia-Pacific, China, Africa, the Indian sub-continent, every year there are millions of citizens who reach the disposable income threshold that allows them to travel. There is enormous growth potential right at our doorstep, all crossing

Fragmenting American partnership "sad"

A persistent and major irritant for Etihad are the attacks by the "Big Three" U.S. carriers on Gulf carrier funding sources. American Airlines, Delta Air Lines and United Airlines have jointly alleged the Middle East carriers are heavily subsidized and should therefore have their access to the U.S. curtailed.

The sustained U.S. campaign recently resulted in American's cancellatin of its long-established code share agreement with Etihad.

"This is a situation that makes me a bit sad because we had established a highly successful commercial relationship with American over many years. A lot of time and effort was put in to reach a stage where we could use each other's networks to provide very meaningful incremental revenue contributions," he said.

"American's decision was politically driven and certainly did not have any commercial rationale. It is indeed sad that this feud had to reach a level such as this. We are foregoing a commercial relationship that not only boosts the airlines, but also the people, the catchment area and businesses in an economy such as Dallas."

Etihad is withdrawing its flights to Dallas in March. Baumgartner said the route was unsustainable without the code-share. He believed American's argument that pulling out of the code share was good for American jobs and the American economy did not make sense. "I think it is exactly the opposite," he said.

Etihad points to independent research by Oxford Economics that showed Etihad contributed $3.8 billion to the U.S. economy, supported more than 30,000 American jobs and brought 280,000 additional visitors to the U.S. in 2016. These visitors, who travelled from growing markets historically ignored by U.S. carriers and partners, contributed a further $1.9 billion to the U.S. economy and supported an additional 22,000 American jobs. "The support that we see right across major American companies and institutions, partners, aviation players and airlines in support of Open Skies is encouraging. I truly hope we can quickly find a solution to the dispute because further loss of commercial value that has been established is certainly not good for anyone." He said it shouldn't be forgotten that Middle Eastern airlines buy Boeing aircraft and other aviation related goods from U.S. companies. "Such as Sabre, with whom we have a major technology deal, or B/E Aerospace who produce a lot of our on-board material. So, again, I hope this feud can be concluded to the benefit of everybody participating in aviation and bilateral relations as quickly as possible because the risk is there that further value gets destroyed," Baumgartner said.


EMBRAER
CHALLENGE.
CREATE.
OUTPERFORM.
PROFIT
HUNTERS
LOVE2
The E2 lands
in Singapore
• The most efficient
single-aisle aircraft
• No middle seat means unrivalled
passenger space and comfort
• On time, on budget,
better than original spec.
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over our part of the world."

The Etihad CEO added the carrier's presence in the Asia-Pacific was an essential part of that. "Many of the world's emerging traffic streams have originated in the Asia-Pacific and of course you want to be an important player. Our hub geographically is ideally positioned to serve that market and we have good coverage today," he said.

He was not ready to reveal new network plans but said expansion in the region is on the cards. "It is something very much on our radar. We certainly always will have a big foot in the door," he said.

Baumgartner further explained: "From route economics and network economics perspectives, reasonable point-to-point content relative to flow traffic is critical. It links directly to our commitment to make a very direct contribution to Abu Dhabi's economic opportunities and tourism. We want to bring people to our destination from destinations around the world," he said.

"That is a huge focus for us. We want to be a strong player in emerging flow traffic opportunities but again in a very, very balanced way so that at all times we have an economically sensible traffic mix. This is not about becoming the biggest business, it's about becoming the optimal airline in support of Abu Dhabi's vision."

Also high on the list of the carrier's priorities is new technology. Baumgartner said technology disruption is happening in the product development distribution space and that "for too long the aviation industry has had three basic products in the shop: First, Business, Economy and maybe a little bit of Premium Economy. That's not good enough to serve a global audience with individual requirements", he said.

"As an industry we struggle to cope with changing and emerging requirements, but also with differentiating requirements across an audience by using legacy technology. New technology really helps us to step up to the game. Human behavior and human expectations have changed. We have to customize products and develop the ability to get closer and closer to customers in a travelling sense," he said.

"After gaining a reputation as an innovator when it comes to hard product, when it comes to seat product, when it comes to lounges, when it comes to services like chefs and nannies on board, our focus has shifted towards technology. A lot of that influences the way we can deliver product and services in a more efficient way and also in a more cost efficient way for our business. That is a major, major focus for us."

Baumgartner said: "There is a lot you can expect from us when it comes to empowering a customer. It's being able to bundle a product that is truly customized and personalized for each traveler's individual requirements." ■

Adapting to customer expectations

Swiss-born Peter Baumgartner was appointed Chief Executive Officer of Etihad Airways in May 2016. He has overall responsibility for the airline's strategic and operational functions of global sales, marketing, guest experience, network and revenue management, Etihad Cargo, digital strategy and innovation, flight and airport operations, corporate and aviation security and national pilot development. He leads a staff of more than 14,000 employees in 121 countries.

Before his appointment as Etihad CEO, he was the carrier's chief commercial officer for nine years. He was the guiding force behind the airline's award-winning brand and customer strategy, including its loyalty programme, Etihad Guest, which has redefined traditional customer service and relationship management with its emphasis on intuitively understanding and fulfilling customer expectations.

