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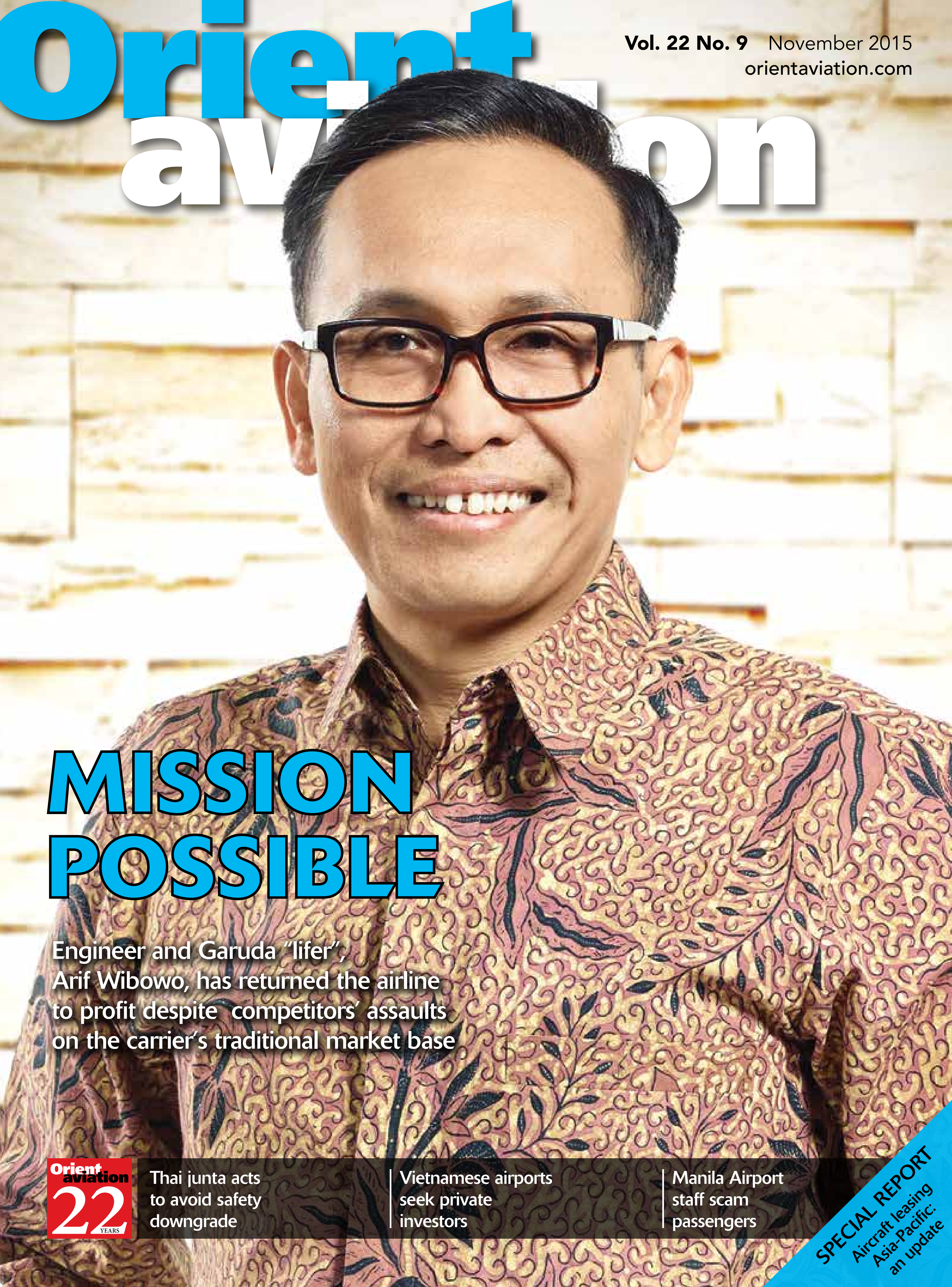

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Engineer and Garuda "lifer", Arif Wibowo, has returned the airline to profit despite competitors' assaults on the carrier's traditional market base

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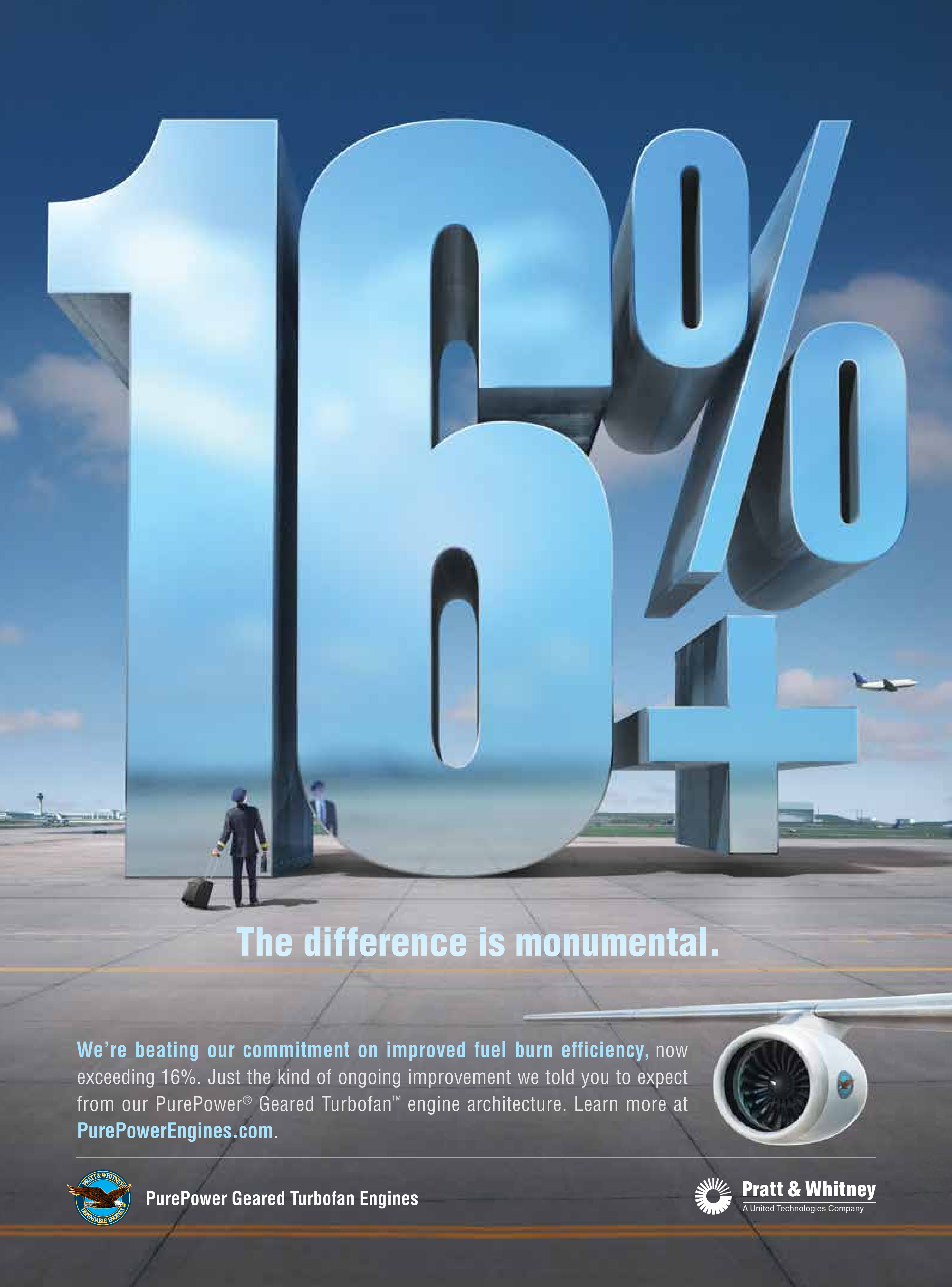
Thai junta acts to avoid safety downgrade

Vietnamese airports seek private investors

Manila Airport staff scam passengers

SPECIAL REPORT Aircraft leasing Asia-Pacific: an update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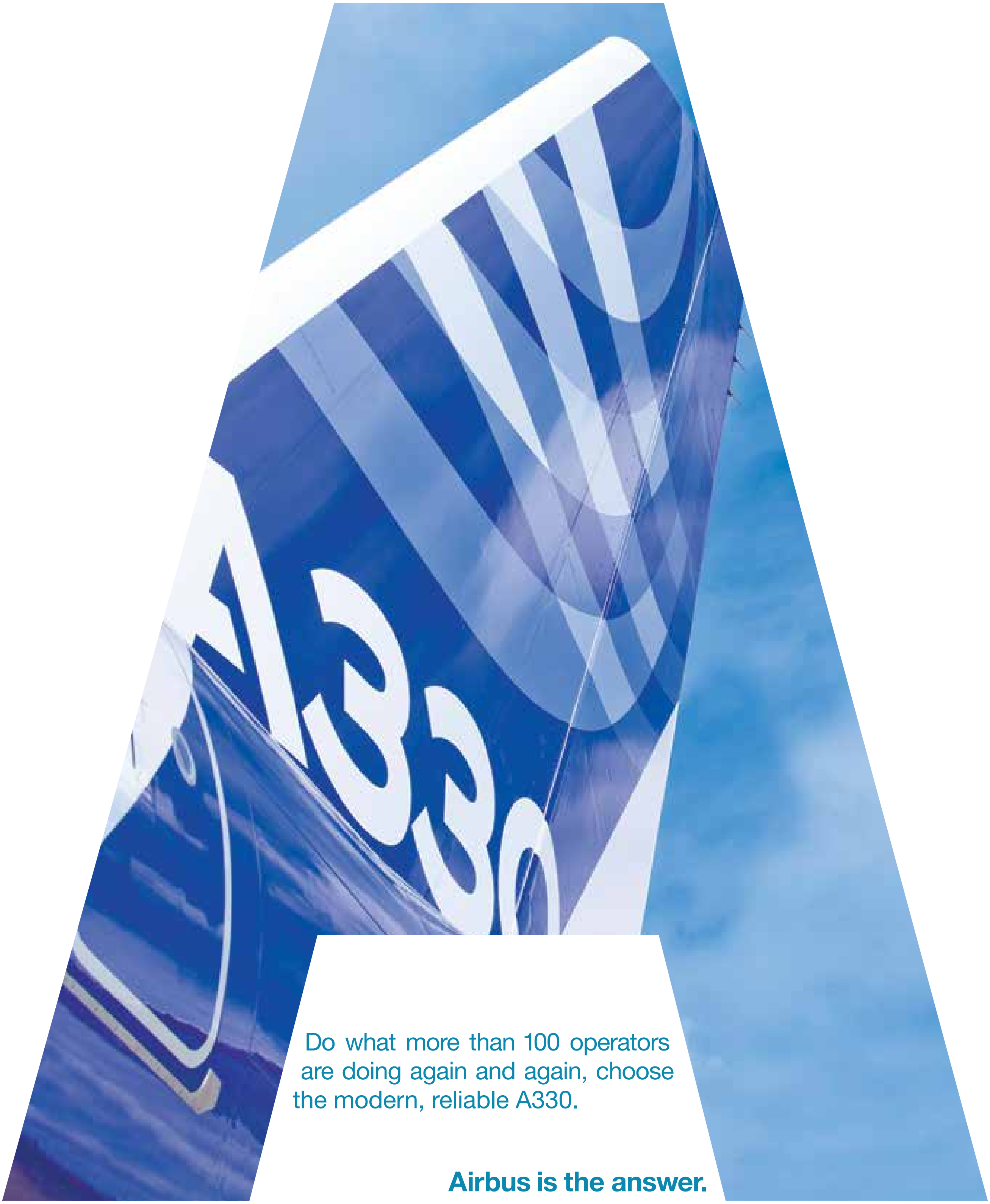

