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ON THE MARCH TO A NEW AEROSPACE FRONTIER

Airbus is shedding its old ways
to build a business for digital times
says CEO Guillaume Faury

Orient aviation 25 YEARS

HNA Group on way to domestic break up?

Qantas to appeal Australian decision that rejected code share with Cathay Pacific

Conquering the tyranny of cockpit weariness on ultra long-haul flights

INDUSTRY INSIGHT REPORT
Asia-Pacific airline trends: carriers adapt rapidly to market demands

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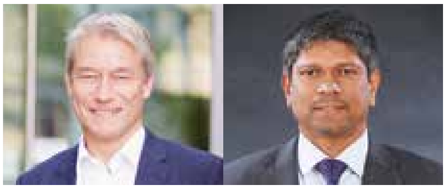

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Regulators must address conflicts of interest

Boeing's 737 MAX will certainly fly again in commercial operations. When that will be depends on approval of software updates to the anti-stall system alleged to be responsible for the fatal Lion Air and Ethiopian Airlines crashes by regulators around the world and airlines flying the aircraft.

In its latest update, Boeing said it had completed development of the update, associated simulator testing and its engineering test flight. Company crews had flown the updated software on the MAX for more than 360 hours on 207 flights, it announced.

"We are now providing additional information to address Federal Aviation Administration (FAA) requests that include additional detail on how pilots interact with the airplane controls and displays in different flight scenarios," Boeing said.

"Once the requests are addressed, we will work with the FAA to schedule its certification test flight and submit final certification documentation."

Clearly, mistakes have been made. Several U.S. government agencies, including the FBI and a senate committee, are conducting investigations. No doubt they will draw conclusions about what has gone wrong.

But there is concern about current certification standards that goes beyond the U.S. and the FAA. How widespread is the practice of regulators essentially seconding their responsibilities to aircraft manufacturers and airlines to conduct the oversight and approvals necessary to enable certification and airline operations of aircraft?

To what extent is it happening in Europe with Airbus? Is it a common practice as many industry insiders claim? An example in Asia was Garuda Indonesia's seconding of some of its safety experts to the regulator because the government agency did not have adequate numbers of trained staff.

These practices amount to airline employees overseeing their own employer. It can be argued that people in such a position carry out their duties responsibly. But in today's highly competitive world subtle pressures can be applied to speed up processes or rubber stamp new systems, perhaps because of economic factors.

It is an issue that must be put under the microscope. The International Civil Aviation Organization (ICAO) should regulate to ensure its members – the world's regulators – sufficiently staff their operations to carry out the work of conducting careful oversight of the industry, including airframe manufacturers, without resorting to passing on the duties to company employees. ■

TOM BALLANTYNE
Associate editor and chief correspondent
Orient Aviation Media Group

Malaysia Airlines CEO submits rescue plan to government owners

The coming few weeks will be critical to the fate of Malaysia Airlines Berhad (MAB) as its owner, sovereign wealth fund Kazannah Nasional Berhad, considers a rescue plan for the carrier.

"I have this last 100-metre dash to stabilize this organization, to create future leaders, to make people in the organization embrace the culture of change," the airline group CEO, Izham Ismail, told the South China Morning Post at an airline industry gathering in Seoul last month.

Earlier this year, Malaysia's prime minister, Mahatir Mohamad, said the government must decide if the carrier has a future. It has been widely reported that Kazannah Nasional will consider Izham's turnaround plan in the next four weeks and rule on a shutdown, a sale or a refinancing of the carrier.

In the meantime, the Kuala Lumpur-headquartered carrier has found a new industry friend. In late May, Japan Airlines (JAL) and MAB signed a Memorandum of Understanding for joint venture Malaysia-Japan services. A few weeks later, the Japanese airline group said it would like to extend the proposed joint venture to MAB's services to the U.S. and some Asian routes.

"We believe what Malaysia Airlines is going through right now is similar to what Japan Airlines went through and we recovered from that situation," JAL president, Yuji Akasaka, told Reuters on the sidelines of the annual International Air Transport Association AGM early in June.

JAL entered bankruptcy protection in 2010 and emerged five years later as a leaner carrier, but without the status of being Japan's biggest carrier. All Nippon Airways has overtaken JAL to become the country's largest airline.

Akasaka, who will accept delivery of JAL's first A350 this month, said if the relevant authorities approved the joint venture, MAB would benefit from the large number of Japan-U.S. services in JAL's network. He also indicated JAL would consider an equity investment in MAB.

Separately, MAB's Izham told the South China Morning Post the carrier's survival plan was based on the airline remaining a full-service operator that could win market share from competing LCCs with its superior product.

He said he wanted to attract business partners to MAB that understood the challenges MAB faces to survive and transform the culture of the carrier.

JAL and MAB could collaborate on cargo, ground handling and knowledge transfer, Izham told the Hong Kong news platform, and added future MAB partners would not necessarily have to be drawn from its oneworld alliance partners or the airline industry in general. ■

Korean Air's Cho takes on local media

June has been a memorable month for Korean Air's (KAL) Walter Cho. His airline group hosted the biggest International Air Transport Association's (IATA) annual general meeting in the association's history in Seoul and he was invited to join the prestigious Board of Governors (BoG) of the airline association.

The IATA gathering also presented local and international media with their first opportunity to directly question Cho since the death of his father, Y. H. Cho, in Los Angeles on April 7. It has been reported 70-year-old Cho, the chairman and CEO of KAL, died without a will.

It was a challenging occasion for the younger Cho, (43) who was faced with a barrage of questions, particularly from local reporters about his new role at Korean Air parent Hanjin and how he intended to deal with activist shareholders critical of the strategy and governance of one of Korea's most famous chaebols.

Cho said his father had emphasized the "harmony of the family", and added he was "engaging in discussions about succession at the group by following his father's words.

"Due to the former chairman's sudden death, he did not leave much to say to the family. Based on when he was alive, he told us harmony among family members is of the utmost importance and what we must achieve through harmony is to protect the company. Discussions between family members are still underway," he said.

Cho admitted he still was adjusting to his role as chairman of Hanjin Group. "I accepted the chairman's position for the sake of the company's future, but it still feels unfamiliar when someone calls me chairman.

"I will continue to run the business based on the business philosophy of the former chairman and the founder, which is to focus on transportation. If needed, amid rapidly changing industry trends, I will seek business change by discussing [the issues] with board members." ■

Qantas to appeal rejection of extended code share with Cathay Pacific

Australia has rejected an application from Qantas Airways and Cathay Pacific Airways to extend their codeshare arrangements, but the Australian airline's CEO, Alan Joyce, said this month the International Air Services Commission (IASC) has it wrong.

"We don't think it is a good decision. We are going to appeal it," he said, arguing the code share would have significant benefits for air travelers. "We will go back to the IASC and make sure we are very clear on what we believe those public benefits are."

The draft IASC ruling said that to allow Cathay Pacific to place its CX airline code on 35 Qantas-operated return flights a week from Brisbane, Melbourne and Sydney to Hong Kong was likely to "entrench and expand the market position" of the two airlines to the detriment of Virgin Australia's competitive position and the position of any potential future entrants on the route.

"If this occurs, it is likely to weaken competition on the route, leading to an increase in prices and/or a reduction in other benefits to consumers," the draft decision said. "The Commission finds the likely public benefits of the variation are substantially outweighed by the likely public detriment that would follow from the proposed aviation."

Qantas has argued the code share agreement was pro-competitive and designed to offer passengers more choice on a greater number of city pairs with no adverse impact on the competitive dynamics on point-to-point routes between Australia and Hong Kong.

The IASC disagreed and said in its draft decision the proposed code share was likely to lead to a market structure which made it more difficult for Virgin Australia to compete and also would raise barriers for new entrants on the route. "It is likely Virgin will have a weakened, and perhaps materially weakened, position that may make it difficult for Virgin to sustain its operations," the commission wrote.

Cathay and Qantas dominate the Australia-Hong Kong market with close to 90% market share in seats. Virgin Australia, with its daily nonstop flights from Melbourne and Sydney to Hong Kong, is the only other operator in the market. It had vigorously opposed the application. ■

HNA: domestic break-up?

The industry is watching ownership changes at HNA Group's domestic airlines. The Mainland conglomerate is in the spotlight after it sold assets of US$25 billion in 18 months following a debt-fuelled spending spree. HNA Group's costly expansion was mostly international and outside its core aviation and tourism focus. Before this costly and diverse growth, HNA succeeded in achieving at least a 15% domestic market share with most other capacity affiliated with one of the three state-owned airline groups.

This success is being unwound as the group seeks cash. Hainan Airlines is its flagship carrier, but Tianjin Airlines and Beijing Capital Airlines have had a significant presence in the market. In recent years, HNA has partnered with local provinces to establish airlines such as Fuzhou Airlines and Urumqi Airlines.

HNA's airline asset sale is starting small. Last November, it announced its intention to reduce its financial holding in Urumqi Airlines from 70% to 30%. Urumqi Airlines has 18 aircraft, small for HNA.

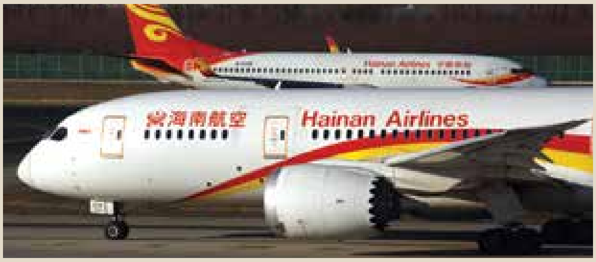
Larger is Lucky Air, which has 55 aircraft, including wide bodies, and has been converted to an LCC. No transaction has been completed to confirm local reports that HNA would sell Kunming-based Lucky Air to China Eastern Airlines and Yunnan Province. Kunming is the province's capital city.

China Eastern Airlines has a large base in Kunming, which it positions as a gateway to Southeast Asia and the Indian sub-continent. In March 2018, HNA denied it would sell Beijing Capital Airlines to Air China (AC). Capital Airlines, which has 89 aircraft, would have enlarged AC's footprint in the key Beijing-Tianjin area.

HNA has told other subsidiaries, as it did Hong Kong Airlines (HKA), that it would no longer fund them. In 2018, Tianjin Airlines, with 90 aircraft, received a US$64 million capital injection linked to the Tianjin government. HNA did not contribute.

HNA is in the process of selling HK Express to Cathay Pacific. HNA has solicited bids for HKA. HKA carries mainland China-Hong Kong traffic as well as connecting traffic to and from mainland China via Hong Kong. But HNA's other investments were not so related to China. HNA has offloaded holdings in Brazil's Azul, Portugal's TAP and South Africa's Comair.

Industry observers agree HNA would not want to sell Hainan Airlines, which is the largest airline in its airline stable, at 239 aircraft. Other than Hainan Airlines, there is no consensus about the fate of HNA. ■



New figures herald regional slowdown on the horizon

By associate editor, Tom Ballantyne

Times are tough for many of Southeast Asia's airlines as they struggle to maintain profitable in the face of specific industry headwinds. Those on a losing streak include Thai Airways International (THAI) with five of its subsidiaries reporting a combined operating net loss of US$26.2 million for their first quarter, to March 31.

