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Low-Fare & Regional Airlines
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LARA

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It's a cruel... cruel summer



Airlines around the world are hitting their peak summer period and it's looking to be a rather turbulent time. Airlines are already operating with a lack of aircraft due to the global grounding of the Boeing 737 MAX fleet, which has moved into its sixth month.

Now pilots' unions are delivering a further blow to airline operators.

Leading the charge over a pay dispute with British Airways is the British Airline Pilots' Association (BALPA). BALPA says 90% of members took part in the ballot, with strike action supported by 93% of the vote. "This strong result demonstrates the resolve of BA [British Airways]

pilots, and shows BA that it must table a sensible improved offer if a strike is to be averted. Sadly, three days of ACAS talks have not moved the company's position one iota. Settlement of this dispute is in BA's hands," said BALPA general secretary, Brian Strutton, on July 22.

British Airways executives responded the same day by stating: "We're very disappointed that the pilot union, BALPA, has chosen to disrupt our customers' travel plans – including the summer holidays of thousands of families and friends – with potential strike action."

The idea of offering pilots a profit share scheme with the airline they fly for is an interesting concept and is one idea which BALPA has proposed to BA. For small mom-and-pop airlines with few employees, it may be a way of maintaining a guaranteed service. But for a large airline like British Airways – is it feasible? How would you judge the size of the profit share issued between a pilot flying regional routes and a pilot on international long-haul routes? Seniority, hours flown, length of service, all have to be taken into account to create a practical and fair process. Will we likely see other airlines making similar proposals to their staff? Or could this situation create barriers between regional versus long-haul pilots? If a larger slice of the profit-share pie is offered for those flying the big routes, where will this leave regional airlines?

The world is already short of commercial pilots and airlines need to look after the pilots they do have, but at what cost does it become impractical to meet their every demand?

Glenn Sands – Editor

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Gloomy forecast from Ryanair due to 737 MAX delays and a rebrand in the wind



The fallout from the grounding of Boeing's 737 MAX is impacting Ryanair's future capacity plans, forcing the LCC to reassess its passenger growth outlook for the next financial year. In a recent update for investors, the airline said it had cut its summer 2020 growth rate from 7% to 3% because its fleet will contain 28 fewer MAX 200s than predicted. The Dublin-based carrier intended to have 58 of the type in service by the summer next year, but since the MAX 8 and 9 remain grounded it now expects to receive up to 30 MAX 200s by the end of May 2020.

"This shortfall in aircraft will require some base cuts and closures for summer 2020, but also for the winter 2019 schedule," said Ryanair's CEO, Michael O'Leary. As a result, the airline group trimmed its traffic forecast for the financial year ending 31 March, 2021 to 157 million passengers. This was down from an earlier forecast of 162 million.

The airline placed orders for 135 MAX 200s and reserved options for an additional 75. Its MAX 200s are fitted in a 197-seat configuration, eight more than the standard 189 within its existing fleet.

O'Leary noted that: "Boeing is hoping that a certification package will be submitted to regulators by September with a return to service shortly thereafter.

"We believe it would be prudent to plan for that date to slip by some months, possibly as late as December. As Ryanair have ordered the Boeing MAX 200s, which are a variant of the MAX aircraft, these need to be separately certified by the FAA and EASA. Ryanair expects that the MAX 200 will be approved for flight services within two months of the MAX return to service."

Despite the gloomy report the airline also appears to be looking at rebranding the MAX aircraft. Images taken outside Boeing's Renton facility in Washington, by *Woody's Aerospace*, a blogger and photographer, appear to show a 737 MAX with '737-8200' painted clearly on the side of the jet's nose.

Ryanair had ordered a version of Boeing's 737 MAX 8 and called it a 737 MAX 200, but has since changed it to 737-8200, which combines a mixture of the two names. The 8 recognises that the aircraft is based on the MAX 8, and the 200 represents the number of passengers that the aircraft can carry.

This is not a complete surprise by Ryanair, which prior to this incident has begun referring to the aircraft as the "new Boeing 737 game-changer aircraft."



Photo: Woody's Aeroimages



Austrian Airlines seeks government support



Austrian Airlines is seeking local government support or the European Commission's Public Service Obligation (PSO) to support its loss-making domestic routes.

"The instrument of the Public Service Obligation is being used in economically difficult cases, but necessary to enable connections to other countries," Austrian Airlines' spokesperson Leonhard Steinmann told *AeroTime*. "We regard this instrument as a veritable option for domestic routes as well," Steinmann added.