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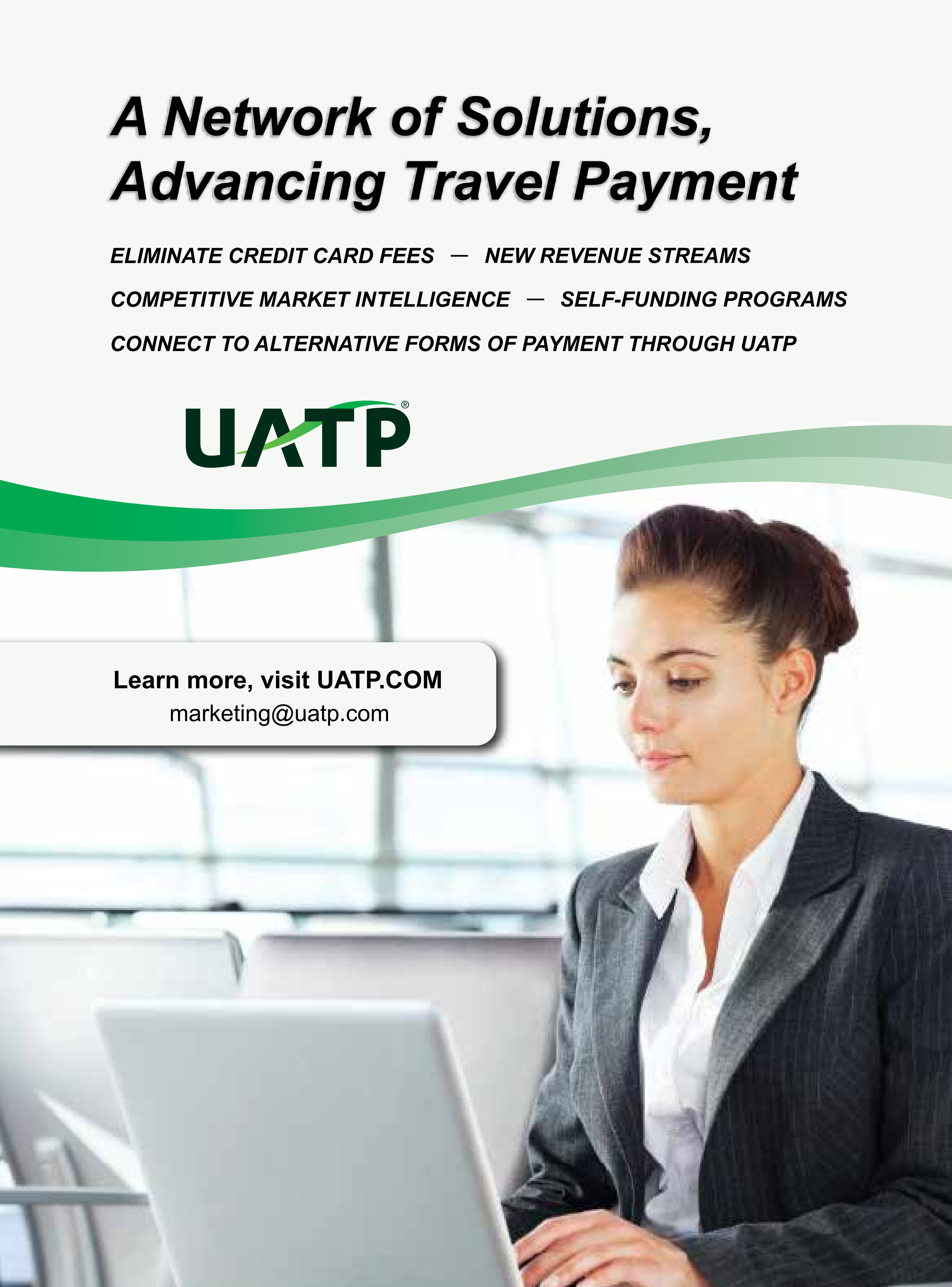
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MH17 tragedy forces overflight changes

There were no surprises in the findings of the Dutch Safety Board investigation into the shooting down of Malaysia Airlines flight MH17 on July 18 last year. The investigators concluded the lives of 298 passengers and crew were lost because the aircraft was shot down by a Russian-made Buk ground-to-air-missile.

Details of the horrible act, graphically displayed in a digital reconstruction when the results of the investigation were released in last month, underscored the horrific nature of the crime.

Importantly, the investigation highlighted the shortcomings in air safety management for flights over conflict zones. Airspace above eastern Ukraine should not have been open to commercial aircraft in July last year. In the weeks prior to the incident, several military aircraft had been shot down by ground-to-air missiles, including at least two not far below the height MH17 and other airlines – 160 flights on the day of the crash - were operating.

We will probably never know if the decision to leave the airspace open was economic. Air service providers reap serious money from overflights. But caution and air safety should always prevail over other factors. It has been a wake-up call for all.

Ultimately, if airspace is open, airlines make the final decision on routing. Since MH17, carriers have been more circumspect about flying over conflict zones. But they need to be better informed by States involved in conflict. Airlines need to know what is happening on the ground that could effect the safe passage of their aircraft.

The situation since the destruction of MH17 has made a challenging task for Asia-Pacific carriers a lot harder. When flying from Asia to Europe, it is difficult to find many routes where there is no trouble on the ground. Afghanistan, Ukraine and the Middle East immediately come to mind, but there are others.

The International Air Transport Association said ICAO's Conflict Zone Information Repository, where States can report conflict zone information, is a good start. Some countries are beginning to provide very useful information. More countries need to contribute to the registry.

In the meantime, another Dutch-led inquiry into MH17, criminal in nature, continues with participation from Malaysia, Australia, Ukraine and Belgium. Its report is not due for completion until next year.

Sadly, whatever its findings, it is highly unlikely the perpetrators of this crime will be brought to justice. Russia has vehemently denied any involvement in the destruction of MH17. It has even attacked the Dutch investigation for not being independent.

Yet Russia vetoed a United Nations resolution earlier this year to conduct exactly that, an independent international inquiry. MH17 was a civilian aircraft carrying civilian passengers and crew. Russia must accept its responsibility for a terrible tragedy. ■

TOM BALLANTYNE
Chief Correspondent
Orient Aviation Media Group

Investors welcomed to "The Party"

Asia-Pacific emerging economy, Vietnam, is a communist state, but its government is bent on bringing more capitalism into aviation, including an initiative that a few years ago would have been almost improbable - selling 25% of its shares in the country's air regulator, the Civil Aviation Authority of Vietnam (CAAV).

CAAV's deputy director, airport management department, Nguyen Duong, told delegates at the Southeast Asia Airport Expansion Summit in Hanoi: "I hope that in the very near future, we will see the participation of private and foreign investors in airport development, as well as the aviation industry in Vietnam. This is the way things should go."

A new aviation law, which took effect on July 1, aimed to promote the role of private investors, he added.

Vietnam's rapid airline expansion is pressuring the government to provide better airport infrastructure, a demand that requires the financing knowhow of the private sector. Between 2010 and 2014, Vietnam's domestic passenger growth averaged 12% annually, with yearly numbers rising from 21.07 million passengers to 33.16 million.

Growth at some international airports rose spectacularly. Cam Ranh grew at 25.5% per year, Vinh at 34.8% and Phu Quoc at 24.7%. Small and Vietnamese air force controlled Tho Xuan airport, in northern Vietnam, experienced 70.5% annual growth in the last two years.

Freight grew at 12.67% a year, with annual cargo traffic climbing from 460,000 tonnes to more than 741,000 tonnes, in a period when the sector is faltering in the region.

Vietnam has 22 airports, which will increase to 26 by 2020. Duong said flag

carrier, Vietnam Airlines (VNA), has changed from a state utility to a joint stock company, and airport businesses would also be privatised "sooner or later". The CAAV would be no exception, he said.

Earlier this year, VNA, budget carrier, Vietjet, and some private businesses asked to buy the operational rights to a terminal at Noi Bai Airport in Hanoi. Other investors are understood to be interested in buying Phu Quoc Airport in the country's south. ***By Tom Ballantyne***. ■

Thailand's junta intervenes to avoid air safety humiliation

The layers of bureaucratic inertia exposed by the failure of Thailand's aviation regulators to promptly address the country's air safety deficiencies become too much for its military leadership to bear, ***reports Tom Ballantyne***.

In a left field move intended to prevent a downgrade by global air safety auditors, the military leadership has set up an air force-led task force with special powers, the command Centre for Resolving Civil Aviation Issues (CRCA). The Royal Thai Air Force and the Department Civil Aviation (DCA) were made core units of the centre and the junta has appointed one of its own, air force commander-in-chief and vice chairman of Thai Airways International (THAI), Air Chief Marshal Treetod Sonjance, to run the rescue operation.

The CRCA has extraordinary powers to "order, supervise and follow up on any action to make sure the problems are solved". It can propose changes to related laws and revise or add regulations as well as appoint air force officers to work at the DCA or other agencies for not more than four years. CRCA members will retain their air-force positions and receive extra pay for their service at the centre. The organization has been authorized to employ outside civil aviation specialists when necessary.

General Prayut Chan-o-cha, the head of Thailand's National Council for Peace and Order, effectively the military government, directed the CRCA to upgrade Thailand's civil aviation industry to international standards before the International Civil Aviation Organisation (ICAO) and the Federal Aviation Administration of the U.S remove Thailand from the list of countries with the highest air safety rating.

Thai media said the government's decision to temporarily transfer air force officers to the civil service also is intended to alleviate, in the short term, skilled staff shortages at the DCA.

ICAO red-flagged Thailand in mid-June for failing to solve significant safety concerns about the country's aviation standards, within a 90-day deadline, after receiving a warning. Shortcomings included the DCA's failure to meet global aviation safety standards for regulating aviation businesses and granting air operator certificates. There also was insufficient oversight to enforce ICAO standards.

The U.S.'s FAA gave Thailand 65 days to fix its list of aviation shortcomings following an audit on the DCA last July. The European Aviation Safety Agency (EASA) is scheduled to inspect Thai aviation standards this month. ■

Manila airport staff accused of brazen bullet scam

Philippines president, Benigno Aquino, has ordered an inquiry into allegations that security staff at Manila's main international airport plant bullets in passengers' baggage and then demand money from their victims. It is alleged staff hide bullets in the luggage of unsuspecting passengers, produce the bullets during security searches and extort money from the unlucky travelers to avoid charges. Victims have included a Japanese tourist found with two bullets in his luggage and a wheelchair bound passenger who was accused of carrying one bullet. Manila media said a U.S. missionary, Lane Michael White, complained to authorities after airport staff said they found two bullets in his bags and demanded 30,000 pesos (US$645) in exchange for allowing him to continue his journey. The Philippines secretary of transportation and communications, Joseph Emilio Abaya, told local media his department is "thoroughly looking into" the incidents. ■

Western aircraft duopoly challenged by new Sino-Russian partnership

When Russia announced plans last month to jointly develop a mid-size passenger jet with China, it was a warning to the western duopoly of Airbus and Boeing that an east versus west battle for future aircraft sales is coming sooner than western manufacturers expected.

Tom Ballantyne reports

It was a bolt out of the blue. On September 21, two days before Chinese President, Xi Jinping, visited Boeing's production lines in Seattle, news came from Moscow that Russia and China were on the verge of signing an agreement to jointly develop a wide-body jet.

The pending deal meant Russia and China intended to work together on an aircraft that would compete with Airbus and Boeing wide-body airplanes, the country's deputy industry minister, Andrey Boginsky, told reporters. He added he expected an accord to be signed by the end of the year.

Boginsky's announcement was a significant development in the global aircraft manufacturing industry. Until now, China has focused on its new single-aisle jet, the C919, which is being built by the Commercial Aircraft Corporation of China (COMAC) and is aimed at competing with the A320 and the B737. There have been several delays to the C919 launch, but it is scheduled to fly for the first time next year.

Both Boeing and Airbus have publicly acknowledged China will become a major competitor and have said they are happy to compete with whoever comes along. Most industry insiders estimated it would take as long as 20 years for China to reach that point, but a joint push from Russia and China could bring forward that calculation significantly.

China's first short to medium haul single aisle jet, the C919, was rolled out in Shanghai on November 2, with its maiden flight expected early in 2016

Boginsky said COMAC and Russia's United Aircraft Corporation (UAC) would be the project's partners, with an ambit that could include the development of an aircraft engine, calculated to cost $20 billion.

Speaking in Beijing at the recent Aviation Expo China 2015, the president of UAC, Yuri Slyusar, said the agreement would specify each country's responsibilities and profits from the project.

"So far, the project has proceeded well. We plan to determine the technical requirements, specifications and outsourcing methods by March," he said.

"The new jetliner is totally different from the C919 in passenger volume and flight range. It is aimed at different markets, so they will not compete with each other," he said. "The planned airplane would accommodate between 210 to 350 passengers, depending on the configuration."

Russia had floated a proposal with China for a jointly developed wide-body jet in 2012, but the Chinese government and COMAC appeared uninterested. But last year COMAC signed an initial cooperation memorandum with UAC and began preliminary research on the project.