Baumgartner has held a number of senior roles in Swiss and Belgian aviation where he specialized in marketing communications, strategic sales planning and development and customer relationship management.

Restoring glamour to the cockpit

Efforts to produce sufficient numbers of pilots to crew the fast expanding global airline fleet are being prioritized by the International Civil Aviation Organization (ICAO), reports chief correspondent, Tom Ballantyne.

As warnings increase about future cockpit crew shortages, the secretary general of the International Civil Aviation Organization (ICAO), Dr. Fang Liu, said the organization would support efforts to recruit "the best and brightest" candidates to crew and maintain the world's airline fleet.

Speaking at the recent ICAO inaugural Next Generation of Aviation Professionals (NGAP) Global Summit in Montreal, which was attended by more than 500 education and air transport leaders, the ICAO leader said: "By 2036, some 620,000 pilots will be needed across our global network and no less than 80% of these aviators will be new pilots not flying today." she said.

"A similar story is playing out with air traffic controllers, cabin crew, maintenance personnel and other skilled technicians." She called for new global civil aviation, education and research partnerships to develop solutions "to global aviation challenges".

ICAO's Liu said modern aircraft carry more than half of the 1.4 billion tourists who travel across international borders each year, a contribution that has established air transport as a veritable economic lifeline for many cities, states and regions.

The ICAO Secretary General wants to develop partnerships between ICAO and education and research institutions that "begin instilling greater aviation awareness at high school and among younger students, especially in young girls".

Young graduates attracted to aviation in the past now see other careers such as Information technology (IT) as more attractive, especially in terms of salaries, she said. ICAO said the Asia-Pacific alone would need 230,000 pilots by 2030, with a particular requirement for narrow body cockpit crew.

It is forecast that the single aisle aircraft fleet will make up 65% of all airliners flying within the next decade. On average, an airline requires 10 pilots per regional aircraft, 11 pilots per narrow body and 16 for every wide body flying in their fleets.

Boeing has calculated that the global industry will need 637,000 new pilots in the next two decades, or 80 new pilots a day in an industry valued at $15 billion. Global simulator manufacturer and flight training company, Canada's CAE, said the industry would require 90,000 new pilots by 2027 before expanding at an accelerated rate in the next decade.

The ICAO push for standardized high quality training to increase pilot output comes at a time when several carriers in emerging markets are struggling to fully man their fleets. In Vietnam, one of the region's fastest growing aviation markets, Jetstar Pacific chief operating officer, Leslie Stephens, said the pilot shortage "is probably the most limiting growth factor we are all going to see moving forward".

The budget subsidiary of Vietnam Airlines and Qantas can second pilots from its parent carriers to fill gaps in cockpit rosters, but it still has to counter crew poaching by other carriers, including local rival, privately-owned LCC, VietJet.

Vietnam Airlines, which has a goal of a total cockpit crew made up of 80% Vietnamese

Attracting millenials from tech firms

- Greater regional investment in pilot training infrastructure so more domestic talent can be developed
- Technologically advanced courses to reduce time in graduating cadet pilots
- Attracting more women to commercial aircraft flying

nationals had only achieved a 49% presence by year end 2017. "That's how difficult it is to get Vietnamese pilots," said Stephens.

South Korean airlines have lost dozens of pilots to Chinese carriers that offer more money and benefits than South Korean airlines. The average salary of a Korean Air (KAL) pilot is one third of a senior Chinese airline pilot. In 2016, after a protracted dispute, 140 pilots resigned from KAL. Chinese carriers recruited 40 of them.

Garuda Indonesia has cancelled flights because it cannot fully man its flight roster. So have many airlines on the Mainland and in Thailand and India. In the Middle East, where airlines have long been accused of poaching pilots from rival carriers with very generous salary packages, the Gulf carriers are suffering from their own medicine as pilots depart for even better paid positions elsewhere.

Analysts forecast Chinese airlines will need to hire almost 100 pilots a week for the next 20 years to meet demand. To keep pace with growth, many Mainland airlines are dangling lucrative pay packages before experienced foreign pilots.

Startup carriers barely known outside China are paying about 50% more to their cockpit crews than many senior captains earn at major U.S. and European airlines. They have given recruiters from the U.S. to New Zealand financial carte blanche to find them well qualified cockpit crew.

Pilot union officials in Australia have reported Chinese airlines are offering the country's domestic pilots salaries Australian carriers cannot match. Australian and International Pilot Association president, Capt. Murray Butt, said B737 training captains can earn upwards of US$600,000 a year in China. "That is going to be difficult for even the major Australian airlines to cope with," he said.

Global advertisements for B737 captains to fly Chinese domestic carriers are offering starting salaries of $400,000 per year. B737 captains flying with Qantas earn about $235,000. Captains flying the same aircraft type at Virgin Australia, and Tigerair and Jetstar, receive $180,000 and $157,000 per annum, respectively.

Foreign pilots flying B737s on the Mainland are said to receive annual salaries of approximately $325,000 at Suprana Airlines, $314,000 at Xiamen Airlines and $295,000 at Fuzhou Airlines.