The airline currently operates four routes within Austria, from its main hub in Vienna. There are plans to expand its facilities in Vienna by 2025.

"At the same time, this should also be considered as a clear challenge to the increasingly tough competition in Vienna, and we are prepared to take further steps to defend our position at our flight hub in Vienna", the new CEO, Alexis von Hoensbroech, declared.

"We will invest more than EUR 200 million in the expansion of our continental fleet and thus be able to significantly strengthen our position in Vienna", he added.

L3Harris officially opens London Training Centre

L3Harris Technologies has celebrated the grand opening of its new \$100 million London Training Centre for commercial airline pilots.

The new training centre was officially opened by His Royal Highness the Prince of Wales, along with the UK Aviation minister Baroness Vere (pictured right).

Located close to London Gatwick Airport, the new facility employs 350 people and aims to meet the increasing demand for new pilots, equipped with RealitySeven Full Flight Simulators, high-fidelity Flight Training Devices, Flat Panel Trainers, classrooms and briefing rooms.

The facility will also design, develop and build the company's leading RealitySeven Full Flight Simulator (FFS) with its new production facility, which has a combined volume of more than 150,000 square feet with capability to manufacture over 30 FFS a year. The production facility has also been built with the flexibility to expand training facilities into the building, depending on FFS demand.

The training centre already has 15 international airlines training pilots at the site, and it will also support the company's Airline Academy cadet training programmes.



Alan Crawford, president, L3Harris Commercial Aviation Solutions, said: "Our investment in this facility reflects our confidence in growth opportunities in the UK and the aviation industry, illustrated clearly by the demand for new airline pilots across the world."

"This training centre will boost the local economy, helping our aviation sector to

continue to cement its place as one of the world's very best," said Parliamentary Under Secretary of State for Transport, Baroness Vere of Norbiton, "As we seek to build a fairer society, improving access to pilot training goes hand in hand with our work to increase diversity and female representation across the industry."



FAA and EASA order checks on Boeing's 757

The FAA and EASA issued an airworthiness directive on 12 July, for the Boeing 757. The directive states that any operator of the aircraft type has to inspect the actuators of their 757s within 1,760 flight hours, or after six months' flying.

The orders from the FAA and EASA come following an in-service report of an issue with the functionality of the aileron actuators.

Boeing had previously recommended an inspection with their service information issued in March. But, Boeing's service

information guidance is optional for operators of the aircraft. With the issue of an Airworthiness Directive (AD) issued both by EASA and the FAA, operators must perform a relevant inspection.

The issuing of the AD stems from an incident when a 757 flight crew had limited ability to control the plane. The crew found they were unable to move the ailerons using the trim wheel. The aircraft manufacturer reported the incident to the regulator and issued guidance for inspections in its March service information update.

Boeing informed operators that they need to look for cracking or damage to the aileron trim actuator attachment and carry out remedial work as necessary. The FAA predicts the checks will take around three hours. Should remedial work be required it is estimated that this would take no more than four hours. The aircraft manufacturer has identified the problem as being caused by a seized actuator bearing. Boeing is working on a replacement part which will be provided to operators once ready. Until this time, routine checks will be required.



Air Canada enhances services to Atlantic Canada

Air Canada has announced a series of enhancements of Atlantic Canada services starting in winter.

Overall capacity is set to increase by 8% as some routes transfer to its subsidiary Air Canada Rouge, and other Air Canada Rouge and mainline services will be extended to year-round.

Mark Galardo, vice-president of network planning at Air Canada, said: "With the launch of the Air Canada Rouge service to Saint John, New Brunswick, the extension of Rouge on Charlottetown-Toronto and the expansion of Halifax-Calgary flights to a year-round service, Atlantic Canada will enjoy an improved

product and convenient connections throughout Air Canada's extensive North American and global network."

Beginning 27 October, twice daily Saint John-Toronto flights will be operated year-round by Air Canada Rouge using an Airbus A319 – replacing the Bombardier Q400s, which the airline said represents a 16% increase in available seats.

Air Canada operates out of four airports in New Brunswick with roughly 1,600 daily seats available. Continuing year-round by Air Canada Rouge will be a service from Toronto to Moncton (three times a day) and Fredericton (twice a day) also operated by an

A319, representing a 16% capacity increase through the winter season.