It is reported China will manufacture the fuselage main frame and Russia will be responsible for the wings and tail parts. Both countries are said to want to hasten the development of the aircraft with a view to breaking up the Airbus-Boeing duopoly.

While it will be years before the project produces a saleable aircraft, it should have plenty of buyers, not only in China and in Russia, but beyond. The Aviation

Industry Corporation of China's (AVIC) outlook for civilian aircraft demand for the next 20 years estimates 37,900 passenger aircraft will be required globally, with China needing more than 5,500 passenger planes.

China is increasing its efforts to transform China into a major global aerospace power and not just in the big commercial jet sector. Last month, AVIC and the local government of the central Chinese province of Hubei began building the first of many industrial complexes dedicated to serving the country's expanding general aviation market. The $3.1 billion investment will sprawl across 30 square kms of Hubei's Jingmen City .

AVIC chairman, Lin Zuoming, said the facility should be completed by 2023 and will be dedicated to building aircraft and conducting research and training. "AVIC will construct 50 such complexes in China to cover 90% of the country's population in order to build a national light aircraft operation network," he said.

In the meantime, Airbus and Boeing are increasing their investment in China. In Seattle, president Xi not only announced China would buy 300 Boeing airliners. He said the U.S. aerospace company and COMAC would become partners in a B737 completion and delivery center in China and added existing long-term collaboration between Boeing and AVIC would be broadened.

The Boeing partnership came days after Airbus said its new A330 completion and delivery centre in Tianjin, where it has an A320 final assembly line, would create 250 to 300 jobs in the port city when it opened in late 2017.

Philippe Pezet, vice-president for human resources at Airbus Group China, said many staff will move over to the new plant from the existing A320 aircraft final assembly line and that only 10% of the workforce would be expatriates.

> **The new jetliner is totally different from the C919 in passenger volume and flight range. It is aimed at different markets so the two airliners will not compete with each other**
>
> **Andrey Boginsky**
> Russian deputy industry minister

The A330 center will differ from the A320 aircraft final assembly line by concentrating on cabin equipment, which is more complex than the A320, painting, test flights and delivery, Airbus said.

The Boeing order, worth $38 billion at list prices, consists of 250 narrow-body B737s and 50 wide-bodies (not identified, but believed to be mostly B787s). Leasing companies, ICBC and CDB Leasing, will receive 60 of the B737s.

"Boeing airplanes have played an important role in supporting the development of China's aviation transportation for the past 40 years," said Li Hai, president of China Aviation Supplies Holding Company, through which all commercial aircraft for China are ordered. "These additional airplanes will help connect people in China and around the world."

Boeing president and chief executive, Dennis Muilenburg, said Boeing appreciated China's continued trust and confidence. "Today's visit by president Xi represents a new chapter in the valuable relationship between Boeing and China. Boeing is committed to strengthening and deepening our partnership with China in mutually beneficial ways that will bring positive outcomes to Boeing and our Chinese partners," he said.

China's C919 order book

China's short to medium single aisle jet, which was rolled out in Shanghai this month, has an order book of 517 aircraft from 52 Chinese airline and aircraft leasing customers.

Airline customers: seven airlines have ordered 135 C919s plus MoUs for 17 of the aircraft type

Air China (20), China Eastern Airlines (20), China Southern Airlines (20), Hainan Airlines (15), Sichuan Airlines (20), Hebei Airlines (20) and Joyair (20). PuRen Airlines and City Airways have signed Memorandums for Purchase for seven and 10 C919s, respectively.

Aircraft lessor customers: 12 aircraft leasing companies have ordered 365 C919s

GECAS (20), ICBC Leasing (45), Ping An Insurance (Group) Company of China (50), China Development Bank Leasing (15), Bank of Communications Financial Leasing Company Ltd (30), ABC Financial Leasing Co. Ltd (45), CCB Financial Leasing Corporation Ltd (50), CMB Financial Leasing (30), Industrial Bank of China Financial Leasing Co.(20), China Aircraft Leasing Group Holdings Ltd (20), BOC Aviation (20) and Huaxia Financial Leasing Co. Ltd (20).

While in Seattle, president Xi viewed final assembly lines for the 787 Dreamliner, 777 and 747-8, as well as aircraft components made by Chinese aviation suppliers. He spoke with Boeing employees and the 787 chief pilot about their work on aircraft built for Chinese carriers.

Commenting on the new 737 completion plant, COMAC vice president, Wu Guanghui, said the collaboration "will help advance the Chinese commercial transportation market in a better and faster way and will benefit the development of supporting Chinese industries related to aircraft completion as well as the global growth of China's civil aviation business".

Boeing, COMAC and Chinese government officials are working towards a final business agreement and will announce the facility's location, and the timing of first deliveries, at a later date. Boeing, now producing a record 42 737s per month, will increase production to 47 airplanes per month in 2017 and 52 airplanes monthly in 2018 to meet demand for the aircraft type.

Boeing dismissed claims by its Machinist union members and some politicians (including Presidential candidate, Donald Trump) that American jobs would be lost because of the new centre in China.

It pointed out that while orders from China are large they make up a small percentage of the backlog of 5,710 aircraft Boeing has on order. Muilenburg said he saw scope for additional 737 work going to China as the company continued to increase production rates, though any changes would not come at the expense of U.S. jobs.

"As we ramp up capabilities in China, including additional 737-related work, the actions that we will take are actions that will allow us to grow jobs here in the U.S," he said. ■

Malaysia on hunt for "trigger happy criminals" who destroyed MH17

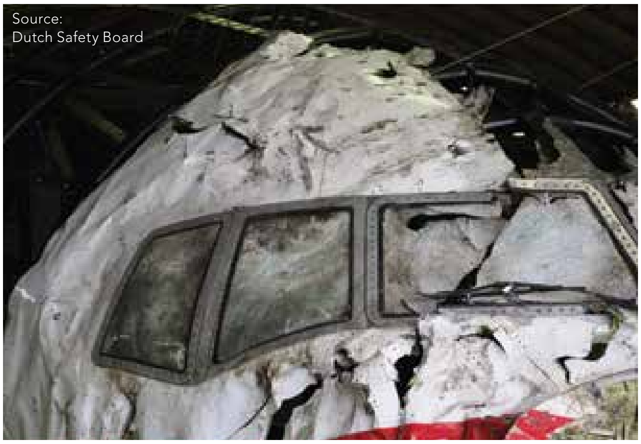
By Tom Ballantyne

Following the release of the report into the downing of MH17, Malaysia has vowed to seek the prosecution of the "trigger-happy criminals" who downed the flight. Transport minister, Liow Tiong Lai, said that as a party to the investigation "Malaysia remains single-minded in our pursuit of decisive action that will lead to prosecution of the trigger-happy criminals".

Malaysia's prime minister, Najib Razak, vowed his government would continue to press for justice "until those behind this heinous act are made to pay for their crimes".

Moscow has vehemently denied any involvement in the crash and has blamed Ukrainian government forces who were battling a fierce rebellion by pro-Russian separatists in the east at the time of the shooting down of MH17.

A separate criminal inquiry into the flight's downing, led by the Netherlands is still underway, with participation from Malaysia, Australia, Ukraine and Belgium. Though the criminal report is not due until next year, a statement released by the international team said their findings "point in the same direction" and that they had identified "persons of interest".


Source: Dutch Safety Board

The year-long Dutch Safety Board investigation concluded last month that Malaysia Airlines flight MH17 was shot down over the Ukraine last year by a Russian-built Buk missile. It also pointed the finger of blame at Ukrainian air navigation services and airlines themselves.

It said it was clear that Ukraine "already had sufficient reason" to close the airspace over the conflict-torn eastern part of the country as a precaution before July18, 2014, the day the jet was downed.

But it went further and said the system of responsibilities for flying over conflict areas is inadequate. "Operators assume that unrestricted airspaces are safe. When assessing the risk, the operators usually take into account the safety of departure and arrival locations, but not the safety of the countries they fly over. When flying over a conflict area, an additional risk assessment is necessary," the investigation found.

It added it is extremely important that parties involved in aviation, including states, international organizations such as ICAO and IATA, and operators, exchange more information about conflict areas and potential threats to civil aviation. "When processing and interpreting this information, more attention should be paid to the development of the conflict, including any increase of military activity and shootings from the ground.

"States involved in an armed conflict should receive more incentives and better support to safeguard the safety of their airspace." In addition, the Dutch Safety Board is of the opinion that operators should give public account for their flight routes.

At the time of the shooting down of MH17, airspace over the eastern part of Ukraine was being heavily used. Between July 14 and 17 July 2014, 61 airlines from 32 countries routed their flights through this airspace. On the day of the crash, until the airspace was closed, 160 commercial airliners flew over the area.

The Dutch board made it clear Malaysia Airlines prepared and operated flight MH17 in accordance with regulations and that, as the state of departure, the Netherlands had no responsibility to advise the airline about the chosen flight route.

Reacting to the report, a spokesman for the International Air Transport Association (IATA) pointed out to Orient Aviation the investigation confirmed that in the months leading up to the tragedy, no state or international organization explicitly warned of any risks to civil aviation and no states prohibited its airlines from using the airspace or imposed other restrictions.

"In the wake of MH17, the industry quickly joined together under ICAO to identify and address the gaps exposed by this event. Airlines need clear and accurate information on which to make risk assessments on where and when it is safe to fly," IATA said.

"Such information must be accessible in an authoritative, accurate, consistent, and unequivocal way. This is the responsibility of states. Even sensitive information can be sanitized in a way that ensures airlines get essential and actionable information without compromising methods or sources.

"ICAO's Conflict Zone Information Repository, where states can share their conflict zone information, is a good start and some states are beginning to provide very useful information.

"We collectively need to encourage more states to participate." The aviation industry is calling for a global convention to impose on states more explicit obligations to manage the design, manufacture, sale, and deployment of anti-aircraft weaponry.

The Dutch-led investigation, which involved nine nations, including Malaysia and Australia, left no doubt that a Russian-manufactured missile downed MH17. The crash was caused by the detonation of a 9N314M-type warhead launched from the eastern part of Ukraine using a Buk missile system, the investigators ruled.

In an impressive presentation of the findings, which included digital reconstruction of events, the investigation showed MH17 progressed normally up to the moment it was flying over the eastern part of Ukraine. "A 9N314M warhead, launched by a Buk surface-to-air missile system from a 320-square-kilometre area in the eastern part of Ukraine, detonated to the left and above the cockpit. The forward section of the aircraft was penetrated by hundreds of high-energy objects coming from the warhead. As a result of the impact and the subsequent blast, the three crew members in the cockpit were killed immediately and the airplane broke up in the air. Wreckage from the aircraft was distributed over various sites in an area of 50 square kilometres. All 298 occupants were killed," the investigators' report said.

The safety board said it had established the cause of the crash on the basis of several sources. The weapon system used was identified on the basis of, among other things, the damage pattern on the wreckage, the fragments found in the wreckage and in the bodies of crew members, and the way in which the aircraft broke up.

The findings were supported by the data on the flight recorders; the Cockpit Voice Recorder picked up a sound peak during the final milliseconds. In addition, traces of paint on a number of missile fragments found matched the paint on parts of a missile recovered from the area by the Dutch Safety Board.

Other potential causes, such as an explosion inside the aircraft or an air-to-air missile, were investigated and excluded. "No scenario other than a Buk surface-to-air missile can explain this combination of facts," said investigators. ■

HITTING EMISSIONS TARGETS

Flying solo will limit the ability of airlines to meet their ambitious emissions reduction targets. A deeper level of co-operation between governments and airlines and their partners must be forged to achieve global aviation's goal of halving its emissions, from 2005 levels, by 2050.

Tom Ballantyne reports

A year away from an International Civil Aviation Organization (ICAO) Assembly, where representatives of 190 member states will be tasked with producing a global scheme for payment of emissions from aviation, a new report has been released that outlined the industry's progress in combating climate change.

At the same time, at the recent Air Transport Action Group (ATAG) Global Sustainable Aviation Summit in Geneva, industry leaders emphasized, once again, that combating climate change is a team effort, and that team includes governments.

But for now, the report on the aviation industry's success in reducing its global production of greenhouse gases, Aviation Climate Solutions, is impressive. In the last 25 years, the airline industry has halved its fuel use per kilometre.