Also in the profit doldrums are flag carriers, Malaysia Airlines and Garuda Indonesia, with the latter facing a government directive to lower its domestic fares by up to 20%. Key factors eroding revenue are rising fuel prices, currency declines and intense competition, both airlines report.

THAI said the global slowdown in economic growth and increased competition from regional, mostly LCC, rivals following International Civil Aviation Organisation's removal of a red safety flag for the country's airlines were having the biggest impact on earnings. Airport capacity limits, trade wars and "other crises" also were risk factors in 2019, the airline said.

THAI was hardly alone in reporting reduced revenue. Nok Airlines recorded a $12.4 million net loss for the same three months. Bangkok Airways remained profitable, but experienced a 29% drop in profit for the quarter, with net income of $16 million. Six of Malaysia's seven carriers were unprofitable in 2018 and the seventh, AirAsia, generated its smallest operating profit in four years.

Passenger traffic expansion at Malaysia's Kuala Lumpur International Airport has slowed from 11.2% in 2017 to 2.4% in 2018. Growth in the overall Malaysian market was 10% in 2017, but only 3% in 2018. Analysts collectively said expansion would likely sit in the low to middle digits this year with profits under pressure and overcapacity a persistent concern.

The Garuda Indonesia Group posted a $19.7 million profit in the three months to March 31, a huge improvement on the $64.3 million loss for the same period a year ago. Its president, Ari Askhara, has been under constant political pressure to further cut domestic fares. Garuda is 60% government owned and the domestic air passenger market makes up 75% of total Indonesian air traffic demand, Nikkei Asian Review reports.

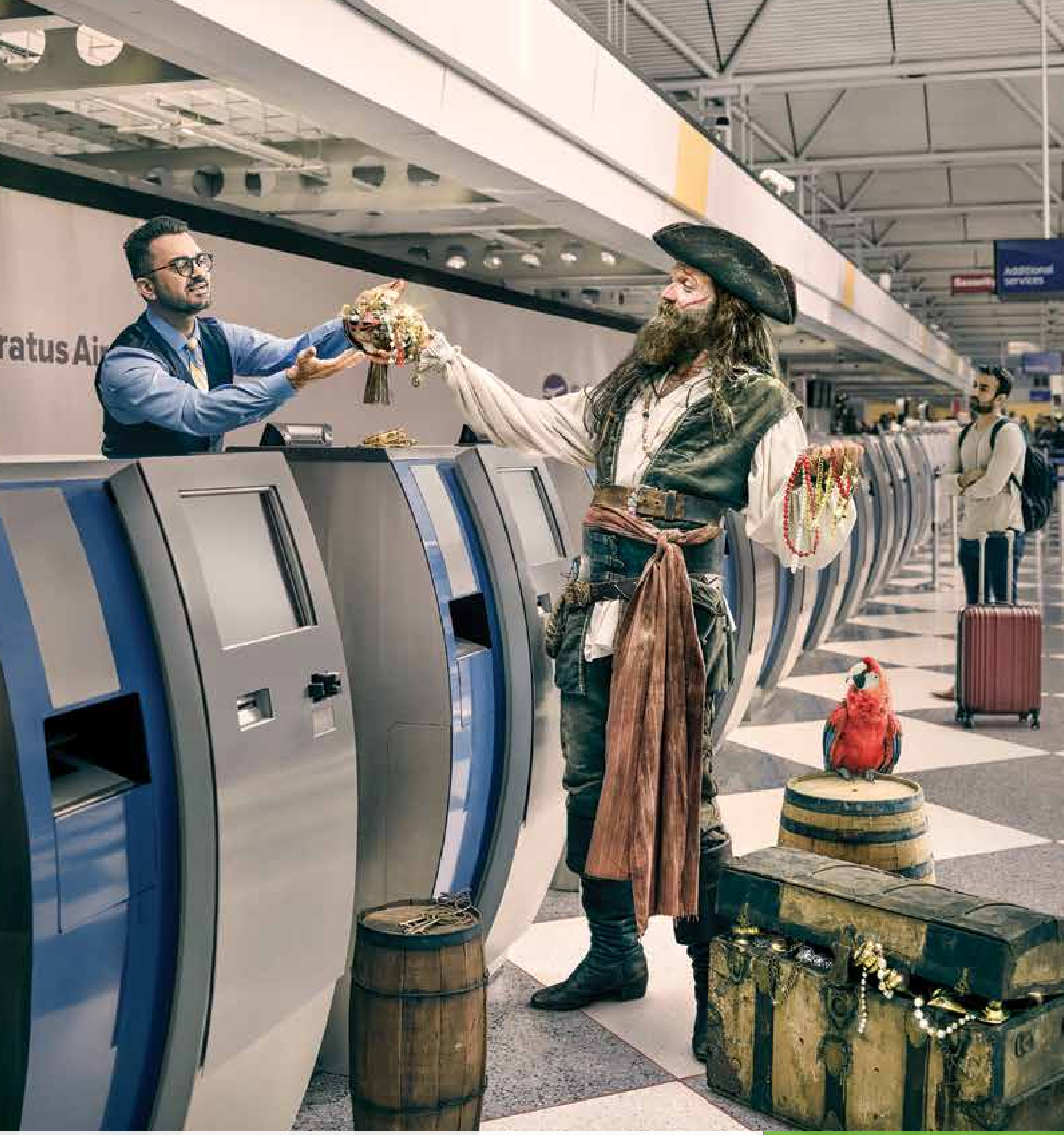
Collectively, Asia-Pacific airlines recorded a 3.7% increase in international passengers carried, to 31.2 million in April, with promotional airfare campaigns lending support to travel markets.

Measured in revenue passenger kilometres (RPK), demand grew by 3.5%, which reflected relative strength in regional travel markets. After accounting for a 4.1% increase in available seat capacity, the average international passenger load factor was 0.5 percentage points lower, to 80.8% for the month. Air cargo demand, measured in freight tonne kilometres (FTK), declined by a steep 9.1% year-on-year for the month as new export orders continued to decline. The AAPA said the fall in air shipment volumes coincided with production declines in the region's technology equipment sectors.

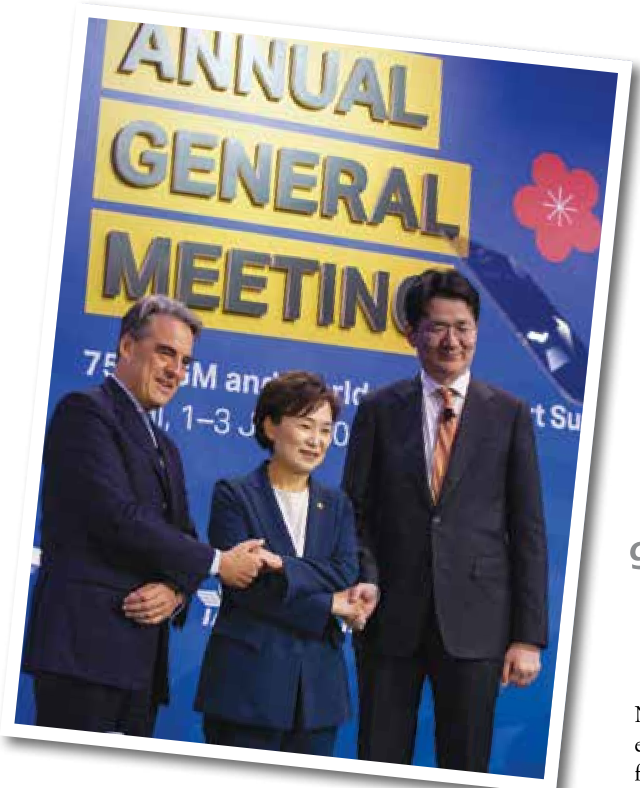
"These traffic trends paint a mixed picture," said AAPA director general, Andrew Herdman. "The first four months of the year saw a 4.9% increase in passengers carried by the region's airlines, to 125 million, whereas air cargo experienced a 6.3% decline in demand for the same period.

"Growth remained relatively encouraging in air passenger markets, with sustained demand in regional economies. Since the final quarter of 2018 air cargo volumes have recorded declines as unresolved disputes and the imposition of trade tariffs have led to a marked slowdown in international trade flows." ■

> "The current trade tensions and continuing erosion in business confidence could undermine growth prospects going forward, even though demand for international air travel is expected to remain relatively firm. The region's airlines are proactively exploring opportunities for growth, while carefully managing capacity expansion and implementing measures to contain costs"
>
> Association of Asia-Pacific Airlines April 2019



RISKY BUSINESS AHEAD AS PROFITS DECLINE



When airline leaders gathered in South Korea in early June for the International Air Transport Association (IATA) 75th Annual General Meeting and World Air Transport Summit (WATS) there was no shortage of critical issues to discuss. Centre stage were emissions reductions progress, infrastructure challenges and not surprisingly, the 737 MAX global grounding. Associate editor and chief correspondent, Tom Ballantyne, reports from Seoul.

It did not come as a shock to the world's airline leaders to hear from the director general and CEO of the International Air Transport Association (IATA) that their profits would shrink this year. At the Seoul gathering of the industry's elite, Alexandre de Junaic said estimated income for 2019 would be US$28 billion, down from the $35.5 billion forecast by the association last December.

"This year will be the 10th consecutive year in the black for the airline industry," he said. "But margins are being squeezed by rising costs right across the board, including labor, fuel and infrastructure. Stiff competition among airlines keeps yields from rising. Weakening of global trade is likely to continue as the U.S.-China trade war intensifies. This primarily impacts the cargo business, but passenger traffic could be impacted as tensions rise. Airlines will still turn a profit this year, but there is no easy money to be made."

Nearly half of total profits for the year will be earned in North America at US$15 million. Asia-Pacific airlines are expected to deliver a combined net profit of $6 billion, down from $7.7 billion in 2018. The forecast results represent a meagre net profit per passenger of $3.51 in the region compared with a global average net profit per passenger of $6.12.

The Asia-Pacific is delivering a very diverse performance, de Juniac said. "Accounting for about 40% of global air cargo traffic makes the Asia-Pacific the most exposed region to weakness in world trade. Combined with higher fuel costs present conditions are squeezing the region's profits."

In 2019, overall costs are expected to grow by 7.4%, outpacing a 6.5% rise in revenue. As a result, net margins are forecast to drop back from 3.7% in 2018 to 3.2% for the year. Return on invested capital earned from airlines is forecast to be 7.4% against 7.9% in 2018. IATA said these numbers exceed the average cost of capital of 7.3%, but "the buffer is extremely thin".

"The job of spreading financial resilience throughout the industry is only half completed with a major gap in profitability between the performance of airlines in North America, Europe and the Asia-Pacific and that of airlines in

Performance indicators for 2019

- Average Brent fuel forecast at US$70 per barrel for the year, up from $54. 9 per barrel in 2017
- Non-fuel unit costs to rise to 39.5 cents because of higher infrastructure, labour and other costs
- Overall revenue is not keeping pace with cost rises, revenue forecast to increase by 6.5% to $865 billion
- Cargo growth expected to be flat for the 12 months at 63.1 million tonnes
- Annual passenger numbers to increase to 4.6 billion for the year, up from 4.4 billion last year
- Free cash flow is expected to disappear this year and debt-to-earnings ratios are higher than 2018

Africa, Latin America and the Middle East," it said.