At the opposite end of the training spectrum, flight schools and academies across the region have been graduating increasing numbers of young commercial pilots.

There are multiple reasons for the gaps in supply of pilots to airlines, but in 2018, two main factors contributing to healthy pilot demand are: large numbers of baby boomer pilots are approaching retirement age, usually at 65. Their departure from the industry will leave a big hole in the pool of experienced senior pilots, training captains and flight instructors at many airlines.

Secondly, if a cadet does not win a place in a funded airline training program, he or she must pay from US$75,000 to US$140,000 a year for the 24-month course that prepares a trainee for commercial airline flying. For the self-funded cadet, the cost of training can takes years to repay especially as starting salaries at airlines are often low. As a result, the industry loses potential pilots to other professions because they pay better.

Industry analysts said flying has lost its glamour to Google, Apple and tech companies and that the industry must market itself to the young generation if it wants to ensure it has enough qualified pilots to fly its expanded Asia-Pacific and global fleet. ■

Alsim sells first flight training device in China

French flight training company, Alsim, has sold its first AL42 Flight and Navigationn Procedures Trainer (FNPT) to new Mainland flight training company, AXAviation, in Wuhu Anhui province. Anhui AXAviation Tech. Co. Ltd was established in April 2016 as a private limited company with the aims of manufacturing flight simulators for the global market and also to offer pilot training courses.

Drones the cargo carriers of the future

There is a silver lining to the increasing numbers of unmanned aerial vehicles flying the world's skies, argues the International Air Transport Association (IATA). Chief correspondent, Tom Ballantyne, reports.

Imagine a time when a Singapore Airlines (SIA) freighter lands at Changi airport with a valuable cargo payload. Rather than offloading the goods to trucks for delivery to customers, instead they are transferred to a purpose-built, pilotless drone owned by the airline and flown directly to waiting customers. The process is not only faster but cheaper than using road transport.

The International Air Transport Association's (IATA) head of cargo transformation, Celine Hourcade, said such a concept is fast approaching reality – possibly within the next five years – and was waiting for airlines to grasp the opportunities drone technology offered to the industry.

Using Unmanned Aerial Vehicles (UAV), or drones, for fast delivery of freight from customer to cargo terminal and from cargo terminal to customer made sense, she said.

Does she see airlines and their cargo divisions having their own drone operations? "Yes, I do," said Hourcade. "It will be their decision individually to take it or not. It is a new type of aircraft they can integrate into their fleets. So, they could decide to go the last mile.

"They could also add bigger drones to serve new routes or thin routes that are too small to operate traditional aircraft or don't require the same runway or the same infrastructure as bigger planes. It's an opportunity for airlines to expand their reach."

The use of drones is hardly new in aviation, but the notion that airlines could get into the business with the encouragement of their global representative association is a revelation.

Hourcade pointed out companies trialing drones are everywhere. They include shippers and e-commerce vendors such as Walmart, Amazon and China's Alibaba, integrators like DHL and UPS as well as postal operators in Singapore, Australia, France, Switzerland, Spain, Ukraine and Germany. The big aircraft manufacturers, Airbus and Boeing, are working on unmanned aircraft projects.

Small drones are merely the beginnings of this breakthrough technology. A U.S. company has announced plans for an amphibious pilotless aircraft, about the size of a Boeing 777, that could carry almost 100 kilogrammes of cargo.

Headquartered in Richmond, California, Natilus has raised $750,000 from venture capitalist, Tim Draper, to develop its product but needs additional investment to bring the project to fruition. Natilus chief executive, Aleksey Matyushev, said the drone would be powered by turbofan engines and standard jet fuel on missions at an altitude of approximately 20,000 feet, well below

> "We believe the use of drones for the transport of goods brings unique opportunities for our member airlines. They offer opportunities for existing players and for new players. This is a not to be missed opportunity for our member airlines to capture new markets, open new routes, reduce costs, increase speed and increase revenues"

Celine Hourcade
International Air Transport Association (IATA) head of cargo transformation

commercial aircraft altitudes but high enough to be fuel-efficient.

Matyusheve said journeys across oceans would be approximately 50% cheaper than commercial air freight transport runs.

Commercial drone business development required standardized global operating standards, IATA said. An air traffic management system also needs to be developed to integrate drone operations into the existing global ATM structure.

"Our goal is to facilitate this new branch of aviation by writing standards to support safe, efficient, orderly, reliable and sustainable drone operations into the airspace system," said IATA's director of ATM infrastructure, Rob Eagles.

IATA is focused on three areas: Safety, ATM – UTM (Unmanned Aircraft System Traffic Management). The association has produced videos, including one in partnership with Airbus and UPS, to argue for relevant regulation for the sector.

"If UAS operate in existing airspace structure we need to ensure they do so safely," Eagles said. "To do this, we need rules and regulations, especially for international operations. This work is on-going within ICAO.

"Additionally, new airspace areas need to be defined, in particular below 500 feet and above 60,000 feet."

Eagles said IATA is actively engaged in the development of remote pilot training, licensing and medical requirements to ensure non-segregated airspace is not compromised.

Carrying cargo is not the only opportunity drones offer airlines, said Hourcade. Eighty per cent of aircraft inspections are conducted visually during planned maintenance checks or after unscheduled events such as lightning strikes.

