Orient aviation

Vol. 29 No. 1
February-March 2022
orientaviation.com

CHINA AIRLINES SURVIVAL MANTRA: "PRIORITISE CARGO"

Orient aviation 29 YEARS

Supply chain fragility threatens MRO recovery

Big jets out, smaller jets in post-pandemic

Korean Air/Asiana Airlines merger on track for 2024

BUY FEWER ENGINES.
SAVE MILLIONS IN REPAIRS & CAPITAL COSTS.
Discover ConstantAccess™.
For LEAP-1A/B, GEnx, CF34-10E, CFM56-5B/7B, V2500, PW1100G-JM (GTF™) and PW1500G (GTF™) engines
Why own and capitalize a spare engine when you can have preferred access, on demand, to our worldwide portfolio of engines?
Availability guaranteed.
Willis Lease Finance Corporation
Power to Spare – Worldwide®
leasing@willislease.com | +1 561.349.8950 | www.willislease.com

Orient aviation 29 YEARS

ORIENT AVIATION MEDIA GROUP
17/F Hang Wai Commercial Building,
231-233 Queen's Road East,
Wanchai, Hong Kong
Editorial: +852 2865 1013
Website: www.orientaviation.com

Publisher & Editor-in-Chief
Christine McGee
E-mail: christine@orientaviation.com
M: +852 6438 3379

Associate Editor & Chief Correspondent
Tom Ballantyne
Tel: +61 2 8854 1458
M: +61 4 1463 8689
E-mail: tomball@ozemail.com.au

North Asia Correspondent
Geoffrey Tudor
Tel: +81 3 3373 8368
E-mail: tudorgeoffrey47@gmail.com

Photographers
Rob Finlayson, Graham Uden,
Ryan Peters

Chief Designer
Chan Ping Kwan
E-mail: production@orientaviation.com

ADVERTISING

Asia-Pacific, Europe & Middle East
Defne Alpay
Tel: +44 771 282 9859
E-mail: defne@orientaviation.com

The Americas / Canada
Barnes Media Associates
Ray Barnes
Tel: +1 434 770 4108
E-mail: ray@orientaviation.com

Download our 2022 media planner at: orientaviation.com/advertising

CONTENTS

Volume 29, Issue 1

No cookie cutter formula for fleet restructuring

A CAPA consultancy report has forecast permanent changes to the Asia-Pacific airline fleet that include scores of grounded large aircraft being consigned to the airline scrap heap.

Will these aircraft be replaced, at least in part, with dozens of new technology 787s, 777Xs and A350s? Dr Johannes Bussmann, chairman of MRO market leader, Lufthansa Technik, holds this view: the prediction of a tsunami of older aircraft flooding the for sale market has not, as yet, come to pass. Could airlines be deciding to keep their older jets flying for a little longer than recent airline analysis has predicted?

Most Asian carriers are swimming in a sea of debt. They face years of repaying the huge loans they have had to negotiate to support minimum route networks. How many of these carriers can splash out billions of dollars for a major fleet upgrade in such straightened circumstances?

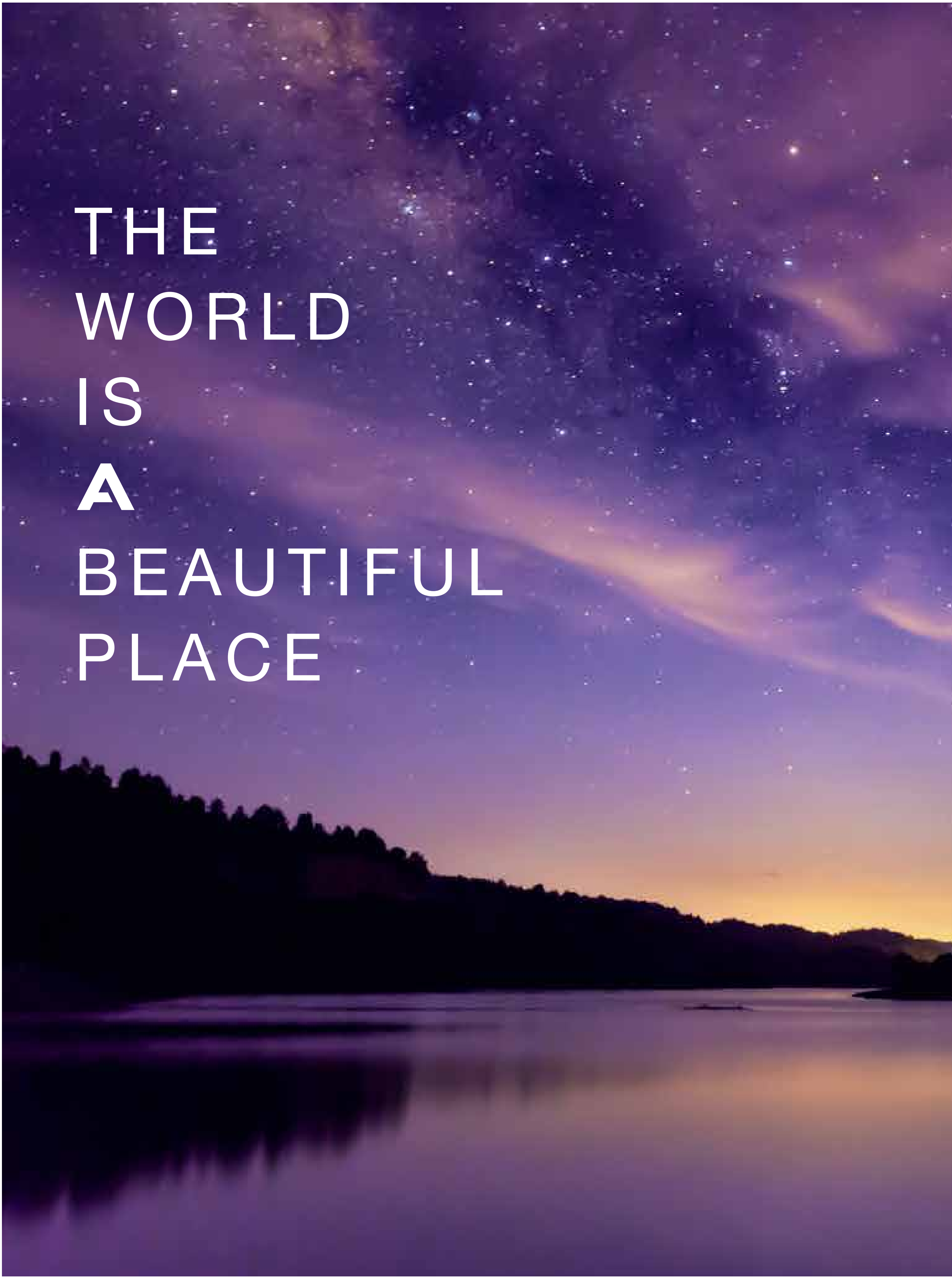
Few carriers in the region have entered bankruptcy or been forced to close, although several airlines have, or are going through, administration. Among them are Garuda Indonesia, Philippine Airlines and Thai Airways International. But Asia-Pacific carriers are struggling.