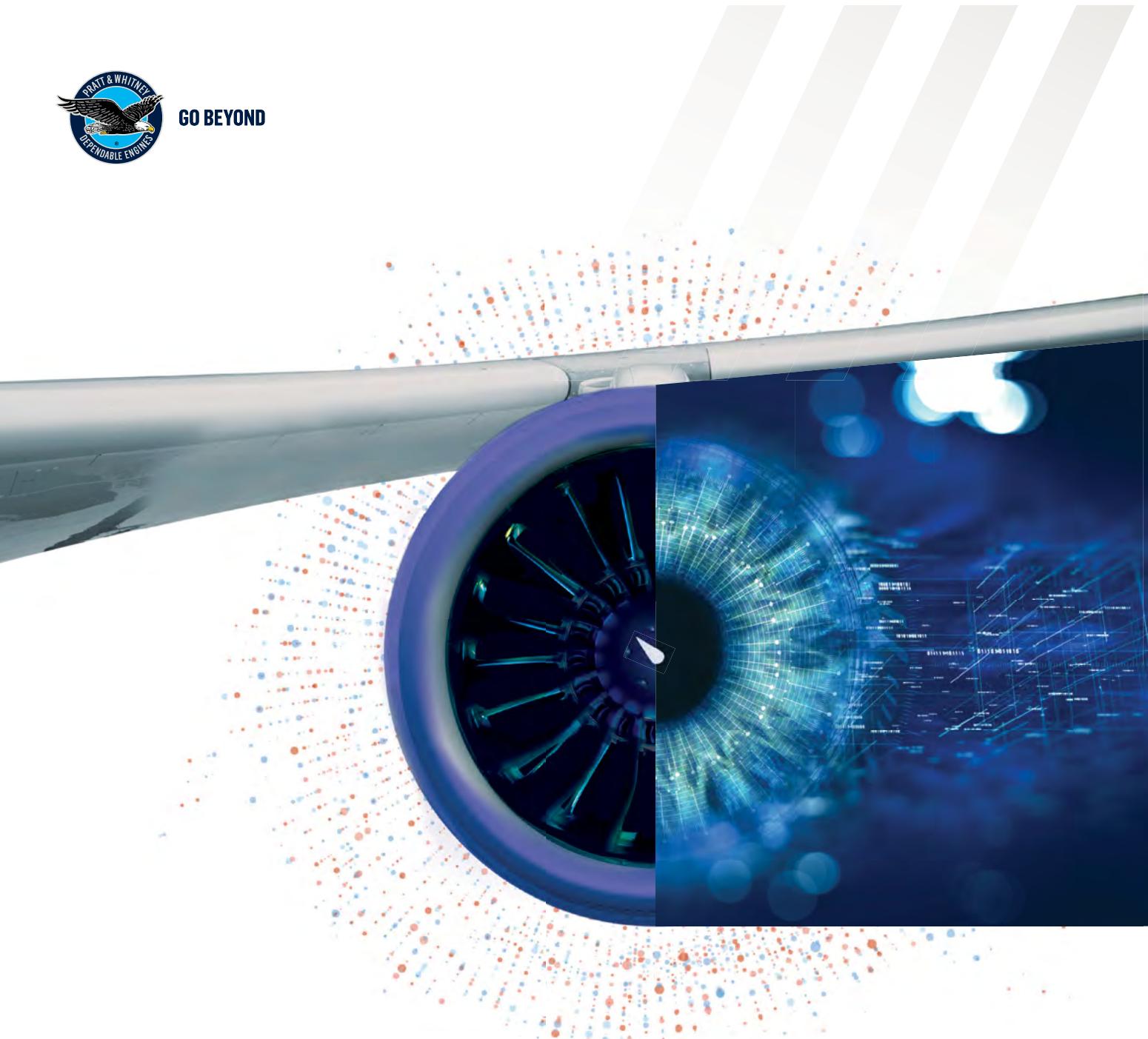
Charlottetown-Toronto flights operated by Air Canada Rouge in the summer will become a year-round service as of 16 December with two daily flights operated with an A319.

Air Canada is also adding a second daily flight between Gander, NL and Halifax during the winter season, to be operated year-round with the Q400.

While from Halifax, Air Canada mainline will operate a year-round non-stop service to Calgary on an A319, beginning 1 March 2020.