The good news is airlines appear to have broken free from the boom to bust cycle, IATA said. "A downturn in the trading environment no longer plunges the industry into a deep crisis. But under present circumstances, the great achievement of the industry in creating value for investors with normal levels of profitability is at risk. Airlines will create value for investors in 2019 with above cost-of-capital returns, but only just," de Juniac told delegates in Seoul.

For airlines, environmental issues were again a priority of the gathering's agenda. Since the start of the year, airlines have been recording their emissions, a preliminary step leading to the launch of the global market-based offset program CORSIA (Carbon Offsetting and Reduction Scheme for International Aviation) in 2021.

Aviation is the only global industry to implement such measures, but airline industry leaders remain concerned their achievements in reducing emissions are not being recognized by consumers worldwide. In recent months there has been a wave of protests across the world, including demonstrations organized by school children that complain governments are falling short in reducing climate risk. Some Europe-based protest groups, particularly Extinction Rebellion movement, have called for governments to ban short-haul flying.

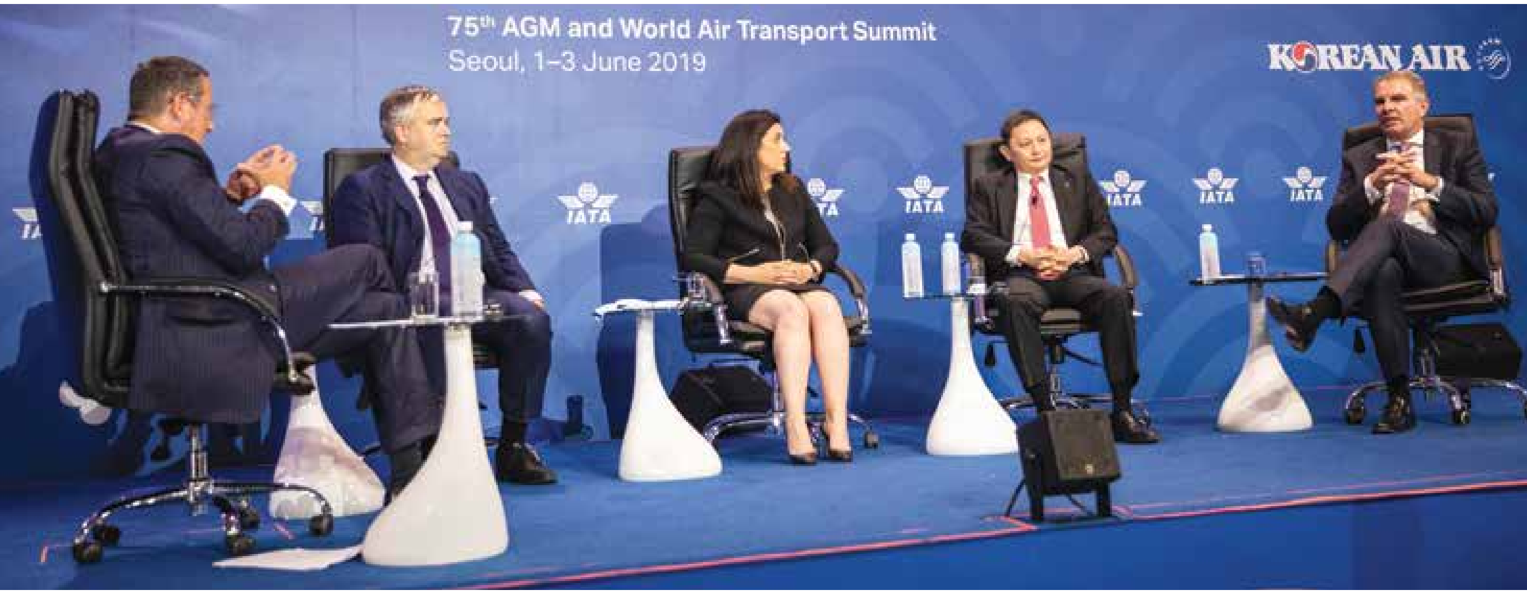
IATA's director of aviation environment, Michael Gill, said: "we have been pushing ahead with our climate action and it has brought about significant results. We are tracking ahead of our 1.5% fuel efficiency improvement target and are well on our way to CORSIA implementation."

Gill said said the industry "must show more ambition and willingness to drive the strategy we have in place". "We have so much to contribute to social and economic development. We don't want to deprive future generations of the opportunity that aviation offers," he said.

The IATA annual general meeting, which preceded the World Air Transport Summit and was attended by representatives of its 290 strong airline membership, overwhelmingly passed a resolution that called on governments to implement CORSIA as agreed through the United Nation's International Civil Aviation Organization (ICAO).

CORSIA aims to cap net CO_2 emissions from international aviation at 2020 levels - or carbon neutral growth. AGM participants also keenly supported the industry's next climate action commitment of cutting net emissions to half of 2005 levels by 2050. Airlines were urged to implement all available fuel efficiency measures and to participate fully in a long-term switchover to sustainable aviation fuels, which are critical to achieving the industry's 2050 commitment, IATA said.

Behind the scenes and during media briefings at the conference, the MAX issue continued to be the centre of attention for delegates. IATA member airlines operating the aircraft are concerned the global grounding of the airplane type will not be done simultaneously across the globe.



In a statement, Boeing said: "We will be engaging in meaningful discussions with our customers regarding the economic impacts from the grounding." It added no MAX orders had been cancelled - as opposed to being deferred - as a result of the Lion Air and Ethiopian Airlines accidents. IATA said the MAX could return to service from August or September. Other forecasts put the MAX returning to flying as late as December.

An example of the importance of the issue was the U.S. where the MAX may be cleared to fly domestically while regulators in other countries delay a decision on the type's return to the skies.

Members of a CEO panel said variations in the dates for lifting the grounding would complicate matters for international carriers. Singapore Airlines (SIA) CEO, Goh Choon Phong, said airlines in nations such as the U.S. may be able to operate domestically once the ban is removed, but his airline group had no domestic market and therefore no such option. SIA subsidiary SilkAir has six B737 MAX 8s on the ground with another 31 on order.

"Everything I operate is international. Beyond having the approvals of the authorities in Singapore, we would need approvals from other countries to which we operate," Goh said. The group would require a "minimum viable set of countries" allowing the MAX to fly in order to return it to service with SilkAir, he added.

Lufthansa group CEO, Carsten Spohr, said while the U.S. Federal Aviation Administration (FAA) may allow the aircraft to return to service, other regulators may not quickly follow suit. "It would be difficult to explain to passengers the aircraft is safe in some parts of the world but not safe elsewhere," he said.

On the sidelines of the meeting, Malaysia Airlines Berhad group CEO, Izham Ismail, said all options were on the table regarding its order for 25 MAXs, which are due to begin arriving in Kuala Lumpur from July next year.

"We went through two tragic incidents, so I must uphold safety at all costs. I need adequate assurances from the manufacturer and regulators around the world that the plane is safe," he said. "Deep conversations with Boeing" on the issue were taking place, he said, and added he believed the U.S. plane maker would solve its MAX problems. While a number of Boeing executives were in Seoul, including Boeing Commercial Airplanes (BCA) president and chief executive Kevin McAllister, they kept a relatively low public profile and concentrated on private meetings with customers.

IATA's de Juniac said he aimed to have a second meeting with operators, regulators and manufacturers in coming weeks to set out priorities for the MAX's re-entry into service. "We want to assess the situation and clearly identify what still needs to be done," he told Airline Business Daily in Seoul.

Qantas Airways group CEO, Alan Joyce, said he was confident Boeing would resolve its problems and confirmed the MAX would be considered in single aisle re-fleeting assessments for the group's current generation 737s. Japan Airlines president, Yuji Akasaka, also said the MAX remained "a good option to consider" regardless of the accidents.

"While passenger traffic demand is holding up, the impact of worsening trade relations [on consumer confidence] could dampen demand. Aviation needs borders that are open to people and to trade. Nobody wins from trade wars, protectionist policies or isolationist agendas. But everybody benefits from growing connectivity. A more inclusive globalization must be the way forward." de Juniac concluded. ■

IATA 2019 AGM resolutions

ENVIRONMENT

- Delegates overwhelmingly voted for governments to implement the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) as agreed through the UN International Civil Aviation Organisation.

SLOTS

- Delegates called on governments to urgently address capacity shortages and endorsed the Worldwide Slot Guidelines as the global standard for the policies, principles and procedures of airport slot allocation and management and requested transparency and fair and equal efficiency in the slot distribution process.

RADIO FREQUENCY BAGGAGE TRACKING (RFID)

- The AGM supports the global deployment of RFID for baggage tracking in real time.

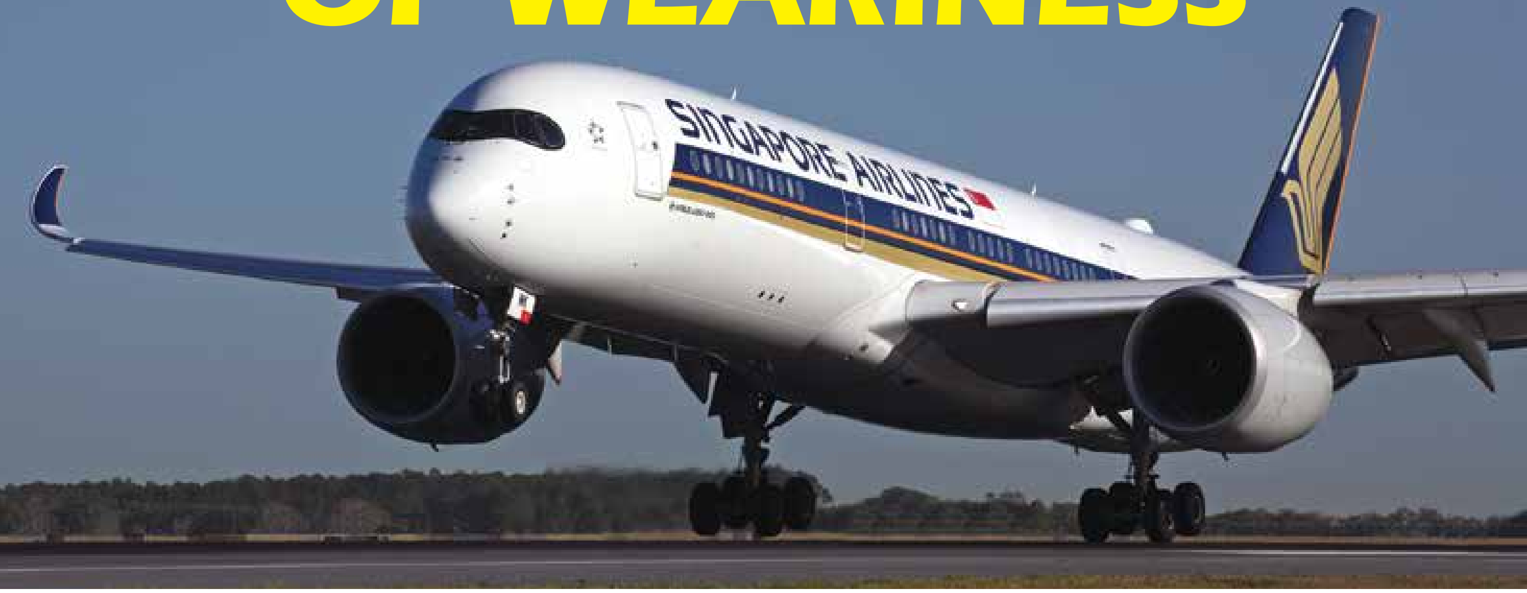
One ID

- The AGM voted to accelerate the global implementation of the One ID initiative, which uses a single biometric identifier to move passengers seamlessly through the airport without paper travel documents.