An exception is the Qantas Group if its fleet planning is an indication of its financial acuity. Last December, it selected Airbus planes to replace its narrow-body fleet. It can afford to fund the purchase of 134 aircraft from the A320neo and A220 families. The combined deal is for 40 firm orders and 94 purchase rights.

At Asian airlines, a continuation of past fleet management practices is the most likely outcome for post-pandemic route restructuring. Airlines will operate a mixture of new and older, although not ancient, aircraft. A market totally dominated by new commercial jets is difficult to envision in an environment where schedules are in rubble and inconsistency in quarantine and vaccination rules between countries is stalling market recovery. Dr. Bussmann has a point.

So, like every other set of airline operating circumstances brought on by the pandemic, strategies for fleet renewal going forward remain uncertain. ■

TOM BALLANTYNE
Associate editor and chief correspondent
Orient Aviation Media Group


THE
WORLD
IS
A
BEAUTIFUL
PLACE

Singapore ensures the show goes on

It is the region's largest and most influential international aerospace and defence showcase, but this year's Singapore Airshow will be a much watered down version of the biennial gatherings of the past. With the pandemic still dogging the region and Omicron cases yet to significantly abate in Singapore many international exhibitors are staying away in 2022.

Deep pocketed conglomerates such as Airbus and Boeing will be at the airshow, but the 360 companies listed as exhibitors on the airshow's website compare with 930 in 2020, only weeks before COVID-19 was beginning to take hold across the world. Even that figure was down some 44% from the same gathering in February 2018.

Attendees in 2022 must take a daily rapid antigen test for entry. As well, the gathering will be truncated by eliminating public days. Typical of aerospace companies deciding against

travelling to Singapore this time around is Bombardier. It cancelled its commitment because of the continuing spread of Omicron. Also not included in the exhibitor list this year is the Commercial Aircraft Corporation of China (COMAC). It also cancelled in 2020 – apparently because of tight quarantine rules in China.

Association of Asia Pacific Airlines director general, Subhas Menon, had planned to be part of the traditional pre-show summit for regulators and airline leaders and also attend the airshow, but decided against being in Singapore after the summit was cancelled.

An event that did take place in the lead-up to the airshow week was an online FlightGlobal webinar where one panelist put forward the view that the aerospace sector was at a "critical juncture" in the march towards a significant, disruptive technological shift.

The panel, held in partnership with CFM International, featured Airbus Asia-Pacific president, Anand Stanley, ST Engineering commercial aerospace president, Jeffrey Lam, and GE Aviation's general manager for engineering, Vikram Reddy.

GE's Reddy, asked if he predicted a step change in the industry in the next decade pointed to trends in engine design and innovation, including electrification and unducted turbofans, and said: "it is the most important, most accelerated transition that has happened in history. If you see the combination of all these, the next 10 to 20 years will be extremely different from the last 30-40 years."

Airbus's Stanley said momentum has taken off "quite a bit" in multiple technology factors. "If we look at today's technologies, decarbonization is on everyone's mind. It is accelerating at a very fast pace. The question is 'what more can we do'? It's not either/or. It's a combination of things."

ST Engineering's Lam offered a slightly different perspective when he said the industry was not yet at a "revolutionary stage", but a "revolutionary evolution". "We are seeing a confluence of many factors, including digitalization, sustainability, propulsion, technology, electrification. Even COVID-19 has contributed to moving faster ahead in many of these areas," he said. ***By associate editor and chief correspondent, Tom Ballantyne.*** ■

Korean Fair Trade Commission to rule on Korean Air/Asiana Airlines merger

At press time, the Korean Fair Trade Commission (KFTC) is expected to announce its ruling on the proposed integration of Korean Air/Asiana Airlines.

A Korean Air (KAL) spokesman said in a written response to Orient Aviation "the carrier's position is it will continue efforts to receive approvals from remaining regulators".

In addition to approval of the merger in its home country, KAL needs the deal's clearance from China, the European Union, Japan and the U.S. and arbitrary go-ahead from the UK and Australia.

On February 8, Singapore announced its unconditional approval of the merger plan. The Competition and Consumer Commission of Singapore (CCCS) said KAL's acquisition of Asiana would not infringe Singapore's Competition Act.

The competition authority conducted a public consultation into the proposed merger in July last year. It sought the opinions of aviation regulatory bodies, competitors and customers about the impact of the proposed merger on Singapore's aviation sector.

The CCCS found the merged entity was unlikely to increase ticket prices because of the high degree of competition from airlines such as Singapore Airlines (SIA) in the passenger business. It also concluded the merger would not reduce air cargo competition,

again due to significant pressure from existing and potential competitors, in particular SIA, providers of indirect cargo flights and because of excess capacity in the sector.

Since January 2021, when KAL submitted its business combination plans to the nine nations legally required to clear the operations of the merged airlines into their countries, Turkey, Taiwan and Vietnam have approved the proposed integration.

Elsewhere, Thailand's Competition Commission has announced submission of a business combination report was not necessary as has the Philippines. Malaysia's regulator also has cleared the merger. ■

Asia-Pacific to require 17,600 new aircraft by 2040

In a presentation on the eve of the Singapore Airshow earlier this month, Airbus said accelerated retirement of older aircraft to support decarbonisation goals, a more than doubling of the region's air freight business in the next two decades and 5.3% Asia-Pacific passenger growth annually will result in demand for 17,600 new passenger and freighter aircraft by 2040.

In a region that is home to 55% of the world's population, China, India and emerging economies such as Vietnam and Indonesia will be the principal drivers of growth in the Asia-Pacific, Airbus said. The region's GDP will expand at 3.6% per year compared with the world average of 2.5% and will double in value by 2040. The middle class, who are the likeliest to travel, will increase by 1.1 billion, to 3.2 billion, and the propensity for people to travel is on track to almost triple by 2040, the Toulouse-headquartered OEM said.

Airbus divided forecast demand for the region's 17,600 new aircraft into 13,660 small aircraft, such as its A220 and A320 family. In the medium and long-haul categories, the Asia-Pacific will drive 42% of demand: 2,470 Medium and 1,490 Large category aircraft, Airbus said.

Cargo traffic in the region also will increase at 3.6% a year, well above the global 3.1% average and will lead to a doubling in air freight in the region by 2040, Airbus said.

Taking into account strong cargo growth. Airbus forecasts a need for 2,440 freighters, of which 880 will be new-build, at airlines across the region.

In the same time frame globally, there will be demand for 39,000 new-build passenger and freighter aircraft to 2040, of which 15,250 will be for replacement, Airbus said.

"Our portfolio offers a 20%-25% fuel burn and therefore a CO_2 advantage over older aircraft. All our aircraft are certified to fly with a blend of 50% SAF, set to rise to 100% by 2030," Airbus said. ■

BIG JETS OUT SMALLER JETS IN

Asia-Pacific airline operating fleets are a shadow of pre-pandemic numbers. When they will return to pre-COVID levels, if they ever do, is anyone's guess. Already some familiar commercial jet types are disappearing at airlines as carriers reshape their networks for a post-pandemic world. Associate editor and chief correspondent, Tom Ballantyne, reports.

Across the region, airline capacity recovery lags behind the rest of the world, held back by the reluctance of several Asia-Pacific governments to reopen their borders to international travellers until zero-COVID status is achieved.