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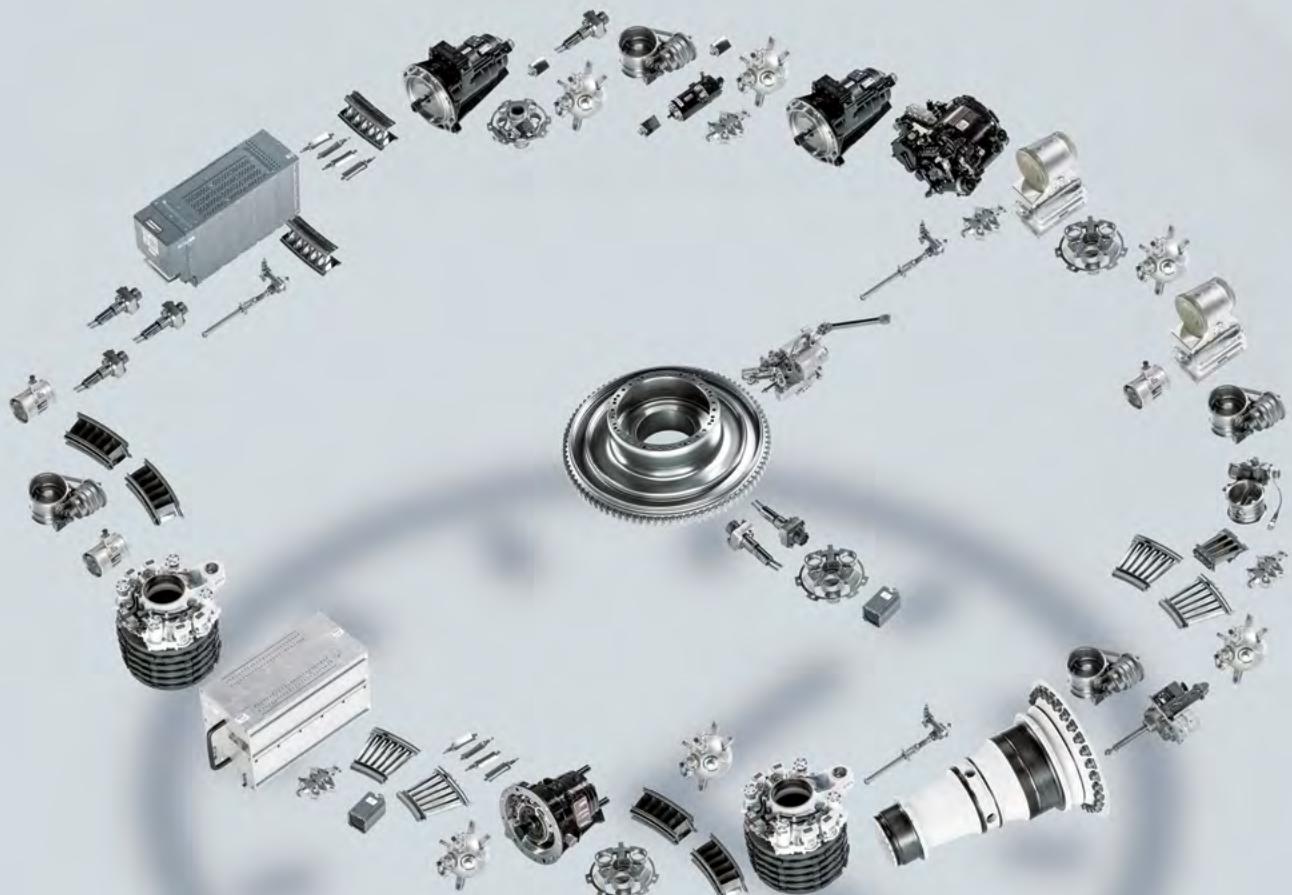


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Airbus rises above the rest at PAS19



Up and away: Airbus's A220-100 and A321XLR were a hit in Paris.

The Paris Air Show 2019 was dominated by announcements from Airbus, who effectively stole the show this year, as far as commercial aviation was concerned. Figures released by the manufacturer after the event report that 383 aircraft orders and commitments had been placed, as well as 375 conversions of existing orders. The undoubted star of Airbus's range was the newly launched A321XLR. The new capabilities offered by the aircraft in terms of increased range without a huge rise in operating costs were reflected in the orders during the week of the show.

Orders placed for the Airbus A321XLR

Middle East Airlines	4
American Airlines	50
Indigo Partners	50
Qantas	36
Saudi Arabian Airlines	15
IAG	14 (14 options)
JetBlue	13
Flynas	10
Cebu Pacific	10
Air Lease Corp.	27

The huge interest generated by the launch of the A321XLR at the show meant several carriers converted their existing orders for the A320neo to the new model. A total of 112 previously signed aircraft orders were upgraded to the A321XLR. Malaysia-based AirAsia converted 253 of its pre-ordered A320neos to A321neos and Saudi Arabian LLC Flynas revised its 10 A320neo order to A321neos.