Since 2008, when the International Air Transport Association (IATA) set its emissions targets, a cumulative 600 million tonnes of CO_2 have been avoided as a result of the industry's four pillar strategy of improved technology, operations, infrastructure and the introduction of a global market based measure (MBM) to pay for industry emissions.

IATA director general and CEO, Tony Tyler, in a speech at the ATAG summit, said yes, good work had been done, but the job was far from finished.

Both Tyler and ATAG executive director, Michael Gill, told delegates the industry was on target for achieving a 1.5% improvement in fuel efficiency per year to 2020, but both speakers qualified that achievement by reminding the audience that to reach the critical target of being carbon neutral by 2020, inter-governmental action was necessary. The same government support was essential for the aviation industry to achieve its goals of halving production of greenhouse gases by 2050, Tyler said.

Executive director of the Air Transport Action Group, Michael Gill: climate change action is not only taking place in large organisations,but through partners in emerging economies

To hammer home their point on co-operation, 28 aviation manufacturers and the leaders of global and regional airline and airport associations signed an open letter to governments asking for support for "developing a smart regulatory environment which encourages aviation development as part of broader government economic growth policy, within and across national borders to bring global benefits in a way that avoids unintended negative consequences".

As IATA and ATAG have often said, one major negative consequence would be the continuing development by countries of individual, unco-ordinated emissions taxes on aviation.

The letter was organized by the Air Transport Action Group (ATAG), which brings together all the major players in the aviation sector. The signatories reaffirmed their commitment to their specific goals of containing climate change.

The Aviation Climate Solutions report demonstrates the industry has embarked on a systematic program of energy efficiency to reduce its climate impact. Projects range from solar power installations at a hundred airports around the world to tablet computers for pilots, groundbreaking aircraft designs and flights with fuel made with waste gas from anything from steel plants to used cooking oil.

"The case studies (in the report) show the wide variety of climate action across the sector," said ATAG's Gill. "Carbon emissions reduction projects by over 400 organizations in 65 countries are represented. But this is only a snapshot of the projects underway.

"The most impressive realization is the sheer amount of collaboration between industry partners, helping to drive efficiency. Action is taking place in all parts of the world and not only at large organizations, but also through partnerships in emerging economies."

Key areas of climate action in the report include the development of alternative fuels, operational efficiencies such as using lighter equipment on board and taking-off, flying and landing in smarter ways, the development of entirely new aircraft and components and systematic changes in airspace and navigation management.

"Not all the projects are headline-grabbers," Gill said. "Some actions are big, such as bringing a new aircraft to service, and some are smaller, but significant in their own way. This is a reflection of the aviation industry as a whole. We serve thousands of communities and over three billion passengers a year, but each journey tells its own unique story. It is also a reflection of what will be needed to tackle climate challenge on a broader level.

All parts of the economy and all parts of society have a role to play, with both small actions and large shifts in thinking."

Use of alternative fuels has made extraordinary progress, despite the scope of the undertaking and its cost. More than 2,000 flights have taken place using sustainable alternative fuels. Committed airlines are spending millions in pre-purchasing of sustainable fuels made from a huge range of re-cycled materials using technology that did not exist a decade ago.

Tyler told summit delegates a global offsetting scheme would be aviation's preferred MBM. "Offsetting is important because it is a legitimate means for the industry to achieve carbon neutral growth. It makes sense for aviation while it continues to take every step it can for itself to encourage reductions in other business sectors where the scope for emissions cuts is greater," he said.

The IATA director general also highlighted the importance of teamwork, innovation and industry unity as the bedrock of the industry's environmental achievements and the driver of success.

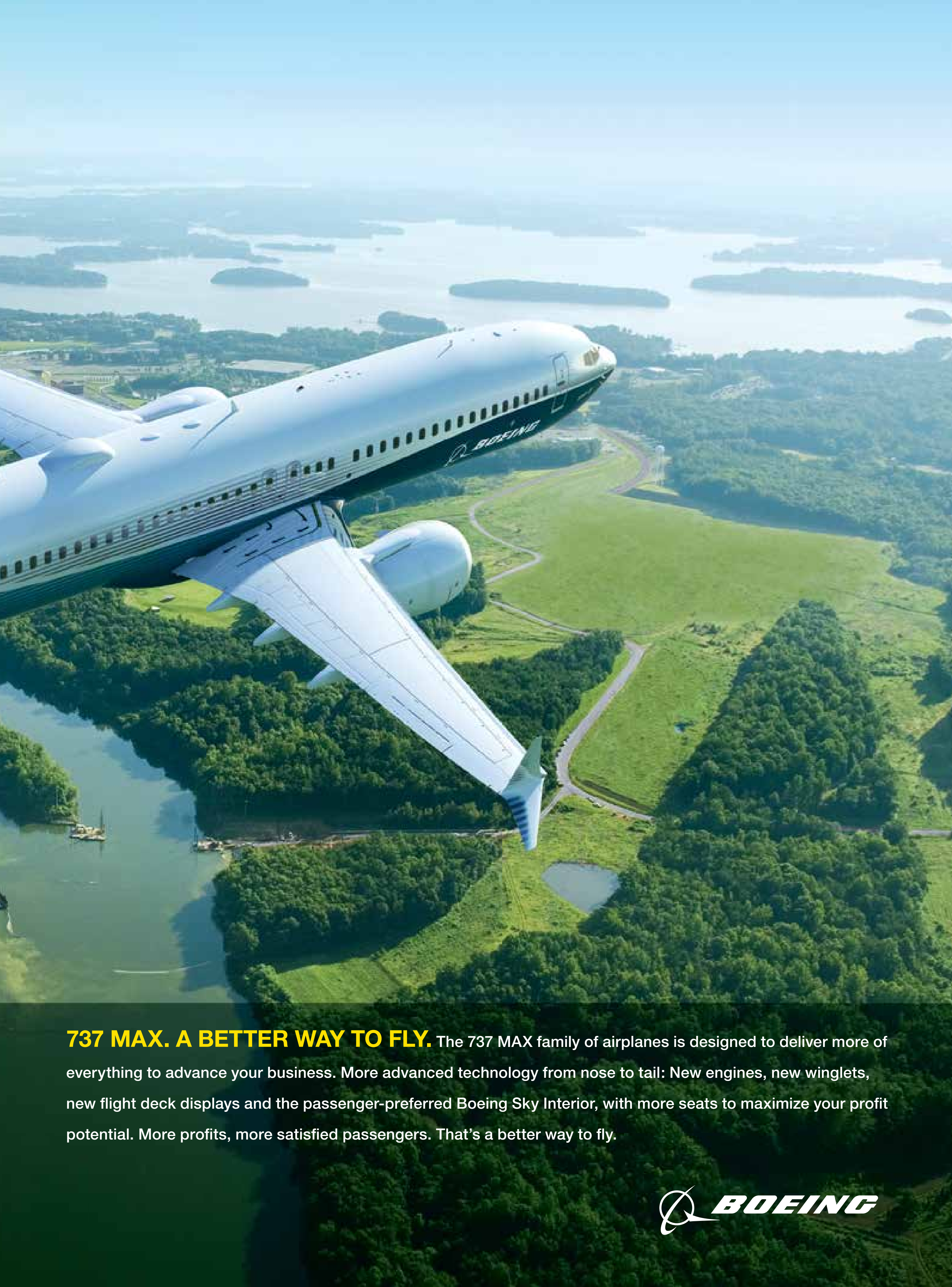
"Flying is a team effort. And that is equally true for reaching our sustainability goals. Innovation has been at the root of our technological and operational improvements. But above all it is the unity of the aviation industry, jointly setting our three climate-change targets, and the four-pillar strategy to reach them, which has enabled us to make significant progress," Tyler said.

He said the industry's united strategy to achieve its ambitious targets has given it a strong voice to call for governments to agree an MBM to capture carbon emissions, to enact long-overdue air traffic management reform and put in place policies to accelerate the production of sustainable fuels.

"We have only 12 months to go before ICAO makes its decision on that MBM. In the hands of 190 states will be the power to make aviation's carbon-neutral growth goal a reality. It is no exaggeration to say that the eyes of the world will be on them. And the industry is committed to supporting their success," Tyler said. ■

Winning the emissions battle

* *More than 100 airports worldwide have invested in solar power, supplying a portion of their energy needs (and up to 100% in one case).*
* *The addition of wingtip devices to 8,300 in-service aircraft has saved around 56 million tonnes of CO_2 in the past 15 years.*
* *More than 2,000 commercial flights have taken place using sustainable alternative aviation fuels that are being brought into everyday use, including billions of dollars invested by airlines pre-purchasing alternative fuel to help kick-start the industry.-*
* *Lightweighting, including the use of new slim-line seats, carbon-fibre food service trolleys and stronger but lighter cargo and baggage containers is saving millions of tonnes of CO_2 across airline fleets each year.*
* *Technologies such as performance-based navigation are having an impact on air navigation in remote parts of the world, helping the industry serve communities more reliably and with lower emissions in challenging environments.*
* *Several airlines and aviation companies are encouraging their teams to generate climate action ideas that will reduce emissions.*


737 MAX. A BETTER WAY TO FLY. The 737 MAX family of airplanes is designed to deliver more of everything to advance your business. More advanced technology from nose to tail: New engines, new winglets, new flight deck displays and the passenger-preferred Boeing Sky Interior, with more seats to maximize your profit potential. More profits, more satisfied passengers. That's a better way to fly.
BOEING

MISSION POSSIBLE

As Garuda Indonesia prepares to host the 59th Assembly of Presidents of the Association of Asia Pacific Airlines (AAPA) this month, its president director, Arif Wibowo, can look back on his first year at the carrier with some satisfaction. Losses have turned to profits and expansion is on the drawing board.

TOM BALLANTYNE reports

Arif Wibowo, Garuda Indonesia's president director, had big shoes to fill when he took over from Emirsyah Satar last December, and in more ways than one.

Wibowo's predecessor had rebuilt the airline from ground up during his tenure, but the recovery trajectory hiccupped last year when a perfect storm of a falling currency, effective budget carrier competition and a faltering domestic economy put the airline into loss, its first red ink result since 2006.

Wibowo has been straight out of the blocks in dealing with the problem. He and his team decided on a "Quick Win" strategy to return the carrier, and its subsidiaries, to profit in the short term. That's done and now it is a full on focus on Wibowo's Sky Beyond strategy.

Successful implementation of Sky Beyond, planned to produce sustained airline profits for the group, is hard enough in the best operating environments, so it is even more of a challenge for Wibowo in the flip flop economic world of Asia's emerging economies in 2015. But so far, Wibowo, at 49, is showing every sign of coping with the pressure.

Wibowo has delivered good news to the airline's government owners throughout 2015, after three quarters of losses in 2014. In the first six months of the year, it reported a $27.7 million profit, a turnaround from the $203 million net loss it recorded in the same period a year earlier. Garuda achieved an 11.6% decrease in operating expenses, down from $1.9 billion in the first half of 2014, to $1.7 billion this year.

At press time, it announced a net profit of US$51.4 million for the nine months to September 30. In the same period last year, the airline reported a $220.1 million loss.

By June, more than 13 million passengers had boarded Garuda flights, up 19.15% on a year earlier. By year end, the airline has forecast it will carry 25 million passengers, up from 21.5 million in 2014.

Domestically, along with wholly-owned budget subsidiary Citilink, the group holds 44% of the market, up from 38% in 2014. Citilink will become more important to the group as it launches international services to compete with local low-cost carrier rival, the Lion Air Group.

"Garuda is in profit and Citilink is in profit. Our other subsidiaries are contributing positively to the bottom line. So I am confident the rest of 2015 will be a profitable year," Wibowo said.

Wibowo is well aware of the legacy of Emirsyah. His predecessor, took over an airline that had a three star rating with the global airline survey company, SkyTrax in 2005 and was navigating its way through the post Global Financial Crisis environment.

Emirsyah launched the five year recovery program, Quantum Leap, in 2009, which will draw to a close next month. He was still at the helm of Garuda in early December last year when the airline achieved a five star Skytrax rating. The former banker had to depart Garuda Indonesia as individuals can only serve as the leader of a state-owned enterprise for a mandated period of years.

Sky Beyond follows on from Qantum Leap, with a five year strategy for growth and profits. It is not finalized yet, but it will include domestic and international fleet and network expansion, a strengthening of Garuda's financial base and, most importantly, a commitment to achieving enduring profitability.

Sky Beyond, said Wibowo, has three main elements. Firstly, it is to improve service standards beyond its Skytrax five star status. "We have to be one of the most caring airlines," he said.