DISABLED PASSENGERS

- IATA members resolved to improve the air travel experience for the estimated one billion people living with disabilities worldwide. Airlines committed to ensuring passengers with disabilities have access to safe, reliable and dignified travel.

CONQUERING THE TYRANNY OF WEARINESS



As more airlines embark on ultra-long haul flights they must focus on the wellness of passengers who are spending almost a day in the air. But what about the pilots? How are they being prepared for the unprecedented demands of crewing journeys of 20 hours or more? Associate editor and chief correspondent, Tom Ballantyne, reports.

Qantas Airways is counting down to Project Sunrise: non-stop journeys between Sydney and London that will take a record-breaking 21 hours. As the date draws nearer to this possible historic development, debate is focused on the rules for the cockpit crew manning these flights and the probable effects fatigue could pose to safe flying of ultra-long non-stop journeys.

As more ultra-long-haul (ULH) services take to the sky, the issue of fatigue is worrying pilots. As well, airlines are struggling to reconcile different rules in different countries and balance the economics of a flight with a safety regime that protects pilots from unintended consequences.

Today's longest flight is operated by Singapore Airlines (SIA), some 18 hours and 30 minutes between Singapore and New York's Newark airport. The Qantas 787-9 service from Perth to London, at 17 hours and 25 minutes, is the third longest, after Qatar Airways at 17 hours and 50 minutes from Doha to Auckland.

Plans by to fly non-stop between Sydney and London will eclipse them all. The route also will raise questions about the rules that should apply for pilot duty time and rest and recovery periods.

The Flight Safety Foundation said: "Flight crew fatigue can negatively affect performance and pose a hazard to flight safety. Fatigue also has a negative impact on learning, morale and health. Regulators increasingly require operators to do more than comply with flight and duty time limitations to manage crew fatigue.

"Such requirements include demonstration of effective fatigue risk management (FRM) within a safety management system (SMS) or with a dedicated fatigue risk management system (FRMS)."

One of the essential challenges for ULH operations is selecting the best composition for the journey. SIA has four pilots on its A350 Singapore-New York service. There are two crews, a command set and a deputy set, on each flight, with each made up of a captain and a first officer, the airline explained.

Qantas's Perth to London route also has four pilots: a captain, backed by a first officer and two second officers. The second officers only can fly at cruising altitudes and cannot take off or land. Cathay Pacific Airways, operating the A350 from Hong Kong to New York, crews the flight with two captains and two first officers.

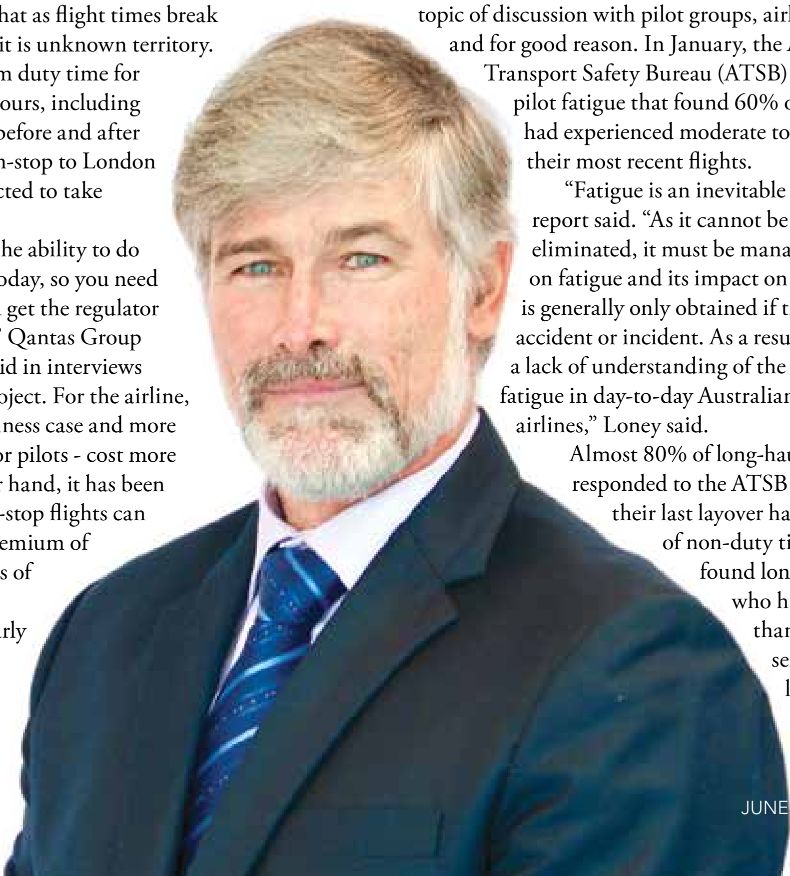
Last year, in the United Arab Emirates (UAE), there was unrest among cockpit crew when Emirates Airline began reducing the number of pilots from four to three on ULH flights from Dubai to Boston, New York, Sydney, Melbourne, Rio de Janeiro and Sao Paulo.

It should be pointed out the decision did not contravene UAE regulations. It did, however, highlight the fact there are no standard global rules for pilot duty times. In the U.S., flights between eight and 12 hours require three pilots and flights of more than 12 hours must have four pilots crewing the aircraft. The regulations allow pilots to be rested and alert during their ULH flights. Some other countries allow "controlled rest", which means that when two people are in the cockpit, one of them is allowed to doze off.

The problem is that as flight times break the 20-hour barrier, it is unknown territory. At present, maximum duty time for Qantas pilots is 20 hours, including time on the ground before and after the flight. Flying non-stop to London from Sydney is expected to take about 23 hours.

"We don't have the ability to do that length of duty today, so you need to negotiate that and get the regulator comfortable with it," Qantas Group CEO, Alan Joyce, said in interviews about the Sunrise project. For the airline, there has to be a business case and more pilots - or more senior pilots - cost more money. On the other hand, it has been estimated ULH non-stop flights can bring the airline a premium of around 20% in terms of fares charged to passengers, particularly corporate travelers, Qantas said.

For Qantas and other airlines entering the ULH market, keeping customers happy on long flights involves keeping pilots happy. Cockpit crews need sufficient rest periods in suitable sleeping facilities inflight and sufficient breaks on the ground before and after flights.



Australian and International Pilots Association (AIPA) safety and technical director, Shane Loney, said the airline has been questioned about the fact it operates its ULH flights with only one caption. Loney said "unlike many airlines, at Qantas a first officer is a command endorsement, so they have the same licence qualifications as a captain. At many airlines the first officer does not have the same qualifications as a captain. It is why, in our operation, it is quite acceptable to operate with one captain and one first officer".

It may be appropriate for a 15-hour flight, he continued, but was it appropriate "when it was it appropriate when its 20 hours long? The operator should be required to demonstrate how we are going to do that safely. They should be able to demonstrate crew rest facilities. Is there is a good chance of the pilots getting adequate rest? If you don't get a decent sleep, you are going to be awfully tired by the end of that flight. We all know that increased fatigue leads to increased errors and increased risk," he said.

Loney said being awake for periods over 18 hours is equivalent to a blood alcohol level at .05. "I'm pretty sure our customers wouldn't want pilots flying around with a blood alcohol level of .05. So, we obviously need to make sure they are not going to be overly fatigued," he said. Pilots are currently negotiating with Qantas to determine the rules for ULH flying.

The issue of ULH flying and fatigue has become a major topic of discussion with pilot groups, airlines and regulators and for good reason. In January, the Australian Transport Safety Bureau (ATSB) released a study on pilot fatigue that found 60% of long-haul pilots had experienced moderate to severe fatigue on their most recent flights.

"Fatigue is an inevitable risk in aviation," the report said. "As it cannot be completely eliminated, it must be managed". It added data on fatigue and its impact on air transport safety is generally only obtained if there has been an accident or incident. As a result, there is generally a lack of understanding of the baseline level of fatigue in day-to-day Australian air transport at airlines," Loney said.

Almost 80% of long-haul pilots who responded to the ATSB study reported that their last layover had less than 40 hours of non-duty time. "Research has found long-haul flight crew who had a layover of less than 40 hours self-reported a higher level of fatigue and recorded slower reaction times in a

vigilance task than flight crew who had a longer layover of an average of 62 hours. This indicates the shorter layover did not provide sufficient opportunity for recovery from the outbound flight," ATSB said.

That situation is evident elsewhere. SIA said there are no stipulated permitted duty hours for ULH flights but two rest periods are planned to provide crew with better rest in-flight. Before operating an ULH flight, crew is required to have 48 hours of rest. During the flight, the two sets of crew work in shifts, taking turns to rest, with a minimum of two blocks of rest for each set of crew.

Each block of rest is from three to five hours. ULH flight crews are given three nights of rest before they operate the return sector. The airline said crew rosters are monitored with a fatigue measurement tool.

Qantas almost certainly will be the first airline to break the 20-hour flight barrier with Project Sunrise. It believed it would make a decision on aircraft before year-end and launch Sydney to London and New York non-stop in 2023.

The AIPA is negotiating a new union contract with Qantas for long-haul pilots and CEO Joyce has said he hoped for an agreement by December. While the AIPA is supportive of the commercial benefits that could flow to the airline for operating these long premium routes with minimal competition, it wants to make sure safety and fatigue management issues are adequately addressed.

The airline's pilots said the unprecedented length of the new flights meant the airline needed to do more research, consider more training, use more experienced pilots and change a fatigue-reporting system they considered to be flawed.

This has changed, said Loney. "Qantas has not always been good at its approach to it. We started the Dallas operation and the Perth-London operation without sufficient consultation between the pilots and the company and all the analysis that perhaps should have gone on," he said.

"Indications are we are taking a much more serious approach to Project Sunrise, as you should expect given the length of these flights." The AIPA and Qantas are conducting a study on the fatigue issue on the Perth-London route.

Australian pilots have not been as satisfied with the approach of the country's Civil Aviation Safety Authority (CASA) to ULH flying "At the end of the day, the regulator sets the rules and then everybody has to follow those rules.

"If CASA does not take its job as a regulator seriously, if it does not make sure we have good regulations in place and does not enforce them, then we should not be that surprised if an airline tries to get things done the cheapest way," said Loney.

"The regulator has a lot to answer for in ensuring we have good fatigue outcomes. At this point, we have been a little disappointed with CASA's approach, particularly when it comes to ULH flying. We have made that displeasure very clear to CASA in multiple conversations.

"In Australia, CASA chooses not to have the pilot association as a key player in these regulatory systems and particularly on the subject of fatigue. We think that's a big mistake.

"Qantas has a fatigue risk management system (FRMS) in place. Its a pretty good airline. They take most of these issues seriously. We have some good fatigue monitoring systems in place. We think it is very, very important that pilots are always part of this [discussion]."