In 2022, Asia-Pacific carriers are scheduled to take delivery of 500 aircraft, but that is only half the story. Scores of older jets, grounded in the pandemic, will never return to Asia-Pacific skies. Elsewhere, airlines region-wide have had to cancel orders for aircraft or defer deliveries of new airplanes to preserve cash. All parties involved have lost millions.

Being left with no option but to downsize their fleets when passengers evaporated overnight, Asia-Pacific carriers have brought forward retirement of their less fuel efficient planes and focused on rebuilding networks with new jets that offer better operating and emissions efficiency.

A recent report by consultancy CAPA outlined the decimation – and the inevitable restructuring of the global airline fleet - including its forecast of the shape of capacity recovery at Asia-Pacific airlines.

"Many airlines will look significantly different. The pandemic has transformed operating fleets and longer term fleet strategies. The region's airlines have accelerated the retirement of older types due to the pandemic, catalysing the shift to newer, more efficient aircraft. Order books have been shaken up as airlines adjust to changed market expectations. New orders are starting to emerge with airlines looking to the next phase of their development," CAPA said.

The good news is the Asia-Pacific has generally avoided airline failures. Aviation data, intelligence and advisory company, IBA, identified 63 airline failures and restructurings worldwide in 2020 and 2021. They are a mix of domestic, low-cost and legacy carriers that have resulted in the temporary or permanent grounding of 1,924 aircraft. IBA anticipates 20 more airlines, covering 200 aircraft, will fail in 2022, bringing the three-year total to 83 carriers and 2,124 affected aircraft. SilkAir has been absorbed into Singapore Airlines while other carriers in the region that have entered administration, notably Philippine Airlines, Garuda Indonesia and Virgin Australia, have survived.

But IBA's intelligence cautions higher costs could lead to a higher rate of airline failures. "Airlines have taken on significant debt to survive the pandemic with stretched balance sheets bringing them under additional pressure to return to profitability," it wrote.

In the Asia-Pacific, some aircraft types have been particularly affected by the COVID-19 crisis, CAPA said. Best examples are the largest passenger aircraft – A380s and 747s. Indeed, the report pointed to the extinction of Boeing's

legendary "Queen of the Skies". There were 41 passenger 747s active in the Asia-Pacific in January 2019. Two years later, there are 10 of the type in service. Korean Air operates three, of which all are the relatively new 747-8 variant. Air China accounts for the remaining seven.

At January 31, 2020, 65 A380s were flying in the region versus one inactive of the aircraft type, records the CAPA fleet database. The active number fell to five by April 2020 and did not increase appreciably until October 2021. As of January 24 this year, the active number of A380s increased to 12 with 53 inactive. Of the 12 active in the region, Singapore Airlines accounts for seven, China Southern Airlines for three and Qantas and Korean Air one each.

Also on the track to long-term storage is the B777-200. There were 114 in service in the Asia-Pacific pre-pandemic, including -200ERs and -200LRs. At press time, there were 19 of the passenger version active in the region.

The numbers are considerably better when all B777 variants are included. For the broader B777 family, 265 of the passenger version in the region – or 69.7% – are active with 115 inactive. The situation is broadly similar for A330s, with 73.1% of the 554 aircraft operating in the region in service.

It is a completely different story for newer aircraft such as the A350 and the 787. "Airlines are more inclined to use their newer and more efficient aircraft before bringing older types out of storage," CAPA wrote. "There are 372 787s in service in the Asia-Pacific and 28 inactive. New deliveries mean there are actually slightly more 787s in service than before the pandemic began. The trend is similar for A350s. There are 216 in service and 16 inactive," the consultancy has calculated.

Nevertheless, major Asia-Pacific carriers are reducing and adjusting their fleets. As has been well reported, Malaysia Airlines is trying to sell all six of its A380s. Qantas, Singapore Airlines and Thai Airways International also intend to trim their A380 fleets. Air New Zealand announced last year that its stored B777-200s will not return to service.

"Several Asia-Pacific airlines opted to accelerate retirement plans for older wide-bodies as a result of the pandemic. Japan's major airlines have done this, phasing out many 777s earlier than planned. All Nippon Airways retired 22 of its 777s in the fiscal year ending last March 31," CAPA reports.

"Japan Airlines (JAL) has ceased operations of all 13 of its 777-200s and -300s used on domestic routes before the pandemic and retired six of its 11 777-200ERs. The carrier will continue to operate 13 777-300ERs on international routes, but eventually they will be superseded by the A350-1000s the airline has ordered."

The COVID-19 crisis has affected the region's airline fleet in multiple ways. "On the one hand, the early retirement of older types will help reduce the average age of the fleets of various airlines. Conversely, many airlines have deferred or even cut back aircraft orders, delaying fleet refresh plans. Overall, the competing trends should have the effect of accelerating the move to a younger fleet when the dust settles," CAPA said.

"This will have obvious benefits for efficiency and for reducing emissions. Narrow-bodies have returned to service more quickly than wide-bodies, which is to be expected given domestic services have been less affected by border

"The [current] situation demonstrates the resilience of the industry. "They [airlines] have had a lot of support from their shareholders, including governments, but the airline industry has been working together, not only the airlines but the lessors and the manufacturers to organize their operations and stay afloat until the recovery takes root. It would not have been possible without the collaboration of everyone in the industry"

Subhas Menon
Association of Asia-Pacific Airlines director general

"India is different. After four weeks of consistent capacity cuts India continues to see significant available seat kilometres reduced week-on-week with another 356,000 fewer seats on sale this week [late January] and all major airlines in India cutting capacity in some way or other.

But as we have seen in the past, the Indian market recovers very quickly. By the end of February it could be at more than 3.5 million seats. It is a fast-changing market. Another market that moves quickly is Vietnam. Its airline capacity continues to grow back with a 17% increase on the previous week [mid-January] allowing the country to move three places higher in the list, overtaking the UAE, Saudi Arabia and Canada"

John Grant
OAG chief analyst

closures. The ratio in service has varied widely among Asia-Pacific sub-regions, with China and Southeast Asia at opposite ends of the spectrum. However, it appears there has been a general sustained increase in the region's active fleet in recent months."

One of the most intriguing questions for Asia-Pacific aviation in the post-pandemic world will be the scale of the advantage LCCs will have over their full service brethren. It has become widely accepted LCCs will recover faster from the COVID-19 crisis. But why is that, and where does that leave the Full Service Carriers (FSC)?

In many of the region's markets, FSCs were under severe pressure from LCCs before the coronavirus pandemic. Legacy airlines likely will find it even tougher in the next few years. Any post-COVID advantage could further entrench the LCCs in certain countries where they were already dominant, analysts believe.

To date, there have been no major narrow-body order cancellations or airline collapses among LCCs holding the largest order books. Some have signaled they remain committed to their narrow-body orders, but most of the LCC sector has had to negotiate delivery slowdowns.

In the meantime, the Omicron variant of COVID has jammed on the brakes of industry recovery. Last month, OAG chief analyst, John Grant, said the digital flight information, intelligence and analytics provider believed airlines were spooked by Omicron. Once again they are cutting capacity with another 18 million seats forecast to be removed from sale to March 31. The result is more than 51 million seats being "lost" from the first quarter of this year.