The second leg of the strategy is building cost leadership and the third is creating synergies within the entire Garuda group.

Wibowo told Orient Aviation: "The bottom line of the company always has to be positive. This is very important to sustain our business in the future."

This year, he said, had been one of "quick wins" of maximizing revenue generators, aggressively restructuring cost drivers and re-profiling most of the airline's short term loans.

It's a long way from the dismal late 1990s when Garuda was one of the region's financial basket cases. It was deep in debt and near bankrupt. Its operations were being strangled by corruption, cronyism and nepotism, not to mention a poor safety reputation.

An added blow was the European Union's (EU) ban on all Indonesian carriers, imposed in 2007, which prevented Garuda from serving Europe. Garuda was exempted from the ban in 2009 and resumed EU operations with flights to Amsterdam in May 2010 and London last year.

Wibowo conceded there were challenges with profitability last year. It was its first year of losses since 2006, but then the oil price collapsed and the operating costs of the airline industry took a favourable downward turn.

In the first quarter of this year, Garuda's fuel bill dropped almost 30%, to $264.25 million, compared with $376.49 million a year earlier. While the fuel price has eased, Wibowo said there has been a "strong headwind" with the depreciation of Indonesia's rupiah. The currencies of Japan, Korea, China and Australia, markets Garuda services, also have declined.

But whatever the pressures, the plan is to reduce operating costs by 10% ($200 million) without impacting of the airline's service delivery.

A critical element of the Sky Beyond strategy will be fleet planning. At this year's Paris Air Show, in June, Wibowo foreshadowed a major fleet expansion, when he negotiated a Memorandum of Collaboration with Boeing for 30 B787-9 Dreamliners and 30 B737-8s, worth up to $10.9 billion.

If the deal goes ahead, the 787s will be delivered between 2020 and 2024 and the 737s from 2022 to 2025. At the same time, Garuda and Airbus signed a Letter of Intent for 30 wide-body A350-900s, valued at $9.1 billion.

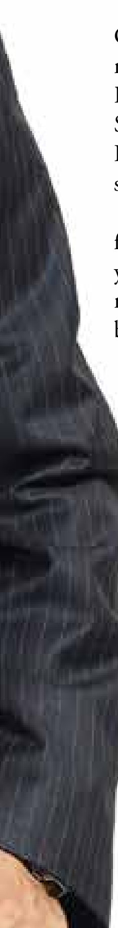
At the Airbus signing, Arif said the aircraft would be used to fly non-stop to Europe from Jakarta and Bali. "Following our success in revitalizing our regional operation in Asia and the Pacific, the development of our long-haul network will be a priority in coming years." he said.

The Airbus Letter of Intent provoked controversy in August when Indonesia's maritime affairs minister, Rizal Ramli, called on the airline to cancel negotiations to buy the A350s. He said their purchase would bankrupt the airline. The newly installed minister wanted Garuda to buy more single aisle aircraft and concentrate on domestic and regional markets.

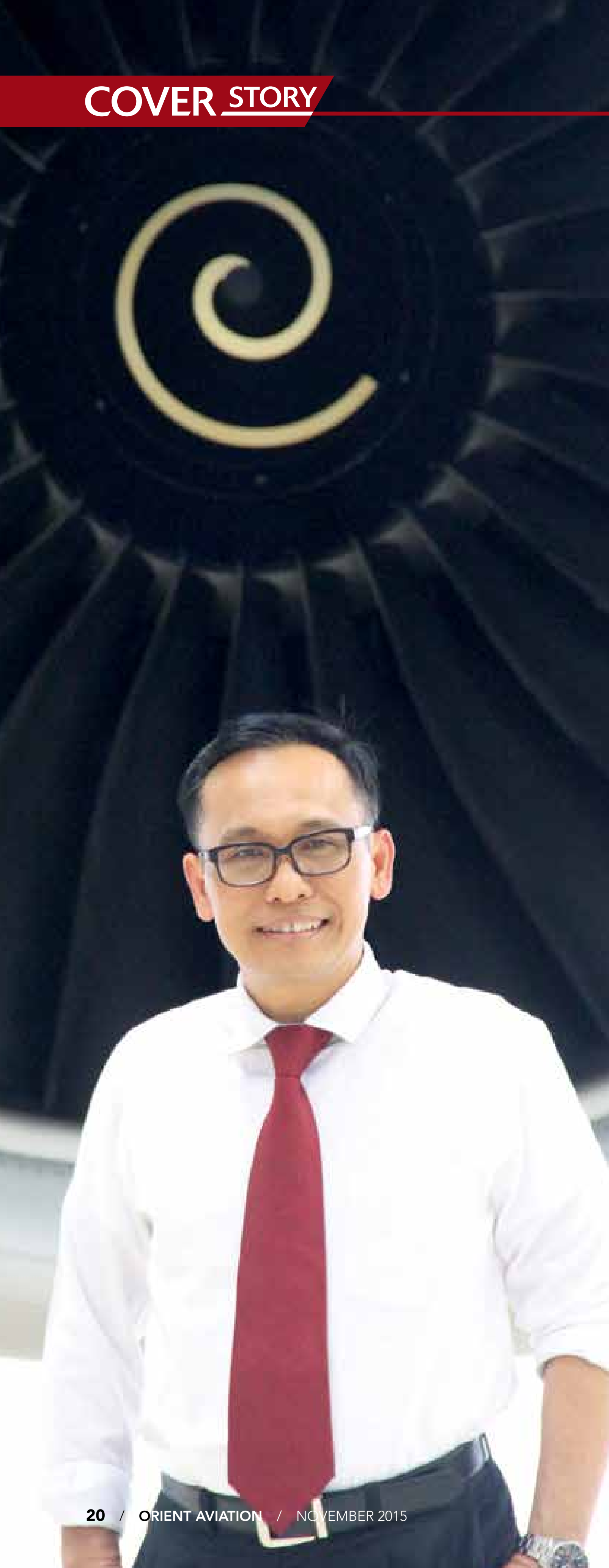
"We can rule the regional market in five to seven years," he said. "When we are strong enough then we can go to the next step."

Wibowo emphasised to Orient Aviation that both the Airbus and Boeing arrangements were not firm orders. "The Memorandum of Collaboration with Boeing and the Letter of Intent with Airbus need to be analysed," he said.

"We still need to have an order or purchase confirmed by the majority shareholder, the State Owned Enterprise



Arif Wibowo, president director Garuda Indonesia: predicts economic growth of 5%-6% for the year



ministry. We are finalizing the fleet strategy for the next decade and onwards.

"It is now under assessment by a consultant to make sure it is a very good strategy.There will, ultimately, be a fleet plan and a choice will be made between the B787 and the A350," he said.

Garuda has a fleet of 136 aircraft, of which 32 are wide-bodies. They are two B747-400s (used for Haj flights to the Middle East), eight B777-300ERs (2 more on order), 10 A330-200s and 12 A330-300s (12 more on order), 79 B737-800s (3 on order), 15 Bombardier CRJ1000 NextGens (3 on order) and 10 ATR 72-600s (15 on order). Also on firm order are the 50 B737 MAX8s.

Citilink operates 36 A320s and four B737s. Said Wibowo: "We need to replace at least 20 of our long-haul fleet and 70 of our narrow-bodies over ten years and beyond. Today, the average age of Garuda aircraft is 4.6 years.

"If we don't replace these planes we will become the old airline in terms of fleet. Over and above that we need to grow. The plan outlines a reduction of aircraft types to ensure better cost efficiency."

Garuda intends to have 53 wide-body aircraft by 2025, although earlier this year it was disclosed that State-Owned Enterprises (SOE) Minister, Rini Soemarno, had asked Arif to speed up the expansion.

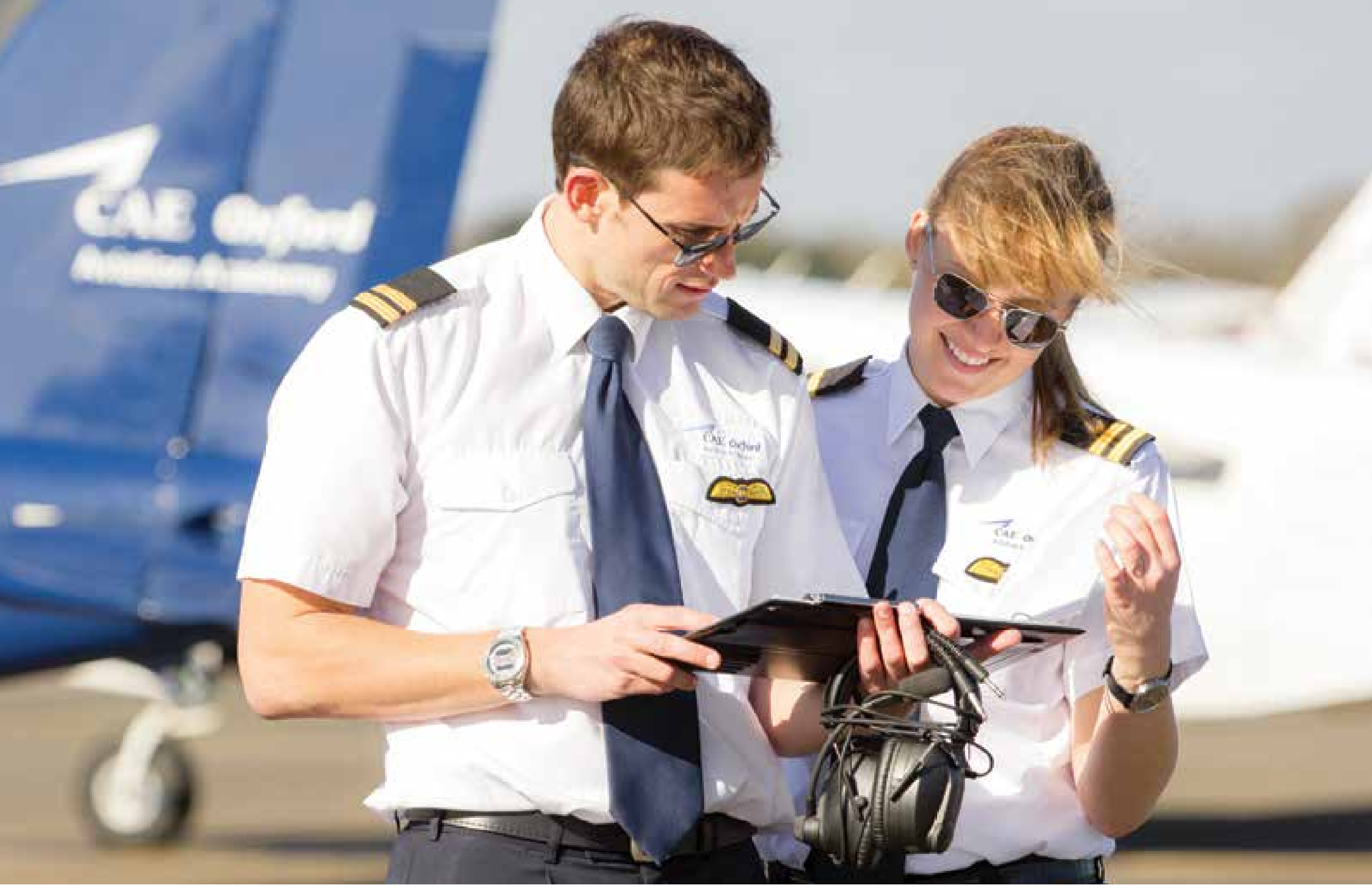
After a closed door meeting at the Ministry in June, the Garuda president said the airline "had been urged to expand aggressively with both organic and non-organic growth so that it can conquer domestic, regional and international markets".

The minister wanted Garuda to have 450 aircraft in five years. The carrier estimated it could reach that target in 10 years. A compromise is being discussed.

In the meantime, there has been no slowing of

> Terminal 3 is a milestone development because it will be used by Garuda for all its international and domestic flights and by its SkyTeam alliance partners. We are aiming to build it as the main hub so the network can be entirely interconnected. Domestic to international as well as a transit point for transcontinental flights from Australia to Asia or from Asia to Europe. Garuda really can strengthen and compete on international routes

Arif Wibowo
President director Garuda Indonesia


CAE Oxford

A Garuda "lifer"

Arif Wibowo had been successfully running budget carrier, Citilink, for two years when he was announced as Garuda Indonesia's president director last December, succeeding Emirsyah Satar, who spent 10 years rebuilding the flag carrier.