The Flight Safety Foundation agreed the extent an operator effectively manages fatigue, like any risk, depends on the effectiveness of the system of controls that are in place. The necessary controls usually include:

- Fatigue management training for crew, schedulers and managers
- A crew fatigue reporting system
- Fatigue risk-based scheduling rules
- A fatigue safety action group (FSAG) that coordinates the identification, assessment and mitigation of fatigue risks and continuously monitors and evaluates the effectiveness of the fatigue risk management controls and FRMS

"Despite the best efforts of operators and flight crew, there will always be situations in which flight crew experience unanticipated elevated fatigue in-flight. Alertness levels can vary considerably during the course of a flight, particularly a long flight. In addition, research that evaluates augmented long-haul flights has shown crews are not always able to sleep during scheduled rest periods in onboard rest facilities," the foundation said.

"In addition, unexpected events such as delays and high workload due to weather can increase the risk of an error due to fatigue."

When it comes to crew fatigue, it is agreed the issue can only be solved by the combined efforts of the International Civil Aviation Organization (ICAO) representing the regulators, the International Air Transport Association (IATA) speaking for the airlines and the pilot associations.

"From a management perspective, every business manager or owner is interested in keeping costs down. We understand that," said Loney.

"It will be a very interesting discussion [at Qantas]. Management will want to operate the service with the lowest pilot costs they can. We will be interested to make sure we have properly qualified people reasonably rested when we get to our destinations. Time will tell quite how these conversations go." ■

All eyes on Beijing Daxing

By Will Horton

Drones provided photographic updates about the steel and concrete infrastructure rising south of Beijing. Now they are prohibited from flying over the site. The International Air Transport Association has assigned the identifying code PKX. Finally, an armada of wide bodies have flown in to test the facility.

Beijing Daxing is transitioning from construction project to airport.

The opening of Beijing's second major airport is near with a service commencement on or before September 30. That ends a construction programme that is immense but small compared with decisions about how multi-airline competition should develop in Beijing. This will be a blueprint for other cities and will slowly wind back China's "one airline, one route" policy.

The CAAC has given preliminary approval for 10 international routes from Beijing Daxing, but these are flying to the relatively uncontested markets of Cairo, Russia and cities in South Korea, but not Seoul. The flights are China Eastern's Busan, Cheongju, Gwangju and Daegu; Xiamen Airlines to Busan and HNA's Beijing Capital Airlines to Busan, Xian-Cairo, Cairo non-stop, Moscow and St Petersburg.

The more significant international flying programme will be to blue chip cities. This will see Air China lose its Beijing stronghold because China Eastern Airlines (CEA) and China Southern Airlines (CSA) have base rights at Beijing Daxing. Memories are still fresh of the contested Beijing-Paris route that CSA wanted to service with the A380.

It is unclear how quickly competition will be allowed. On paper, there are stringent rules. A Civil Aviation Administration of China (CAAC) regulation says a long-haul route can have another competitor if the existing Chinese airline has less than a 70% frequency share and a total frequency from Chinese and foreign airlines up to 14 weekly flights.

If the 70% threshold requirement is not met, competition can be introduced if the existing airline has held a monopoly for six years. But proclamation and implementation can be different.

Also to be seen is what Air China (AC) receives in exchange. Reciprocal access in Guangzhou and Shanghai, the hubs of competitors, is made easy with Shanghai Pudong's terminal expansion and Guangzhou's recent terminal expansion that opens room for other carriers.

The one airline, one route policy had a goal to limit over-competition and make Chinese airlines compete against foreign airlines.

Now they will have to compete with themselves, taking their strong domestic competition to international flights. They have had indirect exposure via connecting flights, but local traffic and nearby connections usually dominate their schedules.

Consider the Los Angeles-Shanghai route. All three major U.S. airlines fly between the cities, but there is only one Chinese airline, CEA, which has double daily flights. The U.S. has a market share advantage because Chinese gains are dependent on only CEA growing.

Simultaneously, CSA is contending with the globally unprecedented action of being a major airline exiting its global alliance, SkyTeam. Airlines have left an alliance for another and Aer Lingus departed oneworld to go independent, but there is no comparable action to the exit of CSA, Asia's largest airline, from SkyTeam.

So far CSA has been able to maintain most of the benefits of SkyTeam, but it is to be seen how bilateral relationships evolve with time and as SkyTeam members become cosier with each other through new or stronger joint ventures. There is an unmistakable AFI KLM-Delta Air Lines -CEA axis.

CSA has added to its partnerships with an expanded deal with oneworld's American Airlines (AA). AA lacks a mainland Chinese partner. The two have flagged more is to come. CSA

also has cosied up to oneworld's British Airways and Finnair, raising the question that it could join oneworld. Cathay Pacific sees itself as the alliance's gateway to mainland China.

CSA's AA partnership is notable as Chinese airlines often are most optimistic about North America for their long-haul markets. The partnership prize is a joint venture, but the U.S. would require open skies as a prerequisite to such a deal. Traffic right discussions have been supplanted by contentions about slot access. Open skies is ineffective without reasonable access. Beijing Daxing's opening and Shanghai Pudong's expansion generate the slots needed for open skies.

China-U.S. open skies would impact regional markets, such as China-Korea open skies, and airlines needing to stitch together their various joint ventures in Asia. This will need time. But Daxing is racing ahead. The CAAC expects to have 72 million passengers a year passing through the airport by 2025. ■

China Southern sheds premium seats for more profits in economy

A premium decrease positions China Southern as economy-heavy airline. It is rare to get free aircraft, but CSA effectively did. During 2018, the airline retrofitted 31 wide bodies and gained a net total of 1,046 seats, the equivalent of three or four wide bodies, according to the airline's 2018 annual report. On average, CSA added 34 seats per aircraft.

Airlines globally are densifying their fleets, most prominently with the passenger-despised 10 abreast seating that is replacing nine abreast in the 777. But CSA's retrofit and seat increase is different. The airline is reducing premium seats in favour of more economy seats. Economy on CSA's retrofitted 777-300ER is still nine abreast.

All four first class seats on the 777-300ER were removed in the retrofit, which also saw a decrease in business class from 34 to 28. Premium economy was reduced from 44 to 28. The additional cabin floor space allows economy to be increased from 227 to 305 – a 34% increase. Total seat count increases from 309 to 361 – a 17% increase. To think of the change in another way, the former seat count across all classes is approximately the same as just economy on the retrofit version.

CSA said the changes across 31 wide bodies will generate annual revenue of RMB270 million (US$39 million). The figure belies total improvement. Premium classes have been a challenge for Chinese airlines to sell at a substantial yield or to sell at all. In some cases, CSA is replacing a seat that would have incurred cost and generated no revenue with a seat that will generate revenue.

The FlyerTalk Premium Fare Deals discussion forum often features low business class fares on CSA that are not a pricing mistake. A total round-trip price in business class, including taxes, can be under US$1,500 for routings with various circuity, ranging from Seoul-Rome to Los Angeles-Beijing.

Tan Wangeng, who was CSA's president until late 2018, said in 2013 long-haul profits for Chinese airlines were "very difficult" and that the airline was preparing long-term measures, such as reducing the first class seat count, CAPA said at the time.

So far, CSA's changes are most evident on the 777-300ER. The airline has retrofitted existing aircraft and the revised configuration will be installed on new 777-300ER deliveries, some of the last before Boeing switches to the 777X.

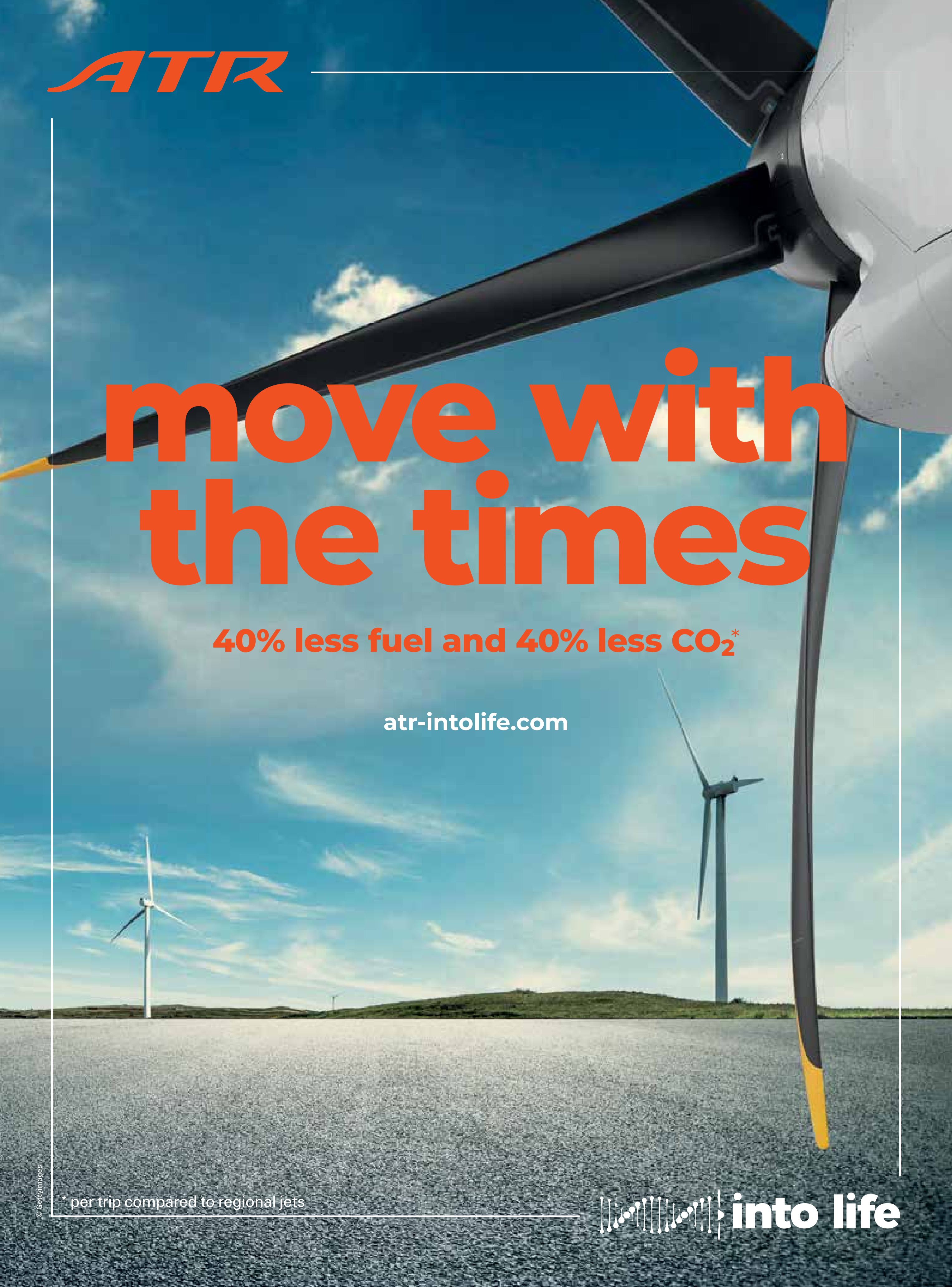
CSA has not yet announced any changes to its A380s. The flagship aircraft has eight first class seats and 70 in business. The A380 has 506 seats, 40% more than the airline's retrofitted 777-300ER. This is despite the far larger cabin floor space of the A380.