Listed below is a breakdown of confirmed orders and letters of intent (LOI) received by Airbus at the Paris Air Show 2019 within the regional airline market.

Orders and LOIs for Airbus A220

JetBlue	10
Delta Air Lines	5
Unspecified client	10
Nordic Aviation Capital	20
Air Lease Corp.	27

Orders and LOIs placed for Airbus A320neo/A321neo

Cebu Pacific	5
Saudi Arabian Airlines	15 (35 options)
China Airlines	25
Accipiter Holdings	20

American Airlines extends MAX grounding



Having already pushed the return-to-service date for the Boeing 737 MAX fleet back several times, American Airlines has announced that this will be extended, for a fourth time, through to November this year. Following the lead taken by American, United Airlines has followed by removing its MAX aircraft from its schedule for another two months. It is presumed that other operators like Southwest Airlines will also follow with a similar decision within the next few days.

For American Airlines, the extension will result in approximately 115 flights being removed from the schedule per day.

Despite the extension, American Airlines has publicly stated that it "remains confident" that the 737 MAX software updates, as well as "new training elements" that Boeing is developing in co-ordination with the airline's union partners, "will lead to recertification of the aircraft this year."

The airline currently has 24 737 MAX 8s within its fleet and another 76 on order which have yet to be completed.





Air Seychelles receives its first A320neo

The national airline of the Republic of Seychelles, Air Seychelles, has taken delivery of its first A320neo on lease from CBD Aviation. This is the first African airline to operate the A320neo aircraft.

The new aircraft will allow Air Seychelles to increase its route capacity while delivering significant fuel savings and reducing the

airlines' costs. The airline's new A320neo is equipped with the latest in-flight passenger requirements to offer a greater level of comfort and enhance the experience for customers.

Air Seychelles' A320neo is powered by the new-generation LEAP-1A engine from CFM International and is fitted with the fuel-saving wingtip devices known as Sharklets.

Air France sticks with Airbus

After months of speculation Air France has now confirmed the future look of its short- and medium-haul fleet. As expected, the operator has selected European OEM Airbus to supply the aircraft.

The airline has now signed an MoU covering a firm order of 60 A220-300s, with options for 30 and purchase rights on another 30. The A220s will replace the A318s and A319s currently in service, of which it has 18 and 33 in regular service.

Air France-KLM group's CEO, Ben Smith, said the Pratt & Whitney PW1500G geared-turbofan-powered twinjet "demonstrates optimum operational and economic efficiency" so supporting the airline's goal of a more environmentally sustainable operation.

"The aircraft will also provide our customers with additional comfort on the short- and medium-haul networks and will provide our pilots with a connected cockpit

with access to the latest navigation technology," he revealed. "This is a very important step in Air France's transformation, and this evolution in Air France's fleet underlines the group's determination to attain European airline leadership." Air France is facing intense competition on its European and domestic routes from LCCs and the state-owned high-speed train.

The airline is due to receive its first A220 in September 2021.

Air Canada suspends MAX flights until 2020

Air Canada announced that it is no longer planning to schedule MAX flights for the rest of the year.

The airline assumed that the grounding order would be lifted later this year but has since confirmed that it is now looking at 8 January 2020 at the earliest to resume operations with the aircraft.

Southwest Airlines announced a similar decision earlier this week.

"In our planning, we will be removing the Boeing 737 MAX from our schedule until at least January 2020..." said Calin Rovinescu, president and CEO of Air Canada.

"At present, we have no visibility on reliable timing for the return to service of the Boeing



Image: Acefitt/wikimedia

737 MAX as we wait regulatory approvals."

If the MAX series returns to service earlier than expected, Rovinescu said the airline "would look for opportunities to have some enter the fleet either replacement flying or as back-ups", something that is currently being done with other types within Air Canada's fleet to cover the MAX shortfall.



China's LCCs see a brighter future

China is slowly warming to the idea of low-cost carriers, predicting that their growth over the next 10 years will be far greater than previously first thought.

A report from an official with the Civil Aviation Administration of China (CAAC) in Beijing, Liu Shu, said that the governing body had already received a number of business proposals for the establishment of LCCs, approvals of which allow for would-be start-ups to apply for air operator's certificates (AOC).