The leadership transition was seamless as Wibowo continues the carrier's revitalization program aimed at building Garuda into a global airlne.

The 49-year old has spent his working life at the Garuda group, where he began his career as an aircraft maintenance engineer in 1990. He is also the chairman of the Indonesian National Air Carrier Association (INACA).

In his time with the airline group, he has held senior positions in-country and in Japan, Korea, China and the U.S. He was the airline's executive vice president sales and marketing before he joined Citilink in May 2012. He holds a Bachelor degree in Mechanical Engineering from Sepuluh Nopember Institute of Technology (ITS), Surabaya and a Masters degree in Management of Air Transportation from the University of Indonesia in Jakarta.

deliveries. Garuda has accepted 18 new aircraft this year. In 2016, it will add five A330-300s, one B777-300ER and nine ATR-72-600 turboprops to its fleet. The following year, another six A330s and six more ATRs will arrive at the airline's Jakarta headquarters.

Subsidiary Citilink will add five A320neo and one A320ceo to its fleet next year and 20 new narrow-bodies in 2017.

Network-wise, Garuda will strengthen its presence domestically, regionally and globally with a particular goal of dominating Indonesia's domestic market, using both Citilink and Garuda services, to combat the accelerated growth of rival, Lion Air.

Lion Air is a formidable rival and is Southeast Asia's largest airline by fleet numbers. In January this year, it was operating 103 aircraft and had 549 aircraft on order. Citilink had 32 airliners flying in January and had ordered 47 aircraft by that date. Lion Air Group co-founder, Rusdi Kirana, told Forbes magazine early this year his airline group flew 43 million passengers in 2014.

"We have a 250 million population, 17,000 islands with 5,000 miles in a straight line from east to west, but fewer available seats per kilometer compared with other Asian countries in this region. We have huge room to grow," Rusdi said.

Wibowo agrees. "With the evolution of open skies within Asean (Association of Southeast Asian Nations) we want to use the joint strength of Garuda and Citilink to encompass market sectors," he said.

"We are planning to add more capacity to Singapore. We did 10 frequencies a day to Singapore using narrow-bodies, but are starting to add two or three or four frequencies with A330s. Citilink is preparing to fly to Singapore and other Asean countries."

Not surprisingly, China is a focus for the carrier, which it services with flights to the Beijing, Shanghai, Guangzhou triangle of hubs. It added Beijing-Denpasar earlier this year and will launch Shanghai-Denpasar either late this year or in early 2016.

The introduction of visa-free entry to Indonesia for Chinese tourists this year is boosting business. "The potential market for Indonesia is still quite far from the total outbound market of China. China has more than 100 million outbound travelers, but to Indonesia it is only around 800,000 annually," said Wibowo.

"We need to add more flights between our two countries because there is potential for two million travelers from China into Indonesia."

From this year, Garuda has offered regular charter flights that connect Denpasar (Bali) and Manado (North Sulawesi) with cities including Chengdu, Chongqing, Ningbo, Kunming, Jinan, Harbin, Xian, Shenyang and Chengzhou. Apart from China, it has been expanding charters to the Middle East, encouraged by the country's large umrah (minor haj pilgrimage) market. The carrier's charter revenue has soared by more than 13 times year-on-year, to $39.2 million, from only $2.86 million.

More European destinations are being considered, potentially Frankfurt and Paris. Garuda flies to Amsterdam and London Gatwick. Wibowo told Orient Aviation the airline is close to finalizing access to Heathrow that will strengthen its position in the U.K. Adding to Garuda's long-distance international presence "will be a priority in the coming years", he said.

The development of the hub at Jakarta's Soekarno-Hatta International Airport, where the new Terminal 3 is scheduled to open in July next year, is critical to Garuda's strategy.

Terminal 3 is a milestone development, said Wibowo, because it will be used by Garuda for all its international and domestic flights and by its SkyTeam alliance partners. "We are aiming to build it as the main hub so the network can be entirely interconnected. From domestic to international as well as a transit point for transcontinental flights from Australia to Asia or from Asia to Europe. Garuda really can strengthen and compete on international routes," he said.

"We will concentrate on our four revenue generating units. Garuda is the full-service arm, which has a business size of around $4 billion. Then there is Citilink. It is the weapon for Garuda to make sure the middle down market can be served. The size of this business is around $600 million."

"The third one is building the maintenance capability of GMF AeroAsia, which is worth around $300 million. In October, the MRO company opened the world's largest maintenance facility at its Soekarno-Jakarta airport base. The fourth is the cargo business, with a value of about $300 million. These four revenue generating units are really significant for the Garuda group in its goal of making sure Garuda will be big."

Earlier this year, the carrier signed a partnership agreement with Jakarta-based cargo operator, Cardig Air, in which both carriers will benefit from joint marketing and promotion of freight routes they operate.

During the initial stage of co-operation, which began in July, Garuda has the rights to sell freight space aboard Cardig Air flights that serve Surabaya, East Java, Denpasar, Bali, and Dili in Timor Leste, while Cardig has rights to market Garuda's cargo space on several domestic and international routes.

Wibowo said the carrier is forecast to book $300 million in cargo revenue this year, up 12% on 2014. The partnership is expected to contribute $10 million in cargo revenues and "in the future we will continue to extend the cooperation with Cardig Air to expand our domestic and international cargo route network", he said.

He won't disclose the amount of investment he might need for the planned aggressive growth, but he did say Garuda was looking at all possible funding options. "We always explore any available opportunity. We've already obtained funding from the Asia market, so we'll seek opportunities for funding from non-Asian sources, including the U.S.," he said.

Indeed, attracting funding does not seem to be a problem for Garuda. It has raised $500 million from global Islamic bonds issuance and a credit facility commitment from Bank of China (BOC) Aviation.

The global bonds are being used to refinance the company's $350 million debt that is maturing this year and will fund part of its capital expenditure. The $130 million credit facility from BOC Aviation will refinance pre-delivery payments for Airbus aircraft destined for Citilink.

Fuel and currency hedging has helped Garuda's financial performance. In April, it signed a partnership agreement with four private banks - Bank International Indonesia, Bank Mega, ANZ Indonesia and the Standard Chartered Bank - for a $77.01 million hedging facility.

The deal followed a previous hedging facility agreement, worth a similar amount, with state lenders, Bank Negara Indonesia, Bank CIMB Niaga and Standard Chartered. During the second half of this year, Garuda is monitoring the rupiah exchange rate and has moved ahead with its costs restructuring and hedging program.

Wibowo has decided to reduce spending on sponsorships and advertising - although the carrier does invest heavily in sponsorship of English Premier League side, Liverpool - and focus on sales promotions.

None of the efficiency measures appear to be impacting on the airline's growing reputation for service. Its five-star rating places it in the same class as All Nippon Airways, Asiana Airlines, Cathay Pacific Airways, Hainan Airlines, Qatar Airways and Singapore Airlines.

Wibowo said one of the main challenges he, and the group, face is ensuring Garuda can dominate the immediate market. "I need to expedite the growth of Citilink domestically and regionally. Secondly, we need to strengthen Garuda as the best player in medium and long-range markets. Thirdly, we are still facing strong headwinds on the economic growth front. I think economic growth is still in moderate mode," he said.

"I see economic growth at around 5%-6% in the next year. Then there is fuel. It may cease to be a tailwind because I think the price of jet fuel will start to increase next year. These are the kind of challenges we face as well as adding so many aircraft to our fleet."

Overall, Garuda appears well-positioned for growth, but it faces unrelenting low-cost carrier competition, particularly from deep-pocketed Lion Air. It also is constrained by its main hub, Soekarno-Hatta International Airport. The facility is processing more than 60 million passengers annually, some three times its design capacity. Plans are underway for new runways and terminal expansion, but completion is years away.

The Garuda's group's expansion plans are grand. They could go awry in the wrong hands. Wibowo, not yet 50, is proving to be a safe pair of hands for the Indonesian flag carrier as it strives to dominate in the region's third largest economy. ■

Airbus and SIA showcase new flight training partnership

By Dominic Lalk in Singapore

Airbus' strategy of developing centres of training and manufacturing excellence in the Asia-Pacific reached another milestone last month with the unveiling of its joint venture Airbus Asia Training Centre (AATC) in the Lion City.

Joint venture partners, Airbus (55%) and Singapore Airlines (45%), said the AATC, scheduled for completion in Singapore's Seletar Aerospace Park by March next year, will be the manufacturer's largest training centre outside Toulouse and the first in the region to be equipped with an Airbus A350XWB full flight simulator

Last month, Airbus introduced the media to the AATC, now housed in temporary facilities at the SIA Training Centre near Changi Airport. The new training company has been offering courses at the facility since April. Initially operating with two A330 and one A380 simulator, the first A350 simulator to be installed in the region has now arrived and is offering courses.

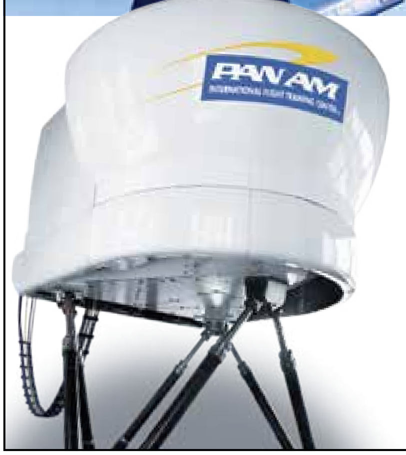
The new 9,250m² centre will provide type rating and recurrent training courses for all in-production Airbus models. When it is fully operational, it will have eight full flight simulators; three A350 XWBs, one A380, two A330s and two A320s, with the capacity to instruct more than 10,000 trainees a year, said its general manager, Airbus Captain Yann Lardet. The centre could accommodate four more simulators, he said.

At present, if an Asia-Pacific airline pilot needs type or recurrent training at a European facility, he or she would be out of active service for up to a week for a standard recurrent training course, taking extended rest and travel periods into consideration.

Typically, it takes about five to ten days for a pilot currently flying an Airbus variant to receive type rating for the A350. Conversion for pilots trained on Boeing fleets requires about 25 days.

The company has won the business of SIA, Qantas Airways, Virgin Australia, Bangkok Airways, Cebu Pacific, Philippine Airlines, Lion Air, Fiji Airways and Kuwait Airways.

The AATC, which mainly draws its instructors from Airbus and retired SIA cockpit crew, comes to the region just in time to meet a projected 5.7% annual growth in passenger numbers, with demand for 12,740 new passenger and freight aircraft valued at $2 trillion to 2034. This translates into an increase in the Asia-Pacific cockpit population from around 64,000 today to more than 120,000 in two decades. ■



Momentum builds for new rules on battery shipments

A tougher global code for the safe transport of lithium batteries received a boost recently when the U.S.'s Federal Aviation Administration came out in support of banning the batteries travelling as freight on passenger aircraft.

Tom Ballantyne reports

The International Civil Aviation Organisation (ICAO) is expected to announce its support for a global ban on the shipment of large consignments of rechargeable lithium batteries on passenger aircraft.

At press time, an ICAO safety meeting in Montreal will consider a global advisory on the safe transport of lithium batteries following the news that the U.S. is in favour of a ban.

U.S. backing for such a ban was certain to tip the scales in favour of a pro-ban ICAO ruling, although it will be up to individual member countries to adopt the standard.

"We believe the risk is immediate and urgent," Angela Stubblefield, a U.S. Federal Aviation Administration (FAA) hazardous materials safety officer told a public meeting in Washington, where research showed Lithium batteries can cause explosions and fires capable of destroying an aircraft.

FAA tests have revealed that even a small number of overheating batteries emit gases that can erupt and cause fires which can't be extinguished by current fire suppression systems on aircraft, she said.

Another FAA hazardous materials official, Janet McLaughlin, told the Washington meeting the U.S. position at the ICAO meeting - the first time it has taken this view in a formal setting - would be that the ban should include all cargo shipments of lithium batteries on passenger planes and not just bulk battery shipments.

In the FAA's view, the ban would not apply to cargo airlines or to other kinds of batteries, including lithium-ion batteries in individual cell phones. FAA officials have said if the battery was inside a device the risk of short circuiting it and affecting other batteries is lessened.

The FAA echoed the announcement made in August by the Rechargeable Battery Association that it supported the proposed new rules being gradually implemented on transporting lithium batteries.

The association's executive, George Kerchner, said the new rules will have a substantial impact on battery makers and shippers worldwide, but his members wanted to find the best way to remove the risks of battery fires in planes and wanted to discuss the issue with the FAA.