"We remain at airline capacity levels 30% below the same week in 2020. At a regional level, performances are mixed. In Central America and West Africa capacity is within 10% of 2020 levels. In the Southwest Pacific, North Africa and Western Europe available capacity remains more than 40%. Southeast Asia continues to struggle to break the 50% point of recovery," Grant wrote.

"As we have said so many times, each market is having its own COVID event and recovering, or not, at different paces. New Zealand has announced easing of border restrictions but Japan has faced more outbreaks and tighter restrictions have been imposed in Hong Kong," Grant said.

Australia is another market where more capacity cuts have been made week-on-week. Its [recent] near 12% reduction in offered seats is based around domestic airline capacity forecasts. Jetstar has cut capacity by 17%, Qantas by 16% and Virgin Australia by 9%.

"Taking a criterion of at least half a million scheduled seats per week two years ago, we have tracked the 20 markets struggling to recover. The six slowest recoveries are in Southeast Asia, with Hong Kong at 17% of its 2020 capacity levels. Singapore and Chinese Taipei are at less than 30% of normal production levels. These three countries are all dependent on international capacity, specifically to China, Australia and New Zealand, which makes any noticeable improvement very unlikely in the first half of this year given the situation now," Grant said.

While the pandemic has forced far-reaching changes at airlines, a forecast that is never challenged is that global aviation growth increasingly will be driven by Asia-Pacific carriers. ■

Philip Goh, IATA's regional vice president Asia Pacific pointed out at the turn of the month that 2021 Asia-Pacific international passenger demand was about 7% of 2019 levels, the lowest level among all regions worldwide. "But it has started to move in the right direction. November and December saw international passenger demand break the 10% (of 2019) barrier, the first time since the COVID-19 crisis began. Cargo demand, on the other hand, has remained stellar, exceeding 2019 levels.

"So the immediate priority for airlines is to optimize fleet composition to cater to ascending demand. Strong cargo demand has seen some airlines convert passenger aircraft to freighters to meet the supply chain market for medical supplies and vaccines around the world.

"Longer term, the region's airlines recognize the recovery from COVID-19 presents opportunities to improve their environment sustainability credibility. The grounding of the aircraft fleet provided opportunity for return to service of more fuel efficient aircraft and the retirement of older fleet types. If the boom years had not been interrupted, it is hard to imagine airlines taking needed capacity out of service at the expense of revenue opportunities."

SUPPLY CHAIN FRAGILITY THREATENS MRO RECOVERY

Lufthansa Technik has successfully navigated the pandemic and is preparing to expand in Asia when normality returns to aviation, the company's chairman, Dr. Johannes Bussmann, tells associate editor and chief correspondent, Tom Ballantye.

If there is a major issue that will continue to cause problems for the world's aviation MROs and OEMs as they recover from the pandemic, it is the fragility of the global supply chain, believes the chairman of the Executive Board of global MRO, Lufthansa Technik (LT). "We will see a lot of supply chain issues. The more I talk to our vendors and the OEMs, I hear everybody has, somewhere in his portfolio, companies that can't deliver. Either its raw material or it's a labor shortage," Dr. Johannes Bussmann told Orient Aviation earlier this month.

The fact many companies have only one supplier of a specific part means if that supplier can't provide the part, there is disruption, he said. "If the part is not there you cannot do a repair. It's that simple. It's not hi tech or rocket science. You need the part and it has to be qualified and in aviation that's always a big burden. And this applies to whoever you talk. Boeing, Airbus and everybody else. You cannot just go next door and buy the part at the supermarket. This is something that will definitely show up [as an issue]," Bussmann said.

The problem is it is very hard to anticipate, he explained. "We are looking at all the vendors and suppliers, but we don't know which part will be missing. And from my perspective, it will be the biggest threat [to the sector] that will come up and it will be the hardest to deal with because we don't know where to look," he said.

The 53-year-old engineer, who has been with LT for 23

> Decisions are made much quicker now. Normally, we would tell the customer you can come on this or that day when we are ready but that can take time. Now, we can do it tomorrow. People will still travel, but doing inspections on a visual basis with cameras, this will be here for good

Dr. Johannes Bussmann
Lufthansa Technik chairman of the executive board

years, including the last seven as chairman, holds a doctorate in engineering and has implemented the company's growth and investment strategy. He also decisively drove the digitalization of the company and the development of digital products, most notably the AVIATAR digital platform for optimizing flight operations.

After deciding to devote his energies to activities outside aviation, in February he announced he would step down mid-year and that his successor will be the MRO's COO, Soeren Stark.

In the meantime, Bussmann and his leadership team are well prepared for recovery from the pandemic and are looking at resuming expansion plans in the Asia-Pacific, a region where the MRO has several major joint ventures including Ameco with Air China in Beijing, a facility in Shenzhen in southern China, Lufthansa Technik Philippines (LFT) in Manila and offices and warehouses in Hong Kong and Singapore. It had broken ground on a hangar to service more aircraft, including A380s, in Manila but paused the project at the height of the pandemic. It is underway again.

The new hangar, dubbed Hangar 1A, will be a replica of the Manila facility's existing Hangar 1, where aircraft from several airlines including Philippine Airlines, British Airways, Korean Air, Asiana Airlines and Saudi Arabian Airlines, are serviced. At 9,000 sq. metres, Hangar 1A is intended to increase LT's airline customer base in the region.

LT is looking very precisely at its options for expansion in Asia, but growth will be guided by the evolution of Asia's airlines, Bussmann said.

"This is something we are observing very closely. It makes a big difference if only new aircraft types are delivered in the region. Then we would build up different technical capabilities than if we have a mixture of aircraft or if older technologies are still dominant for the next 10 or 15 years.

In the next six to 12 months, it will be clear, he said. By then he predicts "the pandemic will be over and Asian countries will somehow change their politics about how to open borders and all that stuff".

Recovery, when it starts, will be speedy, he told Orient Aviation. "For me, it was really eye opening to see how quickly a recovery could be when we dealt with the U.S. Within five or six weeks we knew the direction it would go. You need a starting point. I believe it predominantly depends on China when they [Asia-Pacific countries] open up, due to the size of the market, Then we can make decisions. With the learning curve we have from North and South America I am pretty optimistic it will be a quick thing."

As for China opening up, Bussmann said there are few indications of when it might be. "Some say after elections and some say after the [Winter] Olympics. What I am hearing more from other industry people is quarter three or four this year," he said.

LT is concerned about the zero-COVID policies many Asian countries have in place. "Either there are political reasons to achieve the one or the other thing. From a health care perspective it not required," he said.

"It (Asia) will be the last part of the world to open up. It does not change our perspective. The aircraft orders and also the exchange of old towards new aircraft will come. It's just delayed a couple of years to return to the pre-COVID plan.

"We still see [Asia] as the biggest growth region for the next decade and that is what we are putting in our strategy and our plan for it."

If there is a large-scale movement from older aircraft to newer aircraft in Asia's airline fleets Bussmann conceded, in principle, there is a three to five year period that is less maintenance intensive for airlines and this cycle will have an impact on MRO revenue.

"We don't see it to be honest. Everybody was expecting it a year ago. A year ago, we would have been talking about surplus and that there was a huge wave of surplus (aircraft and engines) coming. There is nothing. We don't see anything so far. I'm pretty sure there will be an increase, but this wave that everybody was talking about, like a tsunami, I don't think that will happen in the meantime."