The changes are substantial and show CSA no longer feels beholden to offer the prestige of first class and a large business class on its flights. Economics are prevailing. Yet such a small business class cabin shifts CSA's focus to the economy market. Foreign airlines may benefit from more rational premium pricing as excess inventory exits.

Changes at the Guangdong-headquartered carrier are happening despite the airline preparing to open a second base in Beijing, where business and government traffic has long been seen as lucrative – far more so than CSA's home base in Guangzhou.

Elsewhere, CEA's A350 was specified to have first class, but the airline now sells it as a business premium product. Xiamen Airlines, owned by CSA, had first class on its 787-8 but later 787-9s did not feature it.

Removing first class means airlines can improve their business class offering, as Xiamen did. The 787-8 had a 2-2-2 business class, but the 787-9 has 1-2-1, a more premium offering that is becoming standard. The A350 is AC's first wide body to abandon 2-2-2 seating for more spacious 1-2-1 business class seats. AC is receiving these A350s as its Beijing home prepares for more long-haul competition. ■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TAKING AEROSPACE TECHNOLOGY TO NEW HEIGHTS

Celebrating its 50th anniversary in May as well as the pan-European merger two decades ago that resulted in today's Airbus, the new leadership team at the Toulouse manufacturer is re-engineering its operations to be one step ahead in meeting the expectations of its customers. Associate editor, Tom Ballantyne, reports from Toulouse.

At Airbus in Toulouse, a revolution is underway that is intended to introduce unprecedented change to the operations of one of the world's great aerospace companies. Like many leaders in France's history, Airbus CEO, Guillaume Faury, is moving with speed to simplify management structures and introduce manufacturing reforms in the design and production process of its aircraft.

Just a day after the retirement of the last of the old guard, predecessor Tom Enders, the 51-year-old Faury outlined a new modus operandi for the company that will be implemented by his clean sheet executive team.

"We are in a period of exceptional change in our industry and we need to prepare Airbus for the opportunities and challenges ahead," Faury said.

"With our pioneering spirit we can build on our past success to prepare the Airbus of tomorrow to better serve our customers, increase our competitiveness and grow in a sustainable way.

"We will utilize new digital technologies to optimize our industrial system and open up market opportunities while prioritizing customer satisfaction. Our organization and ways of working will evolve over time and allow all Airbus employees to contribute to the success of the company. The new executive committee is united in the goal of creating value for all stakeholders while upholding our values and behaving with the right mindset."

The last of these comments is significant. Faury is taking charge of Airbus at a time when the company has had to end production of its flagship A380 airliner because of insufficient orders.

Also, it must achieve an outcome to a multi-national bribery investigation that has been continuing for four years, a situation that has been unsettling for the group's 130,000 staff.

No Airbus executives have been accused of wrongdoing, but when a British judge set fines for Rolls-Royce in 2017 for alleged bribery, the UK-headquartered engine manufacturer effectively become a different company with new management. It is exactly what has happened at Airbus, with Faury heading a new team following scheduled retirements of several Airbus veterans as well as a board led clear out of several senior executives.

The announcement of the new executive team in March was followed in May by more leadership changes. They included moving Patrick de Castelbajac (46), formerly executive vice president space systems at Airbus Defence and Space, to head of sales in the critical, fast-growing Asia-Pacific, a post he will take up on July 1.

"Patrick de Castelbajac will be responsible for one of Airbus' most strategic growth regions, the Asia-Pacific. He has demonstrated at Airbus and at ATR his strong business knowledge and proximity to our stakeholders. All are assets needed to successfully advance our business in this dynamic part of the world," said Faury.

At the same time, Antoine Bouvier (59), formerly chief executive of military missile supplier MBDA) was appointed head of strategy, mergers & acquisitions and public affairs. Faury, who had moved from the group's helicopter unit to head of the commercial aircraft division last year after Fabrice Bregier resigned, has since abolished his previous position.

A flight test engineer, Faury is no stranger to modern automated production systems. Between his years at Airbus, he worked in senior manufacturing and research roles at French carmaker, Peugeot from 2009-2013 and is expected to make good use of lessons learned at the car manufacturer at Airbus.

"I see fantastic challenges. We have to invent new production systems and leverage the power of data," Faury has said. "We will utilize new digital technologies to optimize our industrial system."

"Our competitiveness will be determined as much by the efficiency of our production system as the performance of our products," he told 135 international journalists in Toulouse last month at the group's annual Innovation Days.

"We are lifting our production to levels that would have seemed impossible even a decade ago. This year, we want to deliver 880 to 890 aircraft. That's a 10% plus increase on last year's record 800 – and that was 10% better than the previous year.

"In the single aisle market, our target is to achieve a production rate of 60 per month by the middle of this year with a view to achieving a rate of 63 a month by 2021. So,

Going forward

Airbus is celebrating its beginnings of 50 years ago, when it launched its A300 program in May 1969. Five decades later it has become a formidable rival to Boeing with aircraft that range from the A220 to the A350.

New Airbus CEO, Guillaume Faury, has set in train studies, scheduled for presentation by year end, intended to introduce efficiency gains in the production process that will increase production rates and implement design integration that will bring upgraded aircraft designs to the market more quickly.

Production changes will be based on Digital Design Manufacturing and Services (DDMS) which will incorporate all aspects of product design, production and support on new platforms.

An examination of sourcing systems, including the engine manufacturers and some Airbus subsidiaries, are scheduled to be finished by early 2020.

The challenge for Airbus was in changing from a legacy production concept designed in 1980, Airbus chief operating officer, Michael Schoellhorn, said at the manufacturer's annual media briefing last month.

"Where major changes were introduced in production techniques, including a substantially higher degree of automation, they hit serious issues. This was the case in Hamburg in 2017. They were based on mobile tools and robotic drilling. Introducing the line was a fairly complex enterprise which was why there were some issues," he said.

one of our main challenges as a company is to improve the efficiency of our manufacturing for the sake of our customers."

Faury said Airbus wanted to design its next generation aircraft with all parts of the operation united in a seamless production process. "This matters. If the next generation of aircraft is to be competitive we will have to develop them significantly faster than in the past," he said.

"For us, it is 30% faster for the same complexity. The digital revolution is about new ideas and business models that can be brought to fruition more quickly by aviation businesses everywhere. One of the major priorities is to accelerate the pace of innovation at Airbus."

Faury wants Airbus to be an even more international company than it is at present. "What does the world look like on our 50th anniversary," he asked. "Our fundamental purpose as a company has not changed: uniting people, keeping them safe and making the world a better place.

"But many things have changed. Our factories extend well beyond Europe to the U.S., China, Canada and other places in the world. And extraordinary technological innovation is occurring. I am talking about advanced connectivity, electrification, artificial intelligence, digital, you name it.

"It is clear that on our 50th anniversary we are opening the next chapter as a company and an industry. As we set out on this journey we must ensure that our business has the strongest possible foundations in place."

He continued: "In the single aisle market, the A321 long range provides the longest range of any single aisle jetliner in the world. For airlines this new aircraft is opening up routes that were previously impossible. Then there's the A320. A great aircraft."

Airbus delivered its 12,000th airplane, an A220, to Delta Air Lines last month. It has a record backlog of 7,577 orders. Under Faury's leadership, Airbus has returned production to full efficiency after several years of supplier issues, including problems with Pratt & Whitney engines on its popular A320neo jets.

Strengthening relations and co-operation with these suppliers and improving confidence and morale among staff spread across France, Germany, Spain and the UK are making a difference, but an unresolved Brexit is not helping, especially as Airbus has production facilities employing thousands of staff in the UK.

Quietly spoken and thoughtful, Faury said he was still "learning the ropes" as boss of Airbus. Insiders said the mood in the group has changed from the somewhat combative atmosphere of the times when Enders, Bregier and former top aircraft salesman, John Leahy, were in change.

Then, public sparring with Boeing was common. Today, the focus is on what Airbus is doing and how it modernizes its production systems – rather than what Boeing is doing.

While shying away from direct comments about Boeing's 737 MAX crisis, Faury did say that when a competitor was in crisis "we take a step back". As someone who started out as a flight test engineer, he pointed out the

risks are high and the responsibility for flying people is to manage that risk.

"We think it is important the aviation sector, air traffic, is safe and therefore we respect the situation. We want to step back and assess it to fully understand what has happened. We always learn from our mistakes. The wise man learns from his mistake. The very wise man learns from the mistake of others," he said.

"The regulators are doing this as well. Each time there is an incident or an accident that leads to an investigation there are recommendations. The purpose is to protect the safety of the passengers. We just have to be sure the people who are involved in this and investigating this do their work and do their job of sharing. I remind our managers in that situation of their duties and to always put safety first."

Faury is not fazed by fresh competition from China and Russia as the two countries work to bring new single and twin aisle aircraft to the market. "We like competition. Competition makes us better. Passengers benefit from competition," he said.

"I strongly believe in a level playing field in creating conditions for fair competition. It's important for investment. When we are in a good position from investment then you see new players coming in. With diversity and speed of change, I think there is room for many people to compete.

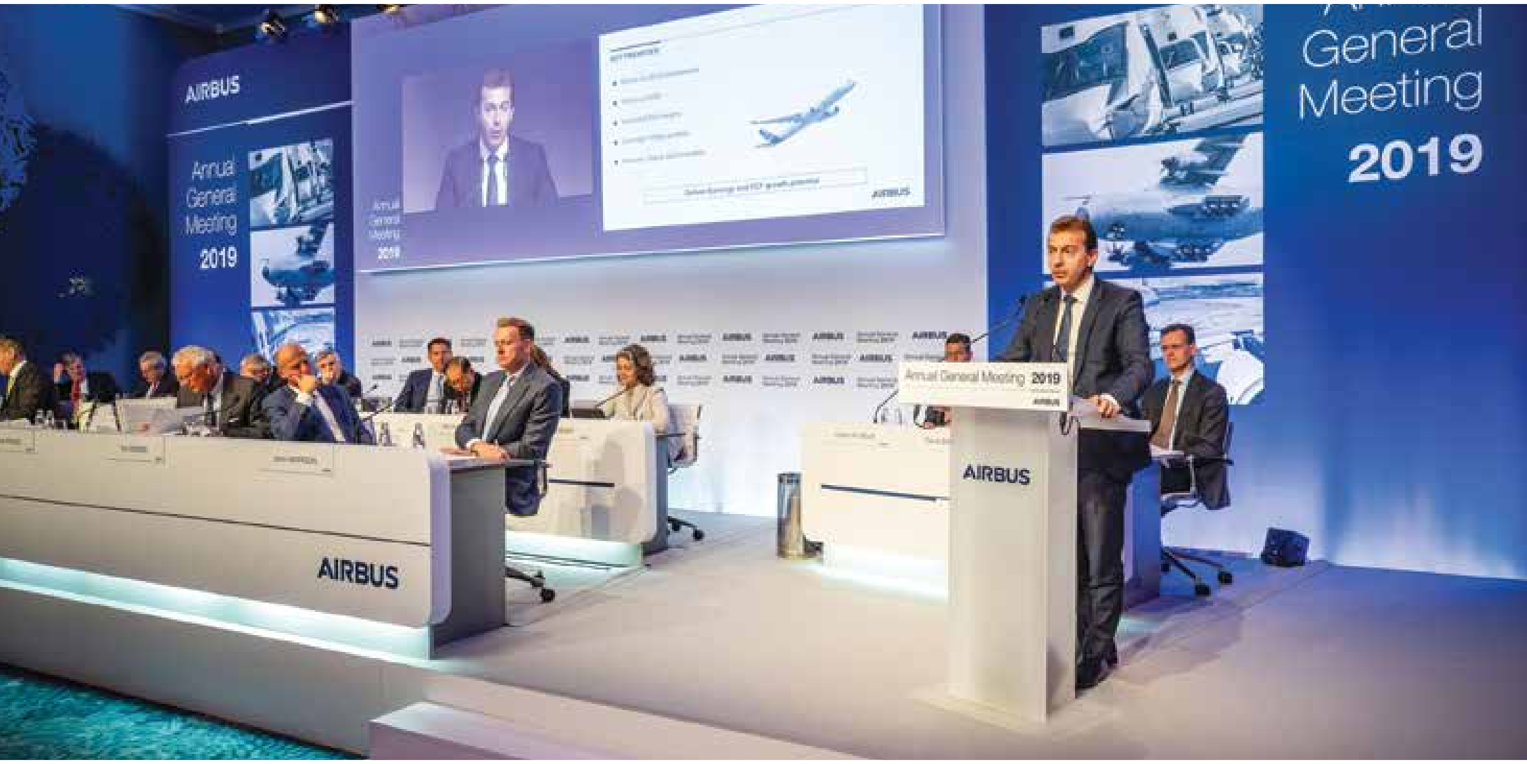
"So basically, more will come to the table. We accept the idea. We will work with some of them to see how we can co-operate. It's a complex world where sometimes you co-operate and sometimes you compete but when it comes to Boeing and Airbus it's more competition than co-operation."