Shu said the new LCCs would be Chinese-owned domestic and regional operations involving provincial governments and/or joint ventures with local carriers. He declined to identify the airlines or which provinces would participate, although he did state that authorities would only allow one LCC at each airport.

There are currently 10 LCCs operating in China: Spring Airlines, China United Airlines, Beijing Capital Airlines, 9 Air, West Air, Ruili Airlines, Colorful Guizhou Airlines, Urumqi Air, Jiangxi Air and Lucky Air. Although it has taken a

considerable amount of time for these carriers to become established. Spring Airlines has managed to overcome structural barriers with the financial backing of parent company Shanghai Spring International Travel Service (SPITS), while most of the other LCCs currently have a precarious position in the competitive market.

Until recently LCCs, like local private carriers, faced a long list of regulatory barriers that hindered their plans to tap into the growing aviation market. Regulatory policies governed every business decision, such as what routes to operate and when to order aircraft, while airlines had to overcome the costs of import charges and value-added tax for new aircraft. The CAAC dictates fares through an official fare structure. China is now looking to remove some of these procedures in order to allow more LCCs to start-up and flourish.

A further restriction to any LCC is the cost of fuel, which is 17% higher than in international markets. As with all Chinese airlines, any new LCC is expected to contribute to the China Airport Development Fund every year as well.



Social Media



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LARA @news_LARA - Jul 10
Celebrating the grand opening of [iL3 Academy](#) London Training Centre, with a visit from HRH The Prince of Wales and the Aviation Minister, Baroness Vere. #aviation #airlines

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LARA @news_LARA - Jun 25
Setting in at [Solent Airport](#) - @BrittenNorman announces expansion of its civil aircraft manufacturing and maintenance facilities at Solent Airport, on the UK's south coast. Find out more details in our latest issue! #laranews #aviation #aircraft #aircraftmanufacturer #aircraft

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Electric dreams...a hybrid engine with a gas turbine engine to aid power & battery charging in much the similar way as hybrid car engines, is likely to take flight later this year. [Zunum Aero](#) is progressing with an aircraft scheduled to enter service in 2023. #aviation #Aircraft

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LARA @news_LARA - Jun 24
In our latest issue, @CarrigaLara director-general of [Teraa.org](#) addresses the pilot and skills shortage facing airlines in Europe. Read more: [hmp aerospace.com/lara/magazine/](#) #pilots #skillsgap #aviationindustry #laranews

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Zipair Tokyo flying high soon



Japan Airlines' low-cost carrier has been granted its Air Operator's certificate from Japan's Transport Ministry. The announcement was made in a Zipair Tokyo press release on 5 July. It comes just four months after the airline announced its official registration and unveiled its new livery.

According to Flight Global, the JAL subsidiary will begin flights between Narita International Airport and Bangkok from 14 May, 2020.

From 1 July, it hopes to service a route between Narita and Seoul in South Korea.

The carrier will operate a daily return service using two Boeing 787-8s. The aircraft have been seconded from JAL and have been reconfigured to a high-density format, providing space for 290 seats. The normal configuration for a B787-8 is 186 seats.

Documents provided by the Japanese ministry stated that the carrier has US\$45.9 million in capital and plans to increase this to US\$185 million by the time operations begin.

Zipair will be the only budget carrier servicing the Bangkok route, but will face stiff competition from the five South Korean LCCs, although according to Zipair's president, Shingo Nishida, the biggest challenge will be with Japan's budget airline Peach Aviation, which is the domestic division of ANA.

Nishida has made it clear that the goal of Zipair is to eventually offer trans-Pacific and European flights as well, as there is a gap in the market where Japanese LCCs do not serve these routes effectively.

Boeing's 737 programme head retires



Eric Lindblad, head of Boeing's 737 programme at Renton, Washington, has announced his retirement. Lindblad's retirement comes less than 12 months after he took over the Renton plant to overcome the engine and supply problems. Despite resolving these supply issues, they were completely overshadowed by the two fatal crashes involving MAX aircraft.

"I am grateful to Eric Lindblad for his strong and tireless drive in leading the 737 programme, as he has navigated some of the most difficult challenges our

company has ever faced," wrote Kevin McAllister, CEO for Boeing's Commercial Aircraft. "He shared with me his desire to retire last year, and we will now begin to embark on a thoughtful and seamless transition plan."