Instead, Bussmann said there will be a more gradual move by carriers to new technology aircraft. He also pointed to the massive debt airlines have amassed during the crisis. They do not have a huge amount of cash to splash out on fleet modernization.

"There will be a balance. How much can you afford to do? Even though many airlines in Asia are government-backed or government-owned, I don't think they will go bankrupt, but they also need to look at the numbers," he said.

As for the pandemic, Bussmann said LT actually has been quite lucky. "We had a growth strategy we started in 2014 beginning of 2015 with an intention specifically to have a bigger footprint in all the new aircraft technologies – B787, A350 etc. Broaden our portfolio there and that went very successfully," he said.

"We also started our digitalization strategy. In hindsight, it was even more valuable than we thought when the pandemic kicked in. We had a very broad customer base. It's around 85% narrow-bodies, a couple of cargo aircraft of course and the rest is long-haul. This is something that helped us because through the entire pandemic we have had countries where the operation of narrow-body aircraft was in place, at least to some extent. So, the U.S. started a year or so ago. We had China and we had a couple of other countries that were fairly big."

An example? Speaking to the chief executive of a Mexican airline, Bussmann asked how it could be operating more than it had been pre-pandemic. "The answer was very simple. 'Before, people travelled 12 hours on a bus to go from A to B. Now they travel two hours in my aeroplane because they think is safer'."

None of this means LT escaped the carnage of the pandemic. Like other aviation firms it has had to cut costs and reduce staff. In 2020 it was hit hard with revenue tumbling by 43% year-on-year, to $4.3 billion. Its pre-tax profit was $529 million in 2019 but collapsed into a loss of $433 million in 2020.

Announcing that result, LT said the extensive downtime and decommissioning of commercial aircraft resulted in the postponements of maintenance events and a steep slump in demand for MRO services. By the third quarter of last year, however, the situation was clearly on the improve, with the MRO reporting a pre-tax profit of $177 million as it began to benefit from an industry-wide increase in demand for maintenance services as the global airline market began to recover.

During the crisis LT has had to establish agreements with its airline customers about dealing with extremely low numbers of flight hours. "All the flight matrixes we normally use were not covered and they [airlines] were not able to pay for the minimum flight hours normally agreed. We showed a lot of flexibility there and at the same time we found good levels of cooperation with airlines about dealing with the situation. It was a mutual process. We found really good ways to cope with that," Bussmann said.

"We talked to airlines about making services affordable. But we cannot donate money to them. I need to pay my people and for the materials we are consuming. But there are ways. If you decide to retire an aircraft in three years then you can have a very detailed program of what work is required.

"How much money do I put into this engine so that it lasts for three years? How can we have a positive impact on the cash flow of the airline? There are a couple of factors you can't avoid. If the engine is due, the engine is due. It's not a question of do I do it or not. It's a question of how much do I spend? That's what we try to figure out with our customers. From my perspective, that works very nicely."

One trend "tremendously" speeded up by the pandemic is MRO digitalization, said Bussmann.

Engineering departments have been able to look at completing work in a different way, starting from a clean sheet of paper. One example is an engine inspection during and after repair, which would normally involve someone from the airline coming to the LT facility. "That was not possible but still the engine needed to be overhauled and a table inspection conducted. We had to install a camera system. The quality of the pictures was so that if you see this part [an image] it is no different from standing next to it.

"The customer can see what the analytics are, or how big is the scratch or crack. You can have the visual and the data on one screen at the same time and can talk. This is a process that has helped us to speed up internally. ■

BOSE
AVIATION

Technology developed over 30 years. Appreciated in seconds.

See the headsets at Singapore Airshow booth C-S82 in the USA Pavilion, or visit BoseAviation-APAC.aero to learn more.

PROFLIGHT SERIES 2
AVIATION HEADSET

The ProFlight Series 2 is Bose's most lightweight, compact and comfortable aviation headset, and is engineered for the way professional pilots fly.

A20
AVIATION HEADSET

The A20 Aviation Headset features acclaimed noise reduction, comfort, clear audio and intuitive operation in a familiar around-ear design.

ProFlight Series 2		A20
Mid to low Noise levels typical of pressurized jets	**Ideal noise environment**	**High** Noise levels typical of piston engine aircraft
Three modes	**Noise reduction level**	**Highest**
4.5 ounces (128 grams)	**On-head weight**	**12 ounces (340 grams)**
In-ear	**Configuration**	**Around-ear**
FAA TSO and E/TSO-C139a	**Certification**	**FAA TSO and E/TSO-C139**
✓	**Military-grade durability**	✓
✓	***Bluetooth*® audio streaming**	✓
✓	**Five-year warranty**	✓

Connect with us @BoseAviation

CHINA AIRLINES MANTRA: PRIORITISE CARGO

When China Airlines chairman, Hsieh Su-Chien, and the company's board confirmed Kao Shing-Hwang as president last March, the resulting leadership duo was a marriage made in airline heaven, a combination of the political and financial sophistication of Hsieh and the operations and cockpit expertise of Kao. Tomasz Sniedziewski reports for Orient Aviation from Taiwan.

China Airlines (CAL) has been one of the very few airline companies in the region to successfully reorganize its business to function profitably in the pandemic world. The rapid introduction of the “Prioritize Cargo over Passengers” business strategy, which resulted in a swift turnaround for the airline group, was conceived and driven forward by chairman, Hsieh Su-Chien, a corporate CAL veteran of more than four decades, who also served as acting president in the first 13 months of the pandemic’s global spread.

In March last year, Kao Shing-Hwang, a pilot and a senior flight operations executive, who began his career with CAL as a flight attendant, joined the leadership team as president, offering his decades of experience in operations to the leadership mix.

“When the COVID-19 pandemic broke out in 2020, as the acting president I decided ‘speed’ was the essence of coping with its impact,” Hsieh told Orient Aviation last month.

“I thought hard about the strengths of China Airlines and came up with ways to maximize their marginal effects.

“Firstly, I tried to improve our liquidity in preparation for a stiff fight. Then I issued an “SOS” signal to let the outside world know the airline industry needed government relief. The next step was self-recovery — when the global airline industry began to recover.

“China Airlines introduced active fund management, based on ‘finding new income sources and cutting costs’. We took advantage of government emergency loans, landing fee discounts and epidemic prevention subsidies to keep our business and finances on an even keel.”

But it was CAL’s decision, adopted as early as March 2020, to prioritize cargo that has proved to be its winning strategy. It is now the main source of revenue for the flag carrier.

“Full support was given to cargo to ensure the continuity of Taiwan’s supply chains for electronics and epidemic prevention supplies. This also kept [and will keep] China

Airlines passenger operations running to welcome the rush of returning customers once the airline industry recovers," Hsieh said.

"We strengthened Taiwan's position as a transshipping hub and established ourselves in promising markets, making the most use of air rights and freighter capacity. The Air Cargo team stepped into the breach and adopted a flexible "Prioritize Cargo over Passengers" business strategy.

"The belly-hold on passenger aircraft is being used to supplement the freighter network while resources such as passenger/freighter fleets, routes and networks also are being integrated."