"Every inspection requires qualified staff, using cherry-pickers, elevators and other heavy equipment, to locate and log defects on an aircraft. Typical inspections last six to ten hours and cost carriers $10,000 for every hour the aircraft is grounded," she said.

"Automated drones could make the inspection 20 times faster, reduce aircraft downtime, enhance inspectors' productivity and guarantee traceability."

Alibaba tests unmanned aerial vehicle package deliveries

Last November, Alibaba used drones to deliver packages over water for the first time. Three unmanned aerial vehicles (UAVs) carried six boxes of passion fruit, at a weight of 12 kilograms, from Putian in China's eastern Fujian Province to nearby Meizhou Island.

Flying into a strong wind, the boxes took nine minutes to make the five kilometre crossing. The drones were jointly developed by Alibaba's delivery arm, Cainiao Network, the company's rural shopping platform, Rural Taobao, and a Mainland technology company. The drone delivery service cut the transportation time by half and reduced charges.

Digital warehouse for Lufthansa Technik Logistik Services

Wholly owned **Lufthansa Technik** subsidiary, **Lufthansa Technik Logistik Services (LTLS)**, is automating, digitalizing and inter-connecting all its fundamental processes using The Internet of Things technology in its first digital warehouse at Munich airport.

"We are testing and starting to implement digital assistance systems, localization technologies and driverless transport systems in selected areas of activity. We co-operate with specific start-ups. For example, we are introducing the smart glove data of **Proglove** as well as the automated vehicle of **Agilox**," **LTLS head of digital innovation, Dr. Harald Kolbe**, said.

Core logistics processes are also planned by the group for Frankfurt and Hamburg, with the ultimate goal of digitalizing all of LTLS locations. Lufthansa Technik has 35 subsidiaries and affiliates. It is certified internationally as a maintenance, production and design organization and has a workforce of 25,000 worldwide. ■

Hong Kong Airlines buys into SIA Engineering joint venture

Hong Kong Airlines has joined **Malaysia Airlines** (23.53%), **Garuda Indonesia** (17.65%), **Royal Brunei** (11.76%) and **SIA Engineering Company Ltd** (47.06%) as a shareholder in **Pan Asia Pacific Aviation Services (PAPAS)**. Under the agreement, the HNA-controlled carrier could acquire a holding of up 30% in PAPAS in two tranches of new shares, subject to the approval of PAPAS shareholders and the relevant regulatory bodies.

Mainboard listed SIA Engineering Company Ltd (SIAEC) said Hong Kong Airlines will invest US$2.8 million for a 15% share in PAPAS through a subscription of new shares. Subject to certain conditions the carrier will have the right to increase its stake to 30%, at an estimated investment of up to $4.31 million. SIAEC's holding in PAPAS will be reduced to 40% after the first share issue to Hong Kong Airlines. ■

ADB Safegate to upgrade Incheon Seoul operations

The **Incheon International Airport Corporation (IIAC)** has signed a contract with global provider of intelligent airport solutions, **ADB SAFEGATE**, to provide upgraded docking and management systems at Seoul Airport's Terminal 1.

The IIAC will replace the present parking system with ADB SAFEGATE's Safedock Type 1 Advanced Visual Docking Guidance System (A-VDGS). The installation also includes expansion of ADB SAFEGATE'ds control and monitoring system, already installed at Terminal 2, to enable integration with several external systems. The simplification of the systems will allow the airport to integrate gate and apron operation at both terminals into one system.

Seoul Incheon airport accounts for more than 42% of passenger traffic in South Korea and is the country's busiest airport. ■

AAR announces partnership with inflight's Viasat

Global aftermarket solutions company, U.S. headquartered **AAR**, will provide inflight connectivity logistics, repair and aftermarket management services to global communications company, **Viasat**. AAR's OEM division will manage Viasat's inventory pool that includes, antennas, radomes, wireless access points (WAP) and power supply units, said AAR OEM aftermarket president and general manager, Darren Spiegel.

AAR employs more than 5,000 people

in 20 countries. Based in Wood Dale Illinois, It supports commercial aviation customers in more than 100 countries. It provides inventory management, OEM parts distribution, aircraft MRO and component repairs. ■

China grants SR Technics Malaysia air worthiness certificate

The Malaysian operations of global MRO, **SR Technics** recently received its air worthiness certificate from the **Civil Aviation Authority of China (CAAC)**. The certification permits SR Technics Malaysia to certify components for new and existing airline customers on the Mainland.

"We are very excited about the new certification for our component repair facility in Malaysia, which will strengthen our position in the Asia-Pacific market," **SR Technics Malaysia managing director, Thomas Kennedy** said.

Opened in 2014, the SR Technics Malaysia facility has a component service centre for testing, repair, overhaul and modification of aircraft and engine components designed to service customers across the region.

SR Technics also has announced a partnership with 3D scanner manufacturer, **8tree**, that will introduce the U.S. company's dentCHECK solution to the global MRO's operations in Switzerland and Malta. The handheld wireless 3D scanner analyses the surfaces of metallic aero-structures and composite cabinet flooring, which will reduce inspection and reporting times on aircraft undergoing MRO.