Faury said Airbus was convinced there will be no winners in the trade war between China and the U.S. "We continue to stand up for open borders and free trade that is conducted on a level global playing field. We will strive to remain a powerful engine of prosperity and employment and we will strive to develop innovations needed for a more sustainable aviation sector," he said. ■

A streamlined executive team

The position of CEO of Airbus's commercial aircraft division has been abolished in the new structure with Guillaume Faury incorporating the role into his position as Airbus CEO.

Members of Faury's executive team are:
Dominik Asam, *Chief Financial Officer*
Thierry Baril, *Chief Human Resources Officer*
Jean-Brice Dumont, *Executive Vice-President Engineering*
Bruno Even, *Chief Executive Officer of Airbus Helicopters*
John Harrison, *General Counsel*
Dirk Hoke, *Chief Executive Officer of Airbus Defence and Space*
Julie Kitcher, *Executive Vice-President Communications & Corporate Affairs*
Philippe Mhun, *Executive Vice-President Programmes & Services*
Christian Scherer, *Chief Commercial Officer*
Michael Schöllhorn, *Chief Operations Officer*
Grazia Vittadini, *Chief Technology Officer*



Asia-Pacific airlines respond to shifting market demands

When the world's airline leaders gathered in Seoul this month for the IATA Annual General Meeting (AGM) and World Air Transport Summit (WATS) staying profitable and safe in a fast-changing world were priorities but so was countering cyber assaults and calculating the impact of global economic uncertainty on the industry, reports associate editor and chief correspondent, Tom Ballantyne.

When the heads of Asia-Pacific airlines – both full-service and low-cost – consider the hurdles ahead of them, several potential challenges will be more than familiar. Top of the list are volatile oil pricing, airport and airways congestion and pilot shortages. Not far behind are the impact of global economic uncertainty on travel demand, the re-shaping of passenger behavior from mobile devices and the increase in severe weather episodes across the globe.

Association of Asia-Pacific Airlines (AAPA) director general, Andrew Herdman, reported last month that "the profitability of the region's airlines declined in 2018 , from US$9.6 billion in 2017 to US$4.7 billion last year".

"Continued expansion in the global economy underpinned more growth in air passenger and air cargo markets, but airlines faced a challenging operating environment marked by significantly higher jet fuel prices, adverse currency movements and rising pressures on non-fuel cost items," the AAPA said.

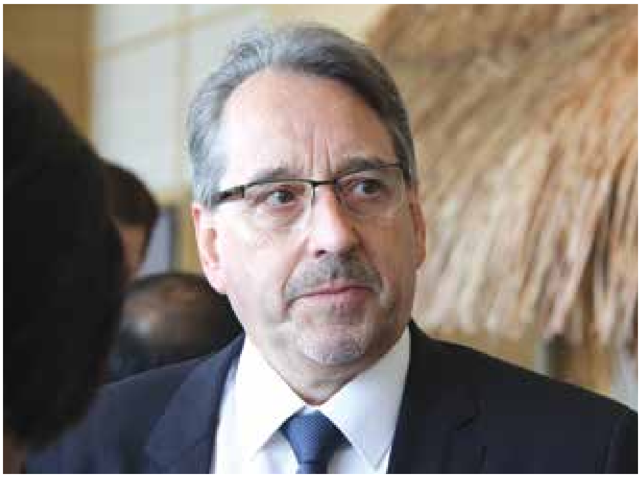
Evidence of the downward trend in profits was exemplified by the fiscal year results of Singapore Airlines. It reported a 47.5% profit decline to March 31, to S$683 million (US$122.972 million); a result attributed mainly to higher fuel prices and costs incurred for the merger of SilkAir into SIA.

SIA, Scoot and SilkAir reported an average load factor of 83% for the 12 months and a group operating profit of S$1.07 billion for the year. However, in the three months to March 31, net profit dropped by 27.8%.

The SIA Group results highlighted an industry conundrum – record passenger demand pitted against a Sino/U.S. trade war and an economic slowdown that has created uncertainty.

Herdman said: "Asia-Pacific airlines continue to face stiff competition, cost pressures and volatile oil and currency markets.

"Air passenger markets remain relatively resilient, but weak sentiment surrounding air cargo markets is a warning signal that trade disputes are doing real damage to the economy and could further undermine growth going forward."



For full-service airlines the continued expansion of the budget sector, particularly in Asia-Pacific, won't diminish. Flag carriers, Malaysia Airlines, Thai Airways and Garuda Indonesia, are facing successful assaults from both indigenous and regional LLCs and are losing money as a result.

Consolidating the threat to past airline operations these LCCs, at times without success, are seeking market share from historically successful full-service carriers on long haul routes.

There is no doubt the most pervasive change in the industry is the influence of digital technology on airline operations. How airlines cope with developments such as biometrics, mobile technology, Blockchain and increased automation may well decide who survives among Asia-Pacific carriers.

Global online forum, Future Travel Experience (FTA), which forecasts industry change recently itemized trends ahead for carriers and also for airports.

They include:

Biometrics: With a number of trials underway this year, it is expected biometrics will bring the industry together to create the airport of tomorrow and introduce new systems to airline customer operations.

Blockchain: Singapore Airlines' frequent flyer programme, KrisFlyer, has launched KrisPay, "the world's first blockchain-based airline loyalty digital wallet". SITA's 2018 Air Transport IT Insights estimates 34% of airports are planning blockchain research and development programs by 2021.

"It is still early days for the technology and its potential is sometimes over-hyped, but in 2019 we can expect more blockchain-related

announcements and trials as airlines and airports explore how it could positively impact the industry," said FTA.

Robotics and Autonomous Vehicles: Asian airports are leaders in this sector. Incheon has its Airstar robot and Haneda Robotics Lab has its portfolio of robots. In 2018, Vistara's Rada robot was the first robot to operate in an Indian Airport.

As more airports are familiar with robots, the technology will play a crucial role in strengthening the relationship between passengers and airports throughout 2019 and beyond.

Artificial intelligence (AI): This is about far more than robots. A number of airlines and airports have AI-powered products, such as chatbots and virtual assistants. The question is: can this technology continue to revolutionise customer service and optimise efficiency?

Voice technology: Virgin Australia is the first airline outside North America to launch voice check-in through Amazon Alexa. It allows passengers to check in for their flight with the power of their voice.

Voice recognition technology is being embedded in our everyday lives because of Amazon Echo, Google Home and Apple's Siri. It is slowly becoming the norm to interact naturally with the technology. Voice technology will have a significant impact on the relationships between businesses and their customers, ranging from the way information is requested and shared to methods of payment.

In a report about the industry to 2035, the International Air Transport Association (IATA) underscored the need to innovate. "The airline industry has seen few fundamental challenges to business models in the past 30 years except for the arrival of LCCs and the introduction of alliances," it said.

"The industry will have to re-focus even more efforts on safety. After a long trend toward greater safety in air travel, there has been an uptick in airline accidents and deaths in 2018 and 2019, notably the tragic Lion Air and Ethiopian Airlines 737 MAX crashes. "These and other incidents continue to raise questions about aircraft design and certification as well as the training of pilots to cope with the digital cockpit. No matter how much effort is put into improving the customer experience through mobile communications and technology, passengers, in the end, must be confident they are embarking on a safe journey"

Alexandre de Juniac
International Air Transport Association director general and CEO

"Airlines struggle to differentiate themselves, competing on network availability and to some extent on pricing and service. Profitability remains low. There is the potential for airlines to take advantage of advances in automation, new transport modes and consumer attitudes.

"Customer service, social values and simplicity will become increasingly important as consumers expect more personalized solutions. Companies that control data will have an advantage over existing competitors in developing new niches.

"It is important for airlines to consider whether they should compete with newer, asset-light data companies or build relationships. The industry will need to focus on customer service and interaction with passengers. It will be important to leverage existing strengths, including reputation as a trusted, safe and mature industry."

One contemporary much debated challenge is ensuring there are sufficient pilots and other professionals to feed the huge leap forward in air passenger demand. The oft repeated numbers are that airlines worldwide will need 600,000 new pilots by 2037 and more than 40% of these pilots will need to be flying in the Asia-Pacific.

"We can debate the exact number, but there is not much disagreement that attracting, training and hiring anywhere near this magnitude of skilled staff will be a challenge," IATA director general and CEO, Alexandre de Juniac said last month.

He said increasing training collaboration between airlines, regulators, regional airline associations and OEMs is essential as is the development of partnerships with academia to create top notch aviation-focused programs for airline executives.

He wants pilot training to be democratized by making it more financially accessible to meet aviation industry needs in the long-term. Globally recognized industry standards and best practices in training for the aviation industry must be developed along with policies that enhance gender diversity, de Juniac said.

"Our Board of Governors is composed of 31 airline CEOs. Two are women. And I am sorry to report I do not see that changing very quickly because there just are not many women CEOs at airlines," he said.

"Balancing gender in all professions and at all levels of the industry will take a huge effort and time. But I am hopeful we will eventually get there, because the business benefits of a diverse workforce are becoming crystal clear." ■

ANA and Panasonic testing self-driving wheelchairs

Japan's largest and most awarded airline, **All Nippon Airways (ANA)**, and the **Panasonic Corporation** will test self-driving electric wheelchairs at Tokyo Narita Airport.

ANA said the wheelchairs will incorporate robotic components that will enable passengers using the mobility chairs to safely and independently navigate through the airport to connecting flights.