Relying on cargo for revenue has historically helped China Airlines survive and thrive in the past, Kao said.

"The resilience of cargo always has proved vital during life and death moments for CAL. The SARS (2003-2004) epidemic, for example, generated a record breaking performance," he said.

This time around, it has proved to be no different. "Cargo's outstanding performance resulted in an 88% jump in revenue in 2020. It now accounts for more than 90% of total revenue," said the CAL president.

CAL's revenue in the first three quarters of 2021 was TWD 81.11 billion (US$2.92 billion), an increase of 45% year-on-year," Hsieh said.

But "the most important goal during the pandemic has been epidemic prevention and safety", he said.

The carrier has spared no efforts to guarantee the safety of the aircraft crews and travelers. It took to issuing one-time key cards to crew members to prevent them leaving their rooms during quarantine. It also disinfects all check-in luggage on arrival.

"Government policy and quarantine bubbles mean pilots must endure a never-ending cycle of quarantines and missions. The result is physical and mental fatigue as well as extended separation from their family."

"Their spirit of sacrifice, devotion and professionalism should serve as a model for all front-line personnel serving the nation. China Airlines thanks all the pilots for their contribution and hard work during the pandemic."

Unquestionably, Hsieh's career experience with CAL is playing a pivotal role in navigating the company through the pandemic crisis.

"I joined China Airlines in 1979 and have been with the company for 43 years. I started as a junior accountant then switched to sales and marketing. I headed affiliates such as Abacus Taiwan and Taiwan Air Cargo Terminal and was stationed at CAL offices in Indonesia, Australia and several other countries," he said.

"This experience has provided me with a very deep knowledge of CAL's passenger and cargo operations, domestic and overseas businesses, and its financial structure."

That does not mean life has been easier for Hsieh than for his peers across the region. "I was faced with all kinds of immense pressure during the decision-making process. It is a crisis of unprecedented proportions but as long as you stay calm and concentrate on doing what's right for the Taiwanese economy and the long-term development of China Airlines, then you are on the right track."

In March 2021, very soon after his appointment as president, Kao was confronted with his first leadership challenge. After months of no local infections, Taiwan recorded its first serious outbreak of COVID-19.

"I took over as president in mid-March 2021 when the COVID-19 pandemic had already wreaked global havoc for a year. Taiwan's epidemic prevention efforts had proved largely successful until then, but the virus inevitably broke through," recalled Kao, who like Hsieh is a company veteran.

"I have been with China Airlines for 36 years. I passed the China Airlines exam to become a flight attendant in 1986. After working with pilots, I became interested in flying and in 1988 I joined the first in-house pilot training program. I completed my professional training overseas, funded by the company, and became a pilot in 1988. I have flown A300-B4s, A300-600Rs, A340s and A330s among other aircraft types.

"I am currently qualified on the 747-400. In addition to my management role, I continue to fly missions on a regular basis."

Kao explained: "my first task was to ensure the safety of all employees. Aircraft crews on the front line that travel between different countries were particularly critical. Once the vaccinations started, I immediately registered for one as a pilot to encourage aircraft crews to do the same. A vaccination station was set up within the company office to make vaccines as accessible as possible to crew members and other employees. This not only improved protection for employees and their families but also gave passengers peace of mind."

All pilots and cabin crew have received two doses of the vaccine and a third booster shot is now being administered," Hsieh said.

"Our top priority was a balance between epidemic prevention and operations. Agile dispatching for passengers and cargo saw China Airlines and our management team deliver a strong result in 2021 despite the devastation in the global airline industry. China Airlines in effect became the "Guardian Airline" watching over the economy of Taiwan", Kao said.

Safeguarding Taiwan's economy comes at a price for frontline airline staff. Until now, Taiwan has adopted a "Zero-COVID" policy. It requires pilots to follow safety protocols at home and abroad that are often more strict than their peers based in the countries that have decided to open their borders.

"Pilots have cooperated with changing quarantine and epidemic prevention measures for nearly two years. In addition to the normal professional and aviation safety considerations, they also frequently fly to other countries where the risk of exposure to COVID-19 is high.

Nevertheless, they continue to carry out their mission of ensuring the safe delivery of crucial materials."

"The aircrews serving the carrier can count on special measures introduced during the pandemic, designed to help physical and mental well-being, including the willingness to hear the feedback. China Airlines is tending to the physical and mental well-being of aircraft crews, setting up a 24-hour hotline to provide crew members with professional assistance, quarantine advice and medical attention or interactive online physical fitness video courses to help crew members stay fit. "Every effort is made to ensure crew members have timely access to medical assistance and resources when necessary," said Kao.

But the pandemic has not dampened enthusiasm for a career as air crew, he said. "China Airlines continues to recruit pilots to meet our operational needs. COVID-19 has not interrupted our recruiting efforts and we will continue to reach out to universities in 2022," said Kao. "Being a pilot is more than just a job. It is a great honor. Pilots flying for China Airlines make an important contribution to the Taiwanese economy and play a vital role in the global cargo movement. If you are a pilot with great ambitions, then China Airlines welcomes you," he said.

"Passenger flights were adjusted as necessary to gradually rebuild the visibility of our network and meet the demand from students, businesses and workers with special travel requirements during this period. We also supported the government's travel bubble campaign, tweaked our services to meet traveler demand and even played the role of the "fire

Committed to Tigerair

"Tigerair Taiwan purchased the "Tigerair" trademark outright in 2021. We plan to continue developing the brand to ensure its long-term sustainability," said CAL chairman, Hsieh.

Closed borders have made business tough for the LCC. In 2020, the airline reported net losses after tax of approximately TWD1.37 billion. Despite the losses, Tigerair's fleet renewal program, commenced in 2021 as planned, will include the A320neo.

"It is of strategic importance to the CAL Group, offering differentiated products for different market segments," said the chairman. "China Airlines will continue to operate in the LCC market through Tigerair Taiwan in the future."

brigade" on a number of occasions, assisting with the repatriation of passengers from Wuhan and the Diamond Princess cruise ship at the government's request," Hsieh said.

The carrier boosted passenger services demand by offering clients the ability to book a block of seats or even charter the whole section of the passenger cabin.

"The current uncertainty in the COVID-19 situation and passenger market means there are no plans to add passenger routes at the moment. Our focus will be on maintaining services on core routes," said Hsieh, and added there might be necessary adjustments to services to keep fares reasonable.

"Business travel is expected to be greatly reduced and traveler confidence has not yet fully recovered. China Airlines will, therefore, adopt a cautious approach to the passenger market," Hsieh said.

Post COVID, the latest aircraft type to be entering CAL's fleet, the A321neo, will become the mainstay aircraft of its Northeast Asia, Southeast Asia, and cross strait routes. "This aircraft features contactless service and enhanced epidemic prevention measures. Upgrades include Premium Business Class with fully-flat seats, the latest entertainment system and the airline's largest screen displays, high-speed in-flight Wi-Fi, and free text messaging," Hsieh said.

"To enhance our cabin services, we now provide products with the same comfort specifications as our wide-body fleet. And the 10%-20% increase in cargo capacity makes a valuable addition to our current cargo-centric operations."

In 2022, eight more A321neo will arrive at the airline. At the same time, the carrier will retire three 737-800s. Even the days of 737s are numbered although CAL is offering a wireless entertainment system upgrade on these aircraft.