New Mid-Market programme vice-president Mark Jenks will assume Lindblad's role of 737 programme head at Renton, stated McAllister. Jenks led the 787 programme during what McAllister referred to as some of its most challenging years, and has held several leadership roles within Boeing's defence and space divisions.





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interCaribbean's success comes despite challenges

Absolutely no one in the Caribbean will argue that, despite the idyllic surroundings and sandy white beaches, it can be tough to get around the region. Kathryn B. Creedy discovered a regional carrier that is providing an airborne solution for residents and tourists.

As I flew to the Bahamas, I met a young woman who was trying to visit her boyfriend in Hopetown, Bahamas," Tropic Ocean Airways' CEO Rob Ceravalo told attendees at the 2018 CaribAvia conference. "She started in the British Virgin Islands and was in her 30th hour of travel. She'd taken three airlines, two boats and multiple taxis. I could have flown to Shanghai in half that time."

Luxaviation CEO Charlotte Pedersen agreed, recounting how she wanted to fly from the conference in the Bahamas to St Maarten to check in on her operations there. "It would have taken me eight hours to get there and 24 to get back," she said. "I didn't go."

At this year's conference, Vincent Vanderpoole-Wallace, the former Minister of Tourism and Aviation for the Bahamas and

Secretary General & CEO of the Caribbean Tourism Organisation, described the tortuous trek his daughter took to get from one Caribbean island back to the Bahamas. The only way he could affordably do it was to fly her via Toronto, Canada.

CONSTANT GARDINER

These stories are in fact very familiar to interCaribbean founder and chairman Lyndon Gardiner and, ironically, was the reason he launched interCaribbean 27 years ago. He was pursuing a woman from the Dominican Republic after meeting during her visit to Grand Turk. In order to spend weekends with her he'd miss a day's work. Frustrated by the travel challenges, he enrolled in flight school in 1988. It was also handy he worked at Barclays Bank, so he wrote himself a loan to cover the costs of a

Cessna 172 to successfully win her heart. As they say, faint heart ne'er won fair lady and the rest is history.

Difficulties getting from one island to the next suggest the opportunity for interCaribbean, whose slogan is Connecting You and the Caribbean, would be Clear Above and Visibility Unlimited. But that doesn't account for the Byzantine regulatory labyrinth through which the Providenciales (PLS) Turks & Caicos-based airline must travel.

Indeed, interCaribbean is unusual in being one of the few independent regionals in the Caribbean. It is 100% owned by Gardiner who also owns the award-winning Provo Air Center FBO and FlightSupport, the ground-handling services business.

For Gardiner, interCaribbean is the solution to the air-lift problem in the region and has, so far, successfully wrangled his way into 14 countries and 26 cities in the region – no small feat when considering all the different governments involved. Its latest achievement is putting two of six Embraer ERJ145s into service.



Pilot of the Caribbean: interCaribbean Airways' ERJ145 jets on the ramp at Providenciales International Airport, Turks & Caicos Islands.

“The first government to realise this and actually change policies will be the winner because this region is astonishingly underserved.”

The founder of the CaribAvia conference, commander Bud Slabbaert, explained the difficulties when answering a simple query on how many governments are involved:

“First of all, define the Caribbean – Bermuda to Guyana? Bahamas to Trinidad? Don’t forget to include Aruba, Curaçao and Bonaire!

“Then you have to define government,” he said. “Governments of what? Sovereign countries? Autonomous countries? Overseas territories? Jurisdictions? Depending on how you define it, it can be 15 to 30.

“Then there are the civil aviation authorities (CAAs),” he continued. “Eastern Caribbean Aviation Authority (ECCA) handles six countries. ASSI (Great Britain) handles its territories, Rijksluchtvaartdienst (Netherlands) handles three territories and St Maarten, Aruba and Curaçao, have their own authorities. So do the Bahamas, Dominican Republic, Haiti, Jamaica and Trinidad. The French have their own CAA for their territories. Puerto Rico and USVI is FAA. There are more if you include Bermuda, Surinam and Guyana.

“There is the European Union Aviation Safety Agency (EASA) but no CAA,” he added. “By the way, French St Martin is European Union; Dutch St Maarten is not. With the Brits, you don’t know any more if they are in or out with Brexit.”

His conclusion? “Try to summarise the challenges and you have your story,” said Slabbaert who, for years, has been trying to

improve air-lift in the Caribbean. “If you can come up with a viable solution, you may think you’re a winner, but most likely no government will listen to you.”