"SR Technic's adoption of dentCHECK is a strong validation of 8tree's rigorous design philosophy to create powerful, intuitive one-button inspection tools for the aviation maintenance industry. This design approach allows us to empower users of all skill levels with 'go/no-go' answers, not just data," **8tree CEO, Arun Chhabra**, said. ■

Resource Group UK expands Gulf training plans

The UAE General Civil Aviation Authority (GCAA) has awarded British aviation technical training Company, **Resource Group**, approval to perform aviation maintenance basic training and knowledge examinations for both fixed wing and rotary aircraft.

"We have strong and enduring relationships with the United Arab Emirates through our other divisions. I am delighted to add the training business capability to our regional offering. In the coming months, we will be talking to interested parties to discuss how we can firmly establish ourselves as a key contributor to skills development in the region," said the company's **training solutions managing director, Ian Fitzpatrick**. Set up in 2003, the Resource Group offers courses from basic to advanced level in aircraft engineering maintenance. ■

*Global technology provider to the airline industry, **Sabre**, has announced a renewed distribution partnership with South Korea's largest low-cost carrier, **Jeju Air**. The new contract will allow travel agents connected to the **Sabre Travel Network** to have access to air content from Jeju Air that will provide customers with a wider range of travel options and also increase revenue at the airline.* ■

LEASING

China owned lessor, CDB Aviation, reports robust 2017

CDB leasing, headquartered in Dublin, but 100% owned by the Mainland's **China Development Bank**, said it executed 162 aircraft transactions for the 12 months to December 31, last year, which were the lessor's best operational results to date.

"Throughout this past year, the CDB Aviation team achieved several major milestones on our path to building a best-in-class global aircraft lessor, " **CDB Aviation president and CEO, Peter Chang**, said last month.

Operational results included:

** 38 new aircraft delivered to 15 airlines in nine countries*

** Nineteen aircraft sold*

** Orders placed for 45 A320neo family aircraft, 52B737 MAX and eight B787s*

** Completed irrevocably guaranteed US$43 billion medium-term note program, under which $800 million was drawn down*

At year-end 2017, CDB Aviation had a fleet of 215 owned and managed aircraft on operating or finance leases and 184 orders for aircraft from Airbus and Boeing. It was listed on the Hong Kong Stock exchange in July 2016. ■


MTU Maintenance
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Top of Asia's aerospa

Singapore is strengthening its position as the industry innovation hub for the region. More and more global aerospace manufacturers are establishing research centres in the Lion City with the goal of developing technology that will propel the airline industry into the digital age. Dominic Lalk reports.

By pumping investment into the region like no other nation in the region, Singapore has become the unchallenged centre for aerospace innovation. Encouraged by a committed government and sustained investment programs, engineers and IT workers from global OEMs to local start-ups are focusing on reinventing airline operations for the new digital world.

There are more than 130 aerospace companies based in Singapore, but there also is a growing presence of communications and space companies from leaders such as SES and Inmarsat to space start-ups like Astroscale.

To demonstrate the importance Singapore attaches to its aerospace innovators, its Economic Development Board (EDB) reaffirmed its commitment to the industry in January with the launch of the Aerospace Industry Transformation Map (ITM). The ITM will pursue operational excellence, drive innovation in emerging technologies and equip Singaporeans with the relevant skills for future space age development.

As part of its expansion in the engineering sector, Singapore wants companies to invest in advanced automation equipment, software and engineering capabilities to upgrade existing products and manufacture next generation aircraft components.

At the same time, the city's government will support new degree programs at local educational institutions and promote up skilling for aviation professionals. EDB said the ITM would boost the aerospace industry by US$3.05 billion and would create 1,000 jobs by 2020, after an average annual growth of 8.6% over the past two decades.

The future will undoubtedly be digital. As Asia-Pacific passenger traffic continues to fuel global aviation, the ability to capture, analyse and act on data will make or break companies in unpredictable markets.

OEMs like Airbus, Boeing, Rolls-Royce and Honeywell are making this future a reality and establishing multi-million bases in Singapore to ensure long-term success. The city intends to continue to develop its manpower skills and infrastructure to support growth in manufacturing, MRO and related aftermarket services.

Such a policy commitment has resulted in Singaporean maintenance, repair and overhaul (MRO) industry winning 10% of global MRO output. "Strong growth in the Asia-Pacific

Rolls-Royce launches IntelligentEngine

Rolls-Royce has the largest presence in Singapore's aerospace industry. The UK-headquartered manufacturer produces up 15% of Singapore's aerospace output. On the back of manufacturing and R&D capabilities, it also provides large commercial engines for customers such as Singapore Airlines, Qantas and Cathay Pacific. It has also forged joint ventures with local partners like Singapore Airlines Engineering Company to repair and overhaul engines.

A Rolls-Royce spokesman told Orient Aviation the group's strong commitment to Singapore will be shown by the unveiling its IntelligentEngine at the Singapore Air Show.

The IntelligentEngine is what you get when three circles—the product, the service and the digital—come together," Rolls-Royce head of marketing, Richard Goodhead, told Orient Aviation. "We're not talking about one specific engine type or a particular part of our CareStore. This is much more than that. It's our vision of how we can work with our customers to provide power differently. It will drive all our behaviours, our decisions, our investments," Goodhead said.