"In addition to offering benchmark-setting products targeted at the high-end passenger market in Asia, we hope the differentiation of cabin equipment will help us compete for the high yield segment as well," said the CAL chairman.

The company's the wide-body aircraft fleet also is changing. "Four 747-400 passenger aircraft were retired ahead of schedule last year. We continue to explore the feasibility of a new wide-body passenger aircraft replacement for the

A330-300 fleet," he said.

The upgrades of the fleet might benefit CAL as the Taiwan operating environment becomes more competitive. Apart from its long-time rival, EVA Air, newcomer STARLUX Airlines is competing with CAL for full-service customers.

But Hsieh is not worried about CAL's position in the market, thanks to "an unbeatable advantage in cargo".

"COVID-19 is still having a major impact on the air transport market and airlines need cargo to generate revenue. Flexible adjustment of transportation capacity is therefore of the utmost importance," he said.

Nor does Hsieh feel competitive pressure from low-cost carriers (LCCs) as their business model is too different from full-service carriers such as CAL. "Travelers themselves differ in their expectations and needs as well so each has a distinct market segment," Hsieh said.

The airline group, however, has not shied away from adopting some LCC pricing tactics. "We have introduced the "Fare Family" pricing structure system in response to competing LCCs and to meet the planning requirements and pricing expectations of different travelers. Travelers can customize their fare, select luggage allowance, manage mileage and ticket refund, and modify their booking," Hsieh said.

Challenges facing CAL in 2022 are rising costs, scheduling constraints for aircraft crews, necessary additional physical and mental health management resources, idle passenger aircraft capacity, questions about traveler confidence and inconsistent recovery in regional markets.

There even is worry about long-lasting changes to the market, such as will working from home lead to structural changes in business travel.

Despite all the challenges, several market factors centred around cargo will be good for China Airlines business, the CAL leadership told Orient Aviation.

"As the global economy continues to recover, the demand for air freight is increasing and the shift from sea to air freight continues to pay dividends. Other factors such as an imbalance in supply and demand and low inventory levels are having an effect," Kao said. He believes the pandemic is showing signs of easing in Southeast Asia and is encouraged that production in China is back on track.

"Three more 777F freighters will be delivered during 2022 and 2023. These will join the existing 21 freighters in the fleet and allow for more rolling adjustments to the allocation of passenger and freighter aircraft capacity, making a significant contribution to our business performance in 2022," Kao said.

Fortunately, capital markets have a positive outlook for the carrier. "In the first three quarters of 2021, net profit to the owner of the company was TWD1.555 billion and EPS (earnings per share) was TWD0.28. CAL was, therefore, the first Taiwan-flagged airline to turn a profit in 2021. The S&P Global Company has revised its rating outlook to stable from negative," Hsieh said. ■

CAL aims for net zero emissions earlier than 2050 airline industry deadline

"China Airlines has long been interested in environmental sustainability and climate change issues. We were the first airline in the world to obtain ISO 14064-01 greenhouse gas inventory, ISO 14067 carbon footprint and Carbon Reduction Label certifications," said CAL president Kao.

"We also became the first airline in Taiwan and the second in the world to obtain the environmental system management (ISO 14001) and the energy system management (ISO 50001) certifications."

For many years before his promotion to president, Kao was responsible for the airline's sustainability strategy. "The COVID-19 pandemic has created a very challenging business environment for the airline industry, but even so, in 2021, our long-term investment in sustainability was enhanced and recognized when we were included in the DJSI (Dow Jones Sustainability Index) for the sixth consecutive year. And we beat our own previous record by placing second across the global airline industry in sustainability and emissions reductions.

"We have set a target of reaching "net-zero carbon emissions" from business activities before 2050. Initiatives intended to reach this goal include the continued procurement of more fuel-efficient next-generation aircraft, the use of sustainable alternative fuels and across the board adoption of the latest fuel-saving technologies.

Since 2012, CAL, along with several airline peers, has been a participant in the Pacific Greenhouse Gases Measurement (PGGM) project. "We have provided A340-300s and A330-300s for trans-Pacific climate observations. We were the first airline in Asia to be involved in GHG observations. Our aircraft also was the first in the world to co-operate in gathering atmospheric data over the Pacific," Kao said.

CAL Cargo's "dream team"

The way the cargo division works makes Kao proud. "The entire Cargo team at China Airlines headquarters and branch offices around the world is about 800 people, just 8% of our total workforce. This dream team showed what they can do by aggressively expanding our freight revenue and dispatching more than a hundred charter flights in a month. They achieved unprecedented charter rates and revenue as well. More than a thousand pilots flying around the clock as well as the full support of maintenance, ground handling, and other logistics units made it possible for China Airlines to exceed TWD100 billion ($3.6 billion) in revenue so far in the pandemic. Their efforts helped China Airlines improve its ranking in global freight."

The most visible asset of China Airlines Cargo is its dedicated freighters. "China Airlines operates the largest 747-400F freighter fleet in the world. The surge in air cargo demand during COVID-19 has meant our 18 747-400F freighters are kept busy. During the pandemic, we also began taking delivery of 777F freighters that were on order. Our fleet of 21 freighters, eighteen 747-400Fs and three 777Fs, was fully utilized in 2021. We increased our scheduled freighter services by 23% and flew additional services in response to market demand, operating up to 130 flights each week," Hsieh said.

Freighters are used mainly on higher value routes to the U.S., such as Chicago or Los Angeles. "China Airlines continues to optimize network performance, to develop promising markets, and to focus on the development of special cargo such as e-commerce, precision machinery, and cold-chain products to boost profits," Hsieh said.

"In addition to bidding for the vaccine transport market and to transporting vaccines purchased by Taiwan on a number of occasions, we also have generated new revenue sources by carrying out vaccine transshipment missions to other countries in Asia and Oceania. Our cold chain logistics business has grown several-fold and we will continue to monitor the latest developments in the global cargo market" Hsieh said. "To date, we have transported 80 million doses of COVID-19 vaccine. The rapid growth of China Airlines cold chain transportation business has caused a significant increase in the use of temperature-controlled containers as well. We operated 2.5 times more temperature-controlled containers in 2021 compared to 2018," said Kao.

The 747-400F freighter ability to load or unload large cargo is used to transport special cargo. The company used a bidding system for hold space to increase unit revenues by prioritizing high-value sources such as urgent and project cargo.

For close to two years, CAL has been assigning passenger aircraft to cargo missions. "Flights were considered worthwhile if revenues from the belly hold covered variable costs such as fuel, airport fees and labor. Strong global demand for cargo services (e.g. medical supplies and aid, and merchandise related to the stay-at-home economy) meant that, on average, passenger aircraft flew over 1,000 cargo only services each month. The U.S. West Coast saw particularly strong demand for cargo. China Airlines was operating up to six or seven flights to Los Angeles per day during the peak season," Hsieh said. Some flights, mostly to the U.S. West Coast, where the demand was the highest, also were carrying cargo in passenger cabins. ■

Going over the top to Asia says new U.S. LCC

By Miquel Ros

There will soon be a new way to cross the Pacific and it comes with a unique style. On January 18, Northern Pacific Airways (NPA), a new American airline, unveiled its first aircraft at San Bernardino Airport in California.