Many airlines and most

A lithium battery fire is said to have contributed to the crash of an Asiana Airlines B747 and the deaths of the cockpit crew

Asia-Pacific carriers, including Cathay Pacific Airways, Philippine Airlines, Qantas Airways and Virgin Australia, have banned such shipments. While an ICAO recommended ban would apply only to passenger aircraft, some all-cargo carriers, such as Cargolux, have stopped accepting large shipments of the battery type.

The risk to safe air travel on airlines that carry lithium batteries as cargo is a particular issue on flights from China, the world's largest producer of lithium batteries. Some Chinese companies have been criticized for dispatching shipments that are not compliant with regulations.

In Beijing earlier this year, the director general and CEO of the International Air Transport Association (IATA), Tony Tyler, chastised China about the issue. "Disappointingly, we are seeing some willful non-compliance in the area of lithium batteries, particularly here in China," he said.

"For example, there is a supplier on Alibaba claiming they will relabel 300 Watt hour batteries as 100 Watt hour and even ship them via the standard postal service."

There have been several incidents suspected to have been caused by battery cargo fires. It was even suggested the disappearance of Malaysia Airlines flight MH370, which was carrying a large consignment of batteries, may have resulted from such a fire, but there is no proof of this theory.

Bob Richards, who worked as deputy associate administrator of Hazardous Materials Transportation Safety Program at the U.S. Department of Transportation (DOT) from 2006 to 2010, and is now vice president of regulatory affairs at Labelmaster, said 95% of safety incidents that involved lithium batteries were caused by non-compliant shipments.

Lithium battery incidents

* ***Three pilots on a United Parcel Service DC-8 barely escaped on February 7, 2006, after a fire broke out as they approached Philadelphia. A U.S. National Transportation Safety Board (NTSB) investigation found the jet contained "numerous" lithium batteries in computers and other devices. The investigation focused on batteries, but was unable to determine the cause of the fire.***

* ***Another UPS B747-400 flight caught fire 22 minutes after it took off from Dubai on September 3, 2010. It was carrying more than 81,000 lithium batteries. It crashed at a military base as the pilots tried to make an emergency landing. Both pilots died.***

* ***Even a single bad battery can ignite a blaze. In December 2010, a fire started on an Air France flight after a passenger's cellphone fell into the seat. When the chair moved, it crushed the battery and caused a fire.***

* ***In June last year, lithium batteries started a fire inside the cargo hold of a Fiji Airways B737-800 at Melbourne airport. Moments before passengers boarded the flight, ground handlers noticed smoke coming from a case in the rear cargo hold. The fire was doused and the aircraft was unscathed.***

* ***In March this year, a KLM flight attendant extinguished a fire "caused by a lithium-ion battery in a passenger's hand luggage" on a B777 flight from Amsterdam to Bangkok. The small fire was detected as the plane taxied to its gate at Bangkok. No one was injured and all passengers and crew disembarked safely.***

* ***The report of the South Korean investigation into the crash of an Asiana Airlines B747 over the China Sea said the cockpit crew reported a fire onboard and that lithium batteries as well as other cargo, contributed to the fire and the death of the two pilots. No wreckage was recovered.***

Labelmaster specializes in helping companies conform to regulations for the shipping of dangerous goods. The danger arises when lithium batteries short-circuit, a failure that occurs when the batteries don't meet safe production standards or are damaged, which causes the release of highly volatile gases.

"There are numerous Chinese manufacturers that will ship lithium batteries at really low cost. A number of these companies fail to properly test, package or manufacture the batteries according to current regulations," Richards said.

The logistics on the Chinese side are especially complicated. Most of the batteries manufactured in China will depart for overseas via Hong Kong, but only after a string of complex logistics, which can include ground transport, a freight forwarder, and an export agent in Hong Kong. Package handling and consolidators are thrown into the mix.

> "... the ban should include all cargo shipments of lithium batteries on passenger planes and not just bulk battery shipments"
>
> **U.S. Federal Aviation Administration**

The rechargeable battery shipment issue has been escalating for several years, particularly as more of the batteries are required to power laptops, tablets, mobile phones, power tools, medical devices, and even electric cars.

In July, Boeing cautioned its airline customers that shipping lithium batteries in bulk in the bellies of passenger aircraft posed unacceptable fire risks. The aircraft were not designed to withstand extreme temperatures and gases that lithium battery blazes can cause, Boeing said.

The International Federation of Air Line Pilots' Associations (FALPA) also has proposed ICAO adopt a ban until better packaging or other measures can be developed to reduce the risk of lithium battery fires.

Aircraft manufacturers, Airbus and Bombardier, have called the battery shipments an "unacceptable risk". However, officials from the rechargeable battery and cargo airline industries have spoken out against a ban until their recent about turn. They had argued it would be a logistical nightmare for the industry to meet the demands of ICAO if it unilaterally and radically altered the rules for transporting lithium-ion batteries. Kerchner has said on record that he was looking forward to the October ICAO meeting.

The air shippers want ICAO to quickly develop a standard for shipping rechargeable batteries that can be strictly applied. ICAO is committed to developing advisory regulations for stricter fire-retardant packaging to contain batteries for safe transport. ■

Asia's tycoons succumb to leasing's financial allure

Asia-Pacific airlines' rapidly expanding fleet is attracting a new breed of investors to the lucrative sector.

Tom Ballantyne reports

Several regional conglomerates are following the lead of China and establishing aircraft lessor subsidiaries that are cashing in on the Asia-Pacific's huge future airline growth.

Leaders of the new pack, excluding booming China, include the conglomerate owned by Asia's richest tycoon, Li Ka-shing, and fellow Hong Kong companies, New World Development and Chow Tai Fook.

In China itself, two leading lessors have announced initial public offerings (IPO) in Hong Kong and an HNA group subsidiary, Bohai Leasing, expects to sign off the US$7.6 billion deal to buy Dublin-headquartered lessor, Avolon, early next year.

The Bank of China announced last month it had received board approval to list its subsidiary, Singapore-based BOC Aviation, in Hong Kong, in an IPO that could add US$6-$8 billion to the lessor's coffers.

The BOC announcement followed the China Development Bank's decision, also revealed last month, to list its aircraft leasing subsidiary, CDB Leasing, in Hong Kong in the first half of 2016.

The Bohai-Avolon deal had been months in the making, so the announcement in September that the aircraft leasing unit of the China's HNA Group had signed a definitive agreement to buy Avolon was no surprise. There is no doubt the buy in will be a milestone in the lessor's quest to join the big boys in the $200 billion-a-year global aircraft leasing business.

Avolon has an owned, managed and committed fleet of 260 aircraft made up of 143 self-owned, nine managed and 108 obtained through signed purchase agreements. The aircraft range from A320s and B737s to B777s and B787s. Together with Bohai's 74 airliners, the purchase will place the Chinese company among the top 10 aircraft lessors in the world.

"The acquisition of Avolon will bring lucrative financial returns as well as enhance Bohai Leasing's bargaining power and influence in the global aviation industry," a HNA statement said.

"It will benefit from greater economies of scale and synergies through the interaction with the platforms under the HNA Group. It will reduce the cost of aviation business and enhance profit levels. This acquisition will boost the development of the China aircraft leasing market through the integration of advanced aircraft asset management, improvement of risk management and the added resources of Avolon. It is a significant advance in the professional standards of China's aviation leasing industry." The group owns Hainan Airlines, China's fourth largest carrier.

Bohai is among a growing list of Chinese lessors that are aggressively expanding their portfolios. BOC Aviation has 256 aircraft and 195 on order, with deliveries scheduled to 2021.

Two other China-funded companies are among the top 15 global aircraft leasing companies; ICBC Leasing and China Development Bank Leasing (CBD). And none of them is standing still. A recent order from China for 300 Boeing jets, worth $38 billion, included 60 single-aisle aircraft for ICBC and CDB.

But the combination of Bohai-Avolon, said consultancy CAPA will create "a major new player" in the global leasing market. "Along with greater economies of scale and synergies under the HNA Group, the Irish company's management experience and broad market exposure complement HNA Group's financing muscle and its expansion ambitions for China and globally," it said.

The deal is more evidence that China's aircraft leasing focus is shifting from the domestic sector to the international arena. Benefiting from the comparatively tight local regulatory regime, as well as the somewhat cosy relationship with Chinese state-owned corporations, bank-backed leasing companies have quickly pegged out stakes in the market in concert with Chinese airlines.

Between 2007 and 2013, the Chinese-controlled share of the domestic leasing market climbed from 7% to nearly 40%. Aircraft leased by lessors to Chinese carriers has doubled in the past decade and now stands at around

Li Ka-shing, Hong Kong's richest tycoon jumps on aircraft leasing bandwagon

1000 aircraft.

"There are a few exceptions to this domestic focus, chief among them BOC Aviation and IBCB Leasing. These companies have a significant presence in the global leasing market, with both counted among the ten largest aircraft lessors globally by fleet size and value. The arrival of Bohai/Avolon will dramatically alter that," said CAPA.

Coupled with the expansion of international leasing, the finance market for investment in aircraft in the Asia-Pacific is growing stronger. It is predicted that larger numbers of Asian investors, seeking yields at a time of currency devaluation, will be attracted to the U.S. dollar-based business of aircraft leasing.

Companies can earn between 8% and 10% interest on leased aircraft. Leasing prices fell around 20% in the two financial crises in 2001 and 2009, but long-duration aircraft leasing terms still offer steady cash flow. More importantly, aircraft lessors can borrow up to 80% of an aircraft's value from banks by using the planes as collateral.

Robert Martin, chief executive of BOC Aviation, said a trend is emerging where "more and more large Asian investors are becoming involved in this market, starting with Hong Kong's Cheung Kong, NWS Holding and Chow Tai Fook, followed by Bohai Leasing's bid to acquire Avolon Holdings."

They can't help but be encouraged by BOC Aviation. It reported a 5% rise in profit for the first half of this year, to $171 million, on an average cost of debt of 2%, the lowest amongst its peers. Revenue in the six-month period increased 3%, to $535 million. Martin said the firm raised $1.8 billion in unsecured new financing in the first half and that its bond financing this year had risen to $947 million, including bonds issued in Singapore and Australian dollars and yuan, for their arbitrage opportunities.

"A trend is emerging where more and more large Asian investors are becoming involved in this market, starting with Hong Kong's Cheung Kong, NWS Holdings and Chow Tai Fook followed by Bohai Leasing's expansion with Avolon"

Robert Martin
Chief executive BOC Aviation

In June, BOC Aviation extended a $2 billion revolving credit facility with the Bank of China to 2022. The extension, through a restated agreement, replaced two existing revolving credit facilities of $1 billion each, with maturity dates of December 2017 and April 2019.

"With our strong access to debt capital and bank financing markets and the extension of our revolving credit facilities with the Bank of China, we are well positioned to continue our disciplined growth strategy," Martin said.

He added: "We are receiving an increasing number of inquiries from large family-owned companies and from large Asian corporates looking to invest in leasing. They realize there is good opportunity in this sector compared with property or other local-currency investment options."

BOC is not fazed by the increased competition. The lessor has placed all its planes with airlines this year, Martin said. For next year, all its Airbus planes have been placed and it is in talks with airlines for a couple of Boeing jets.

Demand is so strong Martin is seriously considering buying more single-aisle planes to satisfy it. He is looking at B737MAXand A320neos, but said the order "won't be large" and that there is no timeline for the purchase.

"We have some gaps in 2018, the year when most of the new technology comes in, and we decided to wait. Will we top up? Yes, if the right opportunity arises and if the price is right. It's all down to the price."

For lessors such as BOC, Bohai, which also owns Hong Kong Aviation Capital and its 74 aircraft fleet, ICBC and others, China and Asia is not the only game in town, even if it is the world's largest and fastest growing aviation market. They are playing in a global arena and demand for aircraft in the Middle East and South America is increasing. Boeing estimated 26,730 single-aisle jets, the meat and potatoes of lessors, will be required by the world's airlines up to 2034, with 35% of them going to low-cost carriers.

In the meantime, the number of Chinese leasing companies is steadily increasing. In November last year, Hong Kong-based multinational conglomerate, the Cheung Kong group, set up a leasing subsidiary, Accipiter, and made available US$2 billion in start-up funds. Owned by Li Ka-shing, one of China's richest tycoons, Accipiter plans to invest at least $2 billion in acquiring up to 160 aircraft.