The IntelligentEngine combines analysis of digital data from the engines with those of customers and partners, and each feed links together the manufacturer, the technicians who service it and its engine peers. Goodhead believes this pooling of data will remove the distinction between their physical goods and maintenance

ce league

presents opportunities across the value chain in manufacturing, MRO and aftermarket industry segments. Aerospace companies will need to broaden their Asian footprint and innovate to address these new market needs," said Singapore's minister for trade and industry, S. Iswaran.

These opportunities are being seized by the home-grown Singapore Aerospace Manufacturing (SAM). Between manufacturing automation and better software, the aircraft components manufacturer expects productivity gains of up to 30% in the next decade.

Labour-saving automation and anaytics can be a great equaliser for firms regardless of size. Anchored by home-grown enterprises and MNC partners, Singaporean aerospace firms offer comprehensive nose-to-tail services, and the ITM has identified several ground support automation projects in the works.

Singapore Airlines Engineering Company (SIAEC) has begun deploying a one-man remote-controlled aircraft pushback air tug, to allow a pushback operation on narrow body aircraft to be done by one person instead of the current requirement of two.

The Automated Passenger Loading Bridge (PLB) will use precision lasers and cameras, to guide the docking process safely and autonomously. Under development by ST Dynamics, the advanced engineering centre of ST Engineering, it is the world's first system to be designed for robust operations under harsh weather conditions like heavy rain. If aerobridge tests prove successful this year, ST will extend the technology to other vehicles like catering trucks and pave the way towards a seamless, efficient and autonomous apron.

As the world's largest third-party MRO provider, ST Aerospace plans to bring data-driven decision-making to its clients as well as its own internal processes. Its digital and productivity transformation initiative, Smart MRO, will offer customized predictive maintenance, drones for aircraft inspection and additive manufacturing for spare parts, all in the name of better cost efficiency and turnaround time. ■

service and that digital will now underpin everything they do.

"We think we are on the brink of a closing together of the three essential circles so that we get huge complements of product and service, supercharged by bundling digital technology. The big difference now is that we are contextually aware. As well as knowing what is going on inside the engine, we know where the engine is and what it's been through, what is happening to it, how it's being operated," he said.

Said Goodhead: "We see this as a pivotal change, similar to our first aero engine, when we did the first turbine engine or when we did the first supersonic engine." ■

Hangar in the cloud

Airbus and Boeing have launched several important projects to showcase different approaches to intelligent systems solutions. At the Singapore Air Show, Airbus will be highlighting "The Hangar of the Future", a joint project with Temasek Polytechnic University that is supported by the EDB and led by a Singapore team under Cyrille Schwob, Airbus Singapore's head of research and technology development Asia-Pacific.

By essentially digitalising and rebooting the MRO business with data on systems, an aircraft's status is analysed before the aircraft arrives at the MRO facility, "The Hangar of the Future" uses drones to run initial structural inspection, followed by autonomous intelligent systems and laser technology for closer non-destructive inspection. A data management system collects the information and assigns tasks to teams via mobile devices with paperless manuals. 3D printers will also manufacture some spare parts on the spot.

"The mechanic receives the information needed to carry out the required maintenance task on his tablet instead of running from one place to the other as is the case today," Schwob told Orient Aviation. "The required full kit, including tools, parts, technical documentation and processes to follow, alrady will be gathered for him."

Airbus believes some of the most impactful innovations lie in virtual, augmented and mixed reality (VR, AR and MR).François Guillaume, Hangar of the Future's technical lead, describes AR and VR as the perfect technologies to build a bridge between physical products and the digital world. In the case of a technical emergency diversion to a remote location in Siberia, for example, AR would be a crucial way to guide technicians through an atypical repair.

"Maintaining an aircraft does not usually happen in a nice office

with air-con and good light. You have time pressure, it's dark, it's raining and the operators themselves are trained on different aircraft. There are a lot of constraints," Guillaume said.

Automated non-destructive testing, such as an inspection scan of the aircraft when it enters the hangar, will allow experts to concentrate on defect analysis and classification instead of searching for data. RFID tags will identify and track tools and parts.

The Internet of Things implementation will be interfaced with the supervision module in a control room to help operators and customers follow activities performed on the aircraft and anticipate modifications. Drones and robots such as Airbus' Air-Cobot robot will obtain specific information, previously unattainable, such as aircraft structure, flight hours and issues accumulated over time.

"The whole challenge in 'The Hangar of the Future' project is building digital continuity between individual entities and technologies, so they seamlessly work together and talk to each other," Schwob said.

"This is where Airbus brings value, acting as an all-time integrator of complex pieces, adding contextual 'airplane manufacturer information' and giving a global vision to a fragmented environment. It is about going from a task-after-task philosophy to a complete end-to-end, optimised process."

Such innovation loops neatly with Skywise, Airbus' open-data integration and advanced analytics platform, which was launched in collaboration with Palantir Technologies last year. Airbus will be announcing new Skywise adopters at the Singapore Air Show after it launched the project with several airlines, including AirAsia, Emirates Airlines, Hong Kong Airlines and Peach Aviation, last year.