At the ceremony CEO Rob McKinney offered his audience a few insights into this new carrier's strategy, reports Miquel Ros from California.

Rather than going the ultra long-haul route, NPA has looked to Iceland for inspiration.

For decades, Icelandair has been successfully exploiting its home country's mid-ocean location to offer passengers a cost-competitive airfare to cross the Atlantic. NPA wants to do the same for the Pacific.

The new carrier will link the U.S. to Asia by way of Anchorage in Alaska. NPA is backed by the new owners of Ravn, an Alaskan regional airline re-launched in late 2020.

The Icelandair parallels don't end here: NPA has opted for the 757, Icelandair's workhorse for many years. Granted, the B757 is not exactly state-of-the-art technology, but McKinney pointed out the type was the best available choice to launch NPA as soon as possible. "We are looking at other aircraft types for the longer term", he said. Initial plans call for a fleet of 12 aircraft, of which nine have been secured, "but we see ourselves getting to 50 aircraft in a few years' time".

"We are going to offer a combination of low fares, which we expect will grow the market, and a great inflight experience, including a cutting edge IFE system", explained McKinney before he confirmed the carrier had finally opted for a three-class cabin (Economy, Economy+ & Business Class) configuration.

And just as Icelandair uses the appeal of its home country's magnificent geography as a lure for tourists, NPA aims to make the Alaskan stopover a strength rather than a weakness of its business proposition. It is working with several local partners to offer a range of services and activities in the U.S.'s largest and northernmost state.

Being able to clear U.S. immigration and customs at Anchorage, rather than at more crowded U.S. ports of entry also is part of NPA's pitch.

The 757's range (4,000nm) means it can reach most of the contiguous 48 states on the U.S. side and also Canada. The Asia network focus, for the time being, will be Tokyo, Osaka, Nagoya and Seoul. China's Harbin is under consideration as a destination, although current travel restrictions mean it will have to wait. In addition to its Anchorage base, Los Angeles [LAX], San Francisco, Las Vegas, New York [JFK] and Orlando are going to be the carrier's U.S. ports. ■

Collins Aerospace to invest US$27 million to bring MRO services closer to Asia-Pacific customers

Global industry conglomerate, Collins Aerospace, will increase its on-the-ground MRO capacity in Asia by near doubling its aircraft repair capacity in Xiamen, China and quadrupling its MRO facilities in Selangor Malaysia.

In Xiamen, Collins will spend $11 million building an 80,000 sq. foot complex, an expansion on its present 50,000 sq. ft. facility in the Mainland coastal city. The expanded complex will offer clients A350, A330neo, 787, China's ARJ21s and C919s and rotary and general aviation aircraft MRO services.

In Malaysia, Collins will build a 160,000 sq. ft. complex at Subang Aerotech Park, which will be four times the size of its present Malaysia complex. It will expand the company's MRO services to customers, including air cycle machines, heat exchangers, engine starters, valves, propellers and actuation systems for A320s, A380s, ATR -42s and -72s and 787s and the future B777x.

Separately, after several piece part repair contracts with Taiwan's China Airlines (CAL) in recent years, Collins Aerospace has signed long-term agreements for Pratt & Whitney GTF engine accessory repair services on CAL's 25 A321neo and Tigerair Taiwan's 15 A320. ■

SUSTAINABILITY

Pratt & Whitney closer to running engines on 100% Sustainable Aviation Fuel

Pratt & Whitney has announced its GTF engines have saved Asia-Pacific airlines more than 300 million gallons (more than one billion liters) of fuel and avoided more than three million metric tonnes of carbon emissions since entering service in 2016. With 25 airlines in the region operating GTF engines on more than 500 aircraft across three aircraft families (A320neo family, A220 and Embraer E-2 jets), the engines have flown more than three million engine flight hours and carried more than 200 million passengers to their destinations. The GTF family of engines deliver between 16%-20% better fuel efficiency, up to 50% reduced regulated emissions and a 75% smaller noise footprint.

"GTF engines are delivering exceptional economics and leading the charge toward more sustainable aviation in the Asia-Pacific, Pratt & Whitney chief commercial officer, Rick Deurloo, said. "We developed the geared architecture for the advantages it would give us and our customers in the long term. We're just getting started and look forward to continuing to deliver even more value to our customers as we power their growth in the years ahead."

The GTF engine is proving its long runway for growth with the recent introduction of the Pratt & Whitney GTF Advantage™ engine, a configuration that will offer A320neo family operators greater takeoff thrust, additional fuel efficiency and reduced CO_2 emissions. The engine manufacturer also has expanded its EngineWise® solutions by increasing the GTF MRO network from three maintenance Asia-Pacific centres today with five more coming online, including the recently announced shop at Korean Air in Seoul.

The Pratt & Whitney engine portfolio can operate up to 50% Sustainable Aviation Fuel blend. The company's goal is to make its 100% SAF ready for the future. Most recently, a PW100 turboprop engine ran successfully on 100% SAF in a series of ground and flight tests on ATR's 72-600 prototype aircraft. ATR is targeting a demonstration flight in early 2022 on a Braathens Regional Airlines' ATR aircraft, where both PW100 engines will run on 100% SAF. ■

Honeywell aims to hit carbon neutrality targets by 2035

"Honeywell greenhouse gas emission intensity is down 90% since we introduced our sustainability system in 2004," the conglomerate's chief sustainability officer, Evan van Hook, said earlier this month.

The UOP division of Honeywell has developed a process technology to produce SAF from sustainable feedstocks. The process made history in December when a United Airlines' 737 MAX 8 flew from Chicago to Washington, D.C. as the first passenger flight fueled by 100% SAF. SAF can reduce greenhouse gas emissions by up to 80% on a life-cycle emissions basis.

Honeywell is concentrating on areas that generate the most carbon dioxide, said Honeywell Aerospace Vice President of Health, Safety, Environment & Facilities and Resiliency, Greg Bopp. "Energy accounts for about 80% of our carbon footprint and process emissions from our production facilities make up about 10%. We're doing some exciting things to reduce our environmental impact in both areas." ■

LEASING

Lessor CDB wins China customers with its Passenger 2 Freighter joint venture

CDB Aviation is pushing ahead with expansion into the fast-growing passenger to freighter (P2F) sector with its order for 12 more A330 P2F conversions from a previous order for two for the type. The conversions will be undertaken by Elbe Flugzeugwerke GmbH (EFW), in a joint venture with ST Engineering and Airbus. The order will bring its A330 P2Fs to 14. The first two conversions are close to completion at EFW's Dresden facility and are scheduled for imminent delivery to launch customer, Mexico-based MasAir.

The lessor is on track to launch its A330 P2F freighter type in China later this year with recent lease commitments from Sichuan Airlines and Jiangxi Cargo Airlines.

"We have strategically positioned our platform to be the A330 P2F program frontrunner among lessors, CDB Aviation CEO, Patrick Hannigan, said, and added the joint venture company was the lessor's "first entry into the air cargo space".

'We are very satisfied with this program's progress and momentum to date and look forward to expanding our freighter fleet in collaboration with our partners at Airbus, ST Engineering and EFW," he said. ■

Orient aviation

29 YEARS