Another Irish-based lessor, Goshawk, which was established in 2013, has been bought by NWS Holdings, the investment holding unit of Hong Kong conglomerate, New World Development, and jewelry retailer, Chow Tai Fook Enterprises. The two new investors each hold 40% in the lessor with the remaining 20% held by South African bank, Investec. It has a portfolio of 56 aircraft worth $2.3 billion.

Stanley Hui, the former head of Hong Kong's airport authority, is the deputy chairman of f NWS Holdings. He recently told Hong

Kong media the company "was very confident about the aviation industry's outlook and demand for aircraft leasing" especially while the oil price was low.

Boeing said the percentage of the world's fleet under an operating lease has increased to just above 40% in 2014 from approximately 12% in 1990. Global aircraft on operating leases is forecast to reach 50% by 2020. The expansion of budget airlines also bodes well for aircraft lessors.

Cheung Kong's $2 billion investment in the sector, established by buying an aircraft portfolio with leases attached, is typically how investors entered the market and grew their businesses, said Martin. Acquiring a whole aircraft leasing company was another option, he added.

CAPA predicted China's aircraft leasing market will expand by better than a third in the next three years, with the leased fleet reaching between 1400-1500 aircraft. "However, even with this rapid growth forecast, China's bank-backed lessors are increasingly encouraged by the state to diversify internationally," it said.

"Chinese regulators relaxed leasing rules in 2013 and 2014. As a result, Chinese companies found themselves squeezed by large western leasing firms and the formation of a large number of independent domestic firms. Nearly 500 new leasing firms entered the Chinese financial leasing industry in 2014."

ICBC Leasing managing director of aviation financing, Lin Feng, said in June the Chinese market alone "cannot support the company's development ambitions" and that offshore leasing deals "will become increasingly important for us".

The company, along with Chinese state-bank aligned and independent lessors, is making leasing deals with carriers in the Asia-Pacific and further afield. This year its customers included Himalayan Airways, Garuda Indonesia, TransAero Airlines, Aeroflot, Azul and Turkish Airlines. It has also made aviation financing deals with major international financial institutions, including the Russian State Transport Leasing Company, the Islamic Development Bank Group, the Export-Import Bank of the U.S. and a group of three French banks, BNP, Natixis and CIC.

As Chinese banks internationalize and lessors make more deals outside Mainland China, the Chinese contribution to global aircraft finance will increase. Boeing Finance is projecting. Chinese banks will provide the largest share of commercial bank debt for aircraft financing this year, at 22%.

Financial institutions control 39 leasing companies, with assets of US$228 billion to June 2015, Thomson Reuters reports, with banks in control of 23 of the companies. In developed nations, aircraft lessors supply between 9% and 40% of the market. In China, lessors pentration of the market is 3.1%, analysts calculate. ■

Chinese lessors' orders from Airbus and Boeing

Lessor	Airbus orders		Boeing orders	
	Narrowbodies	*Widebodies*	*Narrowbodies*	*Widebodies*
BOC Aviation	96	5	80	2
China Aircraft Leasing Corp	118	-	-	-
ICBC Leasing	48	-	-	-
Hong Kong Aviation Capital	70	-	-	-
Dragon Aviation Leasing	-	-	6	-
Total	**332**	**5**	**86**	**2**

Source: CAPA, Airbus and Boeing

Testing times as A380 turns ten

As big carriers, including Singapore Airlines (SIA), Emirates Airline and Qantas Airways, consider returning their A380s, taken under 10-year sale-leaseback contracts, to their owners, a leading air finance banker has warned the residual value of the aircraft may not meet expectations.

Head of aviation at DVD Bank in London, Bertrand Grabowski, told delegates at a recent conference in Prague that the big jet will have its value tested as it reaches a landmark in its operations next year.

He said the lease contract for SIA's early A380s runs out in 2017. Whether the Asian carrier returns the aircraft to German investor and holder of the title, Dr. Peters Gruppe, or negotiates a drastically reduced rate to keep it, the airliner's residual value will be established at a lower level than Airbus would wish.

"It's going to be a test. You have a recipe for a correction in terms of lease-pricing for the A380," he said. Already, SIA is indicating it might not want to keep the plane, although this may be a tactic on the part of SIA to negotiate a better rate for a renewed lease, Grabowski said.

The warning comes as Airbus struggles to secure new orders for the plane. Chief operating officer customers, John Leahy, said at the Paris Air Show in June, Airbus expected to sell 25 A380s this year. There have been no orders for months but Orient Aviation has been told "an order can be expected soon", believed to be from Saudi Arabia.

Airbus also has to deal with some A380 customers who are reported to be considering a reduction in their A380 fleets.

Malaysia Airlines Berhad (MAB), which inherited six A380s from its predecessor, MAS, has said reports it would dump its entire A380 fleet are premature and that the carrier's future fleet composition remains under consideration.

Grabowski said Airbus' unsuccessful efforts to deliver new sales of the A380 to demonstrate there is demand for the aircraft could have a detrimental effect on pricing. Airbus itself has suggested planes retired by premium carriers could find a new life plying six to eight hour routes for low-cost Asian airlines.

The cost of refitting the A380 after a decade in service is unknown, he said, which made it difficult for financiers to assess the value of supporting secondhand transactions. SIA and Emirates mostly purchased their A380s directly from Airbus. They transferred them to investors via sale and leasebacks, which placed the residual value with the new owners.

The only lessor to have ordered the A380 is Amedeo (formerly Doric Lease Corporation), which is taking 22 of the planes. The biggest A380 operator, Emirates, is taking four of the jets next year through Amedeo. Not surprisingly, the German-based lessor is talking up the future lease market for the aircraft, including used planes.

Director aircraft management and German fund manager, Doric GmbH, Maurick Groeneveld, said that until recently the A380 has been perceived as a flying palace that led many airlines to believe they couldn't afford it.

"Admittedly, the affordability of an A380 was not helped when it became public knowledge that long-term A380 leases have rates of US$2 million or more a month. Additionally, speculatively ordered A380s are being 'promoted' with high lease rates for long-term leases," he said.

"However, with the first used A380s now entering the market, genuine opportunities are available for operators that so far have been hesitant to take A380s."

Instead of a 10-year lease with high amortization profiles, the second lessee can benefit from a significantly lower lease rental, the Doric expert argues. "Consequently, used A380 lease rentals are roughly comparable with lease rentals for small wide-body aircraft," he said.

"However, when used A380s are offered for a second lease period, there is no requirement to enter into a very long-term commitment as a lease period of six years could be accepted for a used A380 lessor. The economics of used A380s are further enhanced when operated at a higher capacity, i.e. with over 600 seats in two classes." ■

First of SIA's A380s to return to the market after a decade of flying

Hidden costs of second time around aircraft leases

Handing back an aircraft to a lessor for re-delivery to a new airline can be far more expensive than airlines expect, a study by the International Bureau of Aviation (IBA), revealed.

IBA, which provides business analysis to the aviation industry, said it has examined typical key re-delivery conditions and estimated each re-delivery of a single aisle aircraft at eight years old added approximately US$1.65 million to the maintenance costs of an airline over and above the basic Maintenance Planning Document (MPD) requirements. The figure can be higher than $3 million for a twin aisle aircraft, IBA said.

"Operating Leasing added costs to the overall mix because airlines must provide aircraft in a condition that generally supersedes 'airworthiness-only' standards for re-use at time of re-delivery for the next operator," it said.

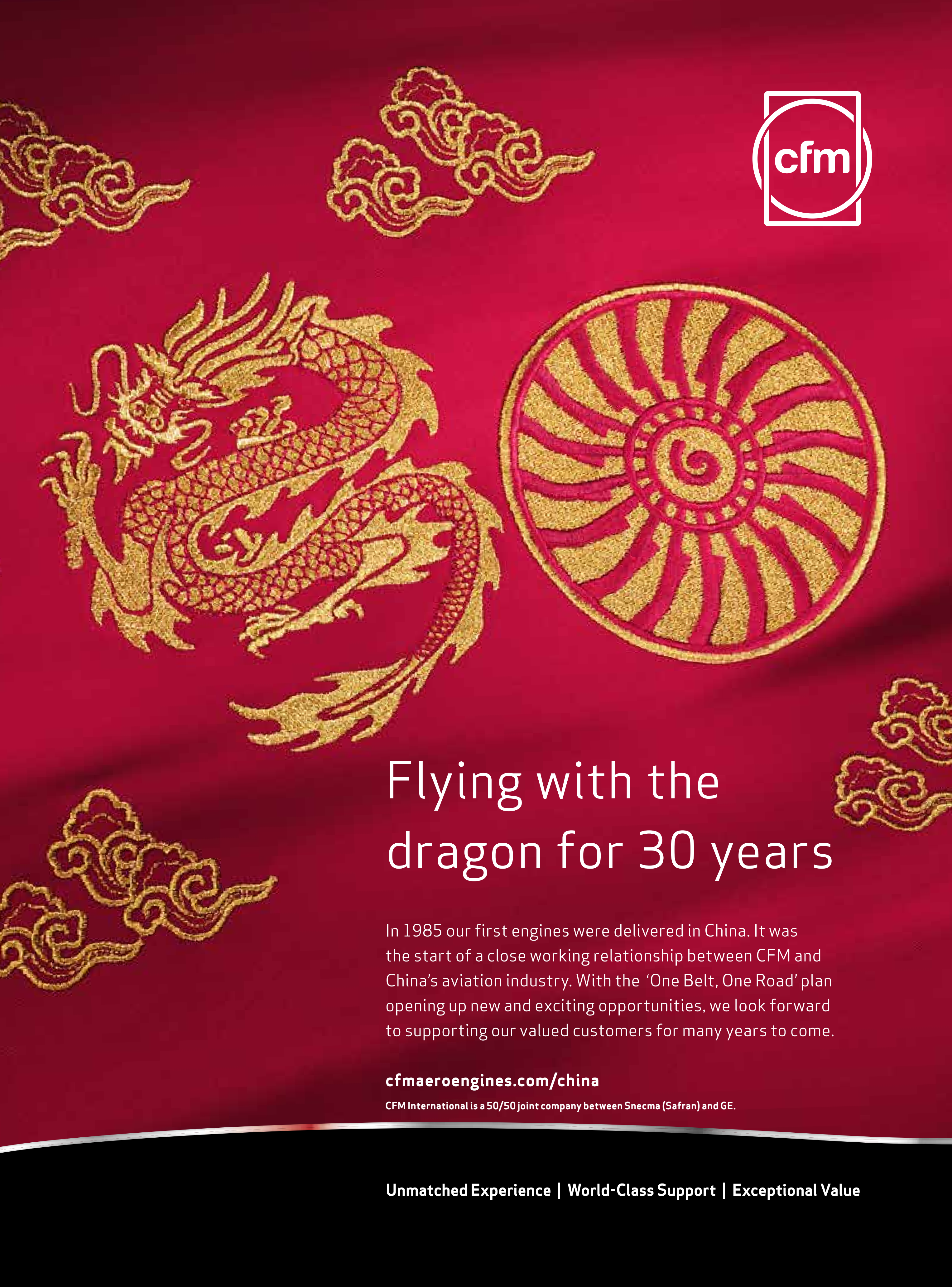
IBA's chief executive, Phil Seymour, said its maintenance cost benchmarking exercises, combined with its own studies, showed the true overall MRO spend is greatly increased from the basic requirements that are driven by the OEM (original equipment manufacturer) MPD.

"Maintenance tasks are brought forward during the redelivery phase so the airline meets the commercially negotiated conditions for redelivery. It is inevitable these tasks, as well as observations made by lessors' representatives at the redelivery, add to the scheduled maintenance costs. The financial impact can be significant and often not visible until it is too late."

Airlines are learning the hard way to adapt to the redelivery business, said Seymour. "Taking staff away from their day jobs that are focused on keeping the fleet flying and complying with regulatory issues is totally different to the approach and organization required for re-delivery of an aircraft," he said.

IBA found the costs of re-delivery to a typical European airline for labor alone were $150,000 per re-delivery, in addition to other maintenance costs. Lessors faced similar costs because they had to locate their staff on-site during re-delivery periods.

"A high level of subjectivity remains around decisions about 'condition' and what is fair wear and tear, as well as differences in opinion over what constitutes adequate back-to-birth records and repair and modification files. The older the aircraft is, the more likely disputes will arise. There have been several cases of litigation over the re-delivery process, which caused hundreds of thousands of potential costs to become multi-million dollar issues," Seymour said. ■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