Skywise wants to be the single platform of reference for every major airline to improve their operational performance and business results and to support their own digital transformation. It gives users a single access point to enriched data by aggregating sources into one cloud platform, including airline data such as spares consumption; components data; aircraft/fleet configuration; on-board sensor data; and flight schedules.

Other data traditionally shared with Airbus on isolated servers will migrate there to help airlines analyse and make decisions based on on-board aircraft data; post-flight, pilot and aircraft condition monitoring reports, operational interruption history, parts replacements, service bulletins and technical documentation and requests.

Skywise promises to improve fleet operational reliability by predictive and preventative maintenance, rapid root-cause analyses of in-service issues,optimising each aircraft's performance from flight operations data analytics, one-click reporting workflows, including complex reporting to regulatory bodies. In a nutshell, Schwob said, Skywise will enable "a collective upgrade in competences for the whole aviation ecosystem". ■

Boeing's AnalytX solution

Like its European rival, Boeing is betting on Singapore's hub status. Its Training & Professional Services Singapore Campus is the largest Boeing campus in Asia and offers seven full-flight simulators and four flight training devices, including the first B737 MAX simulator in the Asia-Pacific.

It also operates Boeing Asia-Pacific Aviation Services (BAPAS) as a joint venture with SIA Engineering Company (SIAEC) to provide engineering, repair and maintenance services for Boeing airplanes. Boeing's Jeppesen office in Singapore delivers and implements digital solutions for airlines in this region.

Boeing has rolled out its own data analytics platform, AnalytX. The American manufacturer told Orient Aviation it was "very excited to launch this capability for customers in the coming months" and had hopes to sign up more airline customers to the platform at the Singapore Air Show.

Unlike Airbus' Skywise, Boeing retains a proprietary solution and does not agree with multi-platform data sharing. "Airline data contained in Boeing AnalytX data platforms or applications are available to the airline and Boeing under agreement. The airline can decide if they wish to share it with other organizations. It may be that Airbus' Skywise made data sharing between participants mandatory.. Boeing does not. We leave it up to each airline," Boeing Global Services vice president commercial services, Mike Fleming, told Orient Aviation.

Launched in June, AnalytX is intended to make it easier for airlines to slash fuel costs, perform predictive maintenance, build smarter flight plans and crew schedules and minimize unpredictable disruptions.

In 2017, Boeing announced more than 230 AnalytX orders, including commitments for the platform from Asia-Pacific carriers, All Nippon Airways, Biman Bangladesh Airlines, China Airlines, Korean Air and Qantas Airways. This year, AnalytX is gradually becoming embedded in the group's existing services applications, products under development and its own operations.

The information systems add to Boeing's existing portfolio of

flight and technical analytics-powered applications and an analytics consulting service that provides end-to-end solutions for carriers.

In December 2017, Boeing announced a new analytics offering, the Self-Service Analytics Cloud Platform, for its digital applications subscribers like Airplane Health Management, Fuel Dashboard, Flight Planning and the In-Service Data Program. Customers can access data from Boeing app through new analytics tools to get new insights for better efficiency and performance.

"This new connectivity and advanced analytics could mean significant savings for airlines. We estimate they can save between 2%-2.5% of total global operating costs, which translates to between US$5 million to $6 billion annually," said Oliver Wyman consultancy partner, Sebastien Maire. ■

Honeywell's Connected Aircraft

Making data available to pilots as well as operators and manufacturers helps improve their overall situational awareness, safety and efficiency in the face of busy traffic and inclement weather. "There is an incredible amount of growth opportunities for ASEAN to boost its economy through a booming aviation industry as it strives to facilitate a more integrated airspace among the member countries," Vice President, Airlines, Asia Pacific, Honeywell Aerospace & Aerospace Leader, Honeywell International Sdn Bhd, Brian Davis, told Orient Aviation.

The Honeywell Connected Aircraft aspires to cover every aspect of connectivity for cockpit and cabin within one data pipe, with services under the GoDirect product line in flight planning, maintenance and equipment protection plans. "This app-based approach enables operators and pilots to access real-time data, thereby increasing efficiency and productivity," Davis said.

Maintenance is a key service offering where Honeywell offers tangible cost savings through analytics. In 2017, Cathay Pacific and Hainan Airlines signed up for the GoDirect Connected Maintenance APU service, which combines connectivity, product knowledge and data analytics to predict when mechanical parts need to be fixed or replaced. Cathay's trial reduced inoperative systems by up to 35%, saved several hundred thousand dollars in operational and reactive maintenance costs per aircraft and reduced APU-related delay minutes by 51%.

Honeywell will outfit more than 60 of Cathay's and Cathay Dragon's A330s with GoDirect Connected Maintenance and the Hong Kong airline group is considering extending the service to its fleet of B777s. Hainan Airlines' current fleet of more than 50 Airbus A330s and its future fleet of more than 40 A330s will also be outfitted with the service.

"During the Singapore Airshow, we will be announcing a number of large and important contract wins involving our APU and maintenance services with major premium and low-cost carriers in ASEAN," said Davis.