Slabbaert’s explanation illustrates how difficult it is to change anything but also shows the impressive strength of interCaribbean, which is something of a miracle as a result. Credit the grinding tenacity of Gardiner who has navigated the Caribbean regulatory and government landscape. He has grown his airline into one of the most important airlines in the region because it serves the people of the Caribbean not just the tourist.

Indeed, one of the problems is the fact that to government and tourism officials the Caribbean’s residents are mere afterthoughts, so much so they are completely dependent on taxes raised by air fare and hotels.

Today, many are questioning this, saying lowering taxes increases traffic and tourism spending for goods and services beyond air fares and hotel rooms. Tax opponents point to the success of lower taxes at Cartegena, Colombia, which has increased traffic dramatically.

Opponents also point to the fact tourism sucks all the air out of non-tourist economic development that would stop the brain drain of the highly talented region. But trying to wean governments off the tourism teat is a monumental undertaking even in an era in which much more is gained than is lost by lowering taxes. Even so, the economic opportunity that would be unleashed would be a dramatic sea change for the entire region.

THE MIAMI CONNECTION

Gardiner is not alone in seeing the potential of interCaribbean and a liberalised aviation regulatory regime in the region. The big question is who will be first.

Despite the difficulties, 4.4 million passengers flew intra-Caribbean in 2018, according to the Latin American and Caribbean Air Transport Association (ALTA), 3.9 million of which flew direct while 500,000 had either one or two stops at various connecting hubs around the region. Miami (MIA) accounted for most connections but that usually entailed long layovers owing to the Caribbean-bound schedules. The second most active





hub in the region is Pointe-à-Pitre International Airport in Guadeloupe.

"The biggest untapped market in the Caribbean is the 44.42 million residents of the Caribbean itself," said Vanderpoole-Wallace, who is principal partner in the Bedford Baker Group. "The first government to realise this and actually change policies will be the winner because this region is astonishingly underserved. The Caribbean is not only the world's most tourism-dependent region, it is also the most aviation-dependent. We should be making it easier for people here to use the aviation services. If we lower taxes on airline tickets, it attracts more movement into and within the region. We should be encouraging more shorter visits because the shorter the visit the higher the spend. Everyone says it's impossible to get governments to change but I will quote Nelson Mandela – 'Everything is impossible until it happens'."

Gardiner agrees taxation is a problem. "Most governments are still holding on to regulations that prohibit the ability of airlines and people to move freely," he told LARA. "They also have airlines of their own, so they are becoming tighter and tighter

Gardiner: "We continue to grow."

with their permits to move around the Caribbean. Everyone agrees the taxes are too high and are often 100% or 125% of the ticket price round trip."

In fact, Gardiner points to Provo Air Center (PAC) as a perfect example of how taxes/fees inhibit business. After launching PAC in 2001, he found that instead of catering to small aircraft, the FBO grew quickly, attracting jets from overcrowded Nassau because it was a fast and efficient fuel stop. Ultimately fuel-stop traffic grew to 35% of its total volume, far more than other FBOs in the Caribbean.

The government took notice and started enforcing fees for customs clearance adding a \$100 round-trip charge to that already paid in landing fees which drove

PAC's fuel volume today to half what it was before the fees.

"Caribbean governments are not shooting themselves in the foot with taxes, they are shooting themselves in the head," Vanderpoole-Wallace said.

He pointed out if taxes were lowered, it would unlock untold revenues in economic activity. "If you raise the price of the ticket via taxes, you are denying yourself the larger benefit of the economic activity while visitors are here," he said. "Residents go to visit relatives in the US instead of around the Caribbean because it is cheaper. Tourism is the iceberg of the economy and small in proportion of revenues that could be had. For those in this region, it is too expensive to fly because taxes have grown 50% in the past few years. Every study shows the amount of taxes collected from traveller spending after they arrive is far greater than is had on ticket or hotel taxes."

You'd think all you need is a blueprint showing governments how they could wean themselves off tourist taxes by replacing them with after-arrival revenues thereby increasing revenues exponentially. But governments have already heard the

In 2018, a total of 4.4 million passengers travelled intra-Caribbean but no one, including the International Air Transport Association or ALTA tracks fares. Below are the most popular routes:

Guadaloupe – Martinique	404,255	Aruba – Curaçao	107,241
Puerto Rico – Dominican Republic	320,083	Jamaica – Cayman Islands	101,275
Cuba – Haiti	207,932	British Virgin Islands – US Virgin Islands	99,343
Puerto Rico – US Virgin Islands	145,928	Puerto Rico – British