"Since Narita airport is an international hub, many travelers must walk long distances to reach connecting flights. The airport's size and high volume of activity can make this inconvenient. This difficulty is compounded for elderly travelers with mobility issues," ANA said.

Jointly developed by Panasonic and **WHILL Co. Ltd,** the self-driving electric wheelchair is capable of detecting and avoiding people and obstacles as it proceeds to its destination. "The robotic wheelchairs are just the latest element in ANA's multi-faceted approach to improving hospitality in the air and on the ground," said **ANA senior vice president, Juichi Hirasawa**. The wheelchairs function by following a pre-determined leader to a common destination with ANA staff on hand as guides. ■

MRO

Honeywell and Lufthansa Technik collaborate on MRO for Asia-Pacific A350 fleets

Two global giants in the MRO and components sectors are collaborating on MRO and parts supply to operators of A350s in the region.

Lufthansa Technik will be the licenced component repair centre and exclusive global asset provider for 200 **Honeywell** shipped components onboard the A350.

"Maintenance is a costly and complex process, but we see our work with Honeywell as an opportunity to help A350 operators in the Asia-Pacific simplify their maintenance experience," **Lufthansa Technik senior vice president corporate sales Asia-Pacific, Gerald Steinhoff**, said. "Over the next 18 months, we will significantly expand our local capabilities in this area."

The two companies have been working together to provide A350 airline operators with MRO since the type entered service in 2014.

"As an aircraft that is so widely depended upon, airlines feel a mounting pressure to do everything they can to keep their A350s operating optimally," **Honeywell Aerospace senior director Asia-Pacific commercial aviation, Sathesh Ramiah**, said.

In four years, Lufthansa Technik has completed 2,000 repairs to the aircraft across the world. It provides direct service to 12 in-service A350 fleets, including seven Asia-Pacific airlines. ■

Inmarsat approves Smart4Aviation's electronic flight bag

Mobile satellite communications company, **Inmarsat**, has certified the **Smart MOBILE Electronic Flight Bag (EFB)** for its SB-S aircraft operations platform.

Smart MOBILE allows cockpit and cabin crew and airline staff to access and send documentation quickly to relevant operations staff on mobile devices via a single portal.

It provides peer-to-peer communications, ACARS messaging and instant access to briefing packages, weather, potential load and fuel information and hazard alerts.

Other available applications are flight profile optimization, digital navigation charts and aircraft diagnostic and performance monitoring.

Inmarsat Aviation senior vice president aircraft operations and safety, John Broughton, said: Smart Mobile can improve operational and cost efficiencies at airlines and enhance safety. ■

Amadeus joins IATA's One order standard

Amadeus certification of the International Air Transport Association (IATA) One order standard as a capable Order Management System will position the GDS as a leader in replacing a system of multiple industry records with a single order record.

Amadeus executive vice president airline solutions, Fabrizio Calcabrini, said the GDS wanted to support airlines in their transition into "true customer-centric travel retailers". One order is part of this journey of working towards alignment across the industry, he said.

In 2017, Amadeus and **British Airways** conducted the first proof of concept using One order messages in a live production environment. The two participants presented feedback to IATA to support development of the standard. ■

KLM commits to first European sustainable aviation fuel manufacturer

SkyNRG and its supporting bioLPG partner, **SHV Energy**, will build Europe's first dedicated plant for the production of sustainable aviation fuel as well as bioLPG (liquid petroleum gas) and feedstock

Naphtha, with the new facility in Delfzijl in The Netherlands to begin production in 2022.

KLM Royal Dutch Airlines has made a ten-year commitment to develop and purchase 75,000 tonnes of sustainable aviation fuel a year from the sustainable fuel production plant.

KLM president and CEO, Pieter Elbers, said: "I am proud of our collaboration with SkyNRG and SHV Energy to launch a project that will see the development of the first European production facility for sustainable aviation fuel (SAF)," he said.

"By joining hands with other parties we can build a plant that will accelerate the development of sustainable aviation fuel. From 2022, the plant will produce 100,000 tonnes of SAF a year of which KLM will purchase 75,000 tonnes.

"This will reduce our CO2 emissions by 200,000 tonnes a year which is equal to 1,000 KLM flights between Amsterdam and Rio de Janeiro."

SkyNRG executive director, Maarten van Dijk, said "for us and our partners this project is an important milestone in further upscaling the market for SAF. We are the first to take a step on this scale and we hope it will serve as an example to the rest of the industry in the transition to a sustainable future for aviation." ■

Mobil Jet Oil 387 aboard ANA new A380

All Nippon Airways (ANA) is using **Mobil Jet Oil 387** in the generators and engines of the A380s it is flying between Tokyo and Hawaii. The application of the lubricant to ANA's A380s extends a two-decade plus partnership between the leading Japanese carrier and ExxonMobil.

ANA vice president procurement, Toshio Nomura, said last month that ExxonMobil was a "credible and reliable partner that provides high quality lubricants, paired with exceptional technical expertise to help us keep aircraft running smoothly for our valued customers. That is why we trust their recommendation use Mobil Jet Oil 387 for our newest flight route", Nomura said. ■

CABIN INNOVATION

ANA trials hearable device for flight attendants

All Nippon Airways (ANA) is trialling a hearable device, **BONX Grip**, that is intended to simplify communications between flight attendants working on the airline's A380 services to Honolulu. It replaces the onboard intercom.

ANA said BONX Grip allows individual cabin crew members to speak to each other freely and naturally at any distance and in any environment: an asset for the increased number of cabin attendants required for A380 flights. If the trial is positive, ANA will expand the application to other routes.

ANA executive vice president, Akihiko Miura, said that "by making it easier for flight attendants to communicate with each other, they will be better equipped to meet passenger needs".

"These hearable devices are just one important tool ANA is testing. We look forward to harnessing the latest technological breakthroughs to improve every aspect of the travel experience," he said. ■

AIR TRAFFIC MANAGEMENT

Singapore to spend big on ATM infrastructure

Transport minister, Khaw Boon Wan, last month committed Singapore to a multi-billion dollar project to upgrade and make more efficient its air traffic management system.

He told delegates attending the **China Aviation Development Forum in Beijing** last month that the current Singapore ATM system was commissioned six years ago and needed to be improved to avoid obsolescence.

Upgrading a complex and increasingly congested ATM system requires constant investment and as well as constant training and upskilling of staff, he said. Singapore employs 450 air traffic controllers and intended to increase that number to 700 by 2030, **The Straits Times** reports.

"Air traffic management today is largely fragmented. It results in inefficiencies, longer flight times and higher costs for airlines," Khaw said.

"Some commentators think managing air space is a viable business venture. They are wrong. Fees from airlines barely cover the high cost of managing airspace properly." ■

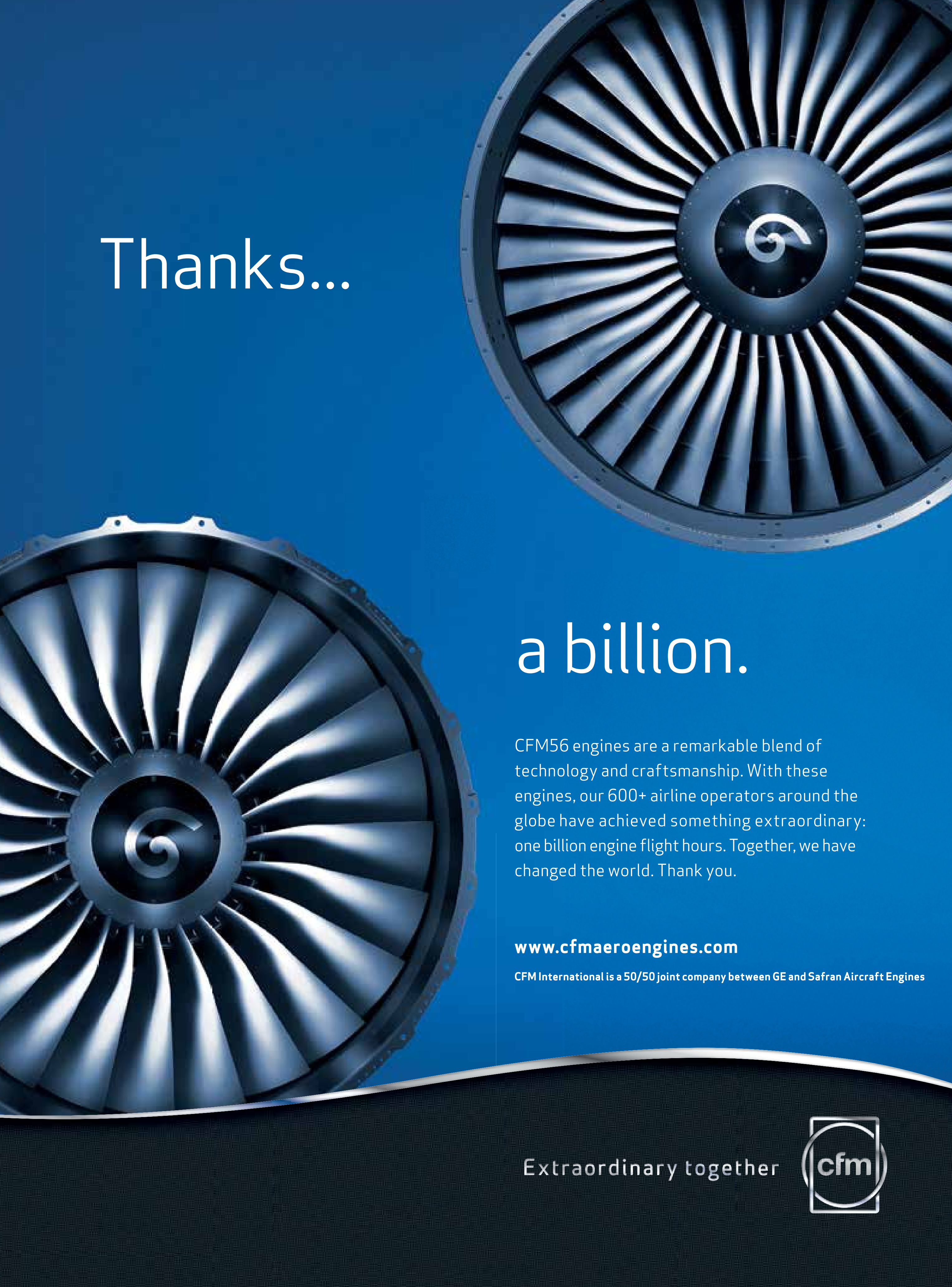
FLIGHT TRAINING

All Nippon Airways opens Haneda training academy

All Nippon Airways (ANA) parent, **ANA HOLDINGS INC.**, has opened its **ANA Blue Base (ABB)**, an operations and hospitality trianing centre that will be fully operational in June 2020. It is a training hub for ANA employees, including pilots, flight attendants and MRO staff offering simulator training systems that are unique to the five-star carrier.

"ANA Blue Base represents the ANA group's firm commitment to improving the quality of the travel experience for all passengers," **ANA HOLDINGS INC. senior vice president, Hiroyuki Kunibu**, said.

The facility, which will be open to the public when completed, will be equipped with a Japanese Chashitsu (tea room) for cabin crew training, simulators, interactive firefighting training and a motion mockup for flight attendants. ■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