Honeywell's JetWave satellite communications hardware, which operates on Inmarsat's Global Xpress Ka-band network, has also been selected by Singapore Airlines, Qatar Airways, Vietnam Airlines, Sri Lankan Airlines, Air New Zealand and Air Astana. ■

Boeing AnalytX at work

A B777 departed from the U.S. interior bound for its European hub. Less than an hour into its nine-hour flight, the airplane sent an Airplane Health Management (AHM) alert to its maintenance control centre indicating low tire pressure, a potentially serious issue which can result in tire failure upon landing and damage to the flaps to the tune of a million dollars.

Maintenance control used AHM tire pressure reporting to validate the alert. The flight crew was diverted to a maintenance base that was given notice, and a crew was standing by with parts. The tires were replaced and the plane increased airspeed, arriving at its destination within 20 minutes of its original schedule.

Airbus Skywise and AirAsia

- AirAsia has integrated data from disparate sources on the Skywise platform and developed new capabilities against specific and immediate needs, including time-series analysis of large-scale DataBird sensor data, component reliability and repetitive fault analysis. Key results include: full deployment integrating several years' worth of AMOS data across all AOCs as well as PFRs; deployment of component reliability, 'rogue component' and repetitive-fault applications which will allow reliability and maintenance teams to perform analyses at scale to improve fleet reliability; and continuous training on 'Quiver', a Skywise application which allows users to visualise and analyse large-scale sensor data to perform flight-ops analysis, predictive maintenance and troubleshooting.
- Skywise enables low-cost carrier, Peach Aviation, to automate the quality monitoring process and produce key metrics grouped by ATA chapter and aircraft in seconds. Reports which used to take days to compile are now made in only a few clicks. For component reliability, another application uses data from the platform to track unscheduled removals over time, run Weibull distributions over the data and determine the optimal replacement schedule.

Singapore Airlines fosters digital champions

Winning passengers is no longer a matter of updating product offerings at the region's carriers. Innovation, driven by data analytics, is shaping an airline's customer experience and also its operations. Chief correspondent, Tom Ballantyne, reports on Singapore Airlines' plans to stay ahead of the game.

Singapore Airlines (SIA) is very fortunate, said the carrier's chief financial officer, Stephen Barnes, to have a CEO who understands the importance gets the importance of innovation. "You need leadership from the top. We are very blessed that our chief executive, Goh Choon Phong, has an IT background," he said.

"He is enthusiastic about the opportunities it offers and is very much out in front trying to help us generate ideas," he told the recent World Financial Symposium in Dublin.

Goh, who holds bachelor degrees in computer science and engineering, management science and cognitive science and a master of science in electrical engineering and computer science, all from the Massachusetts Institute of Technology, has been driving innovation forward since he took charge at SIA on January 1, 2011.

In recognition of his efforts, Goh received the 2016 Dwight D. Eisenhower Global Innovation Award from the US-based Business Council for International Understanding (BCIU); the first recipient from Southeast Asia for the award.

Barnes said: "we are planning for fewer people to be involved in identifying and giving the green light to particular projects. SIA's strategy is to create a "digital mindset" throughout the airline and central to this is a new staff training initiative, he said.

"We have made available a series of externally-provided innovation and digital-focused training courses. The idea to ensure that we not only have an occasional champion, but to have everybody using the tools and to feel free to come up with ideas," Barnes said.

"We need to identify champions. We need to identify the successes. But we also recognize we need to celebrate failures - at least heroic failures. We need to learn when to kill those ideas quickly and what the lessons for the next idea are," he said.

Last month, SIA announced a partnership with LASALLE College of the Arts, a Singapore-based tertiary education institution. Students enrolled in the programs at the college will conceptualize and design an Innovation Lab to be set up by the airline.

The Innovation Lab will serve as a collaborative workspace for SIA employees and external partners as well as being a test bed for technology-related projects, said SIA senior vice president Corporate Planning, Lee Wen Fen.

Last October, SIA introduced Android Pay and Apple Pay mobile payment services on its mobile app. Customers can pay for air tickets, redemption booking-related fees, preferred seat selection and travel insurance and other services at the time of booking.

These are all parts of a wide-ranging SIA transformation program, which follow some recent poor results at the carrier. However, the airline reported a second-quarter net profit in the current fiscal year on the back of stronger operating results and rebounding cargo business. Yield remained under pressure as competitors increased capacity. The carrier earned US$139 million in the three months to September 30, up from $47.5 million a year earlier. ■

SIA "Kris" bot in action

'In December, SIA launched a beta chat bot as it expands digital servicing channels for customers. Initially, the Kris bot has been available on the SIA global Facebook page and will soon be on singaporeair.com.

Customers who visit the SIA Facebook page or Facebook Messenger will be able to chat privately with Kris and receive assistance for pre-flight-related queries. As a beta bot, Kris will be in constant learning mode and its capabilities will be developed over time. At present the bot is trained for English language queries about baggage, check-in, online booking and services for travelling with infants and children'

"SIA will develop the Kris bot knowledge library based on the questions customers ask most frequently," said SIA senior vice president Customer Services & Operations, Marvin Tan.

"Customer preferences are changing and with Kris we are taking feedback into account by expanding our servicing platforms beyond traditional contact centre and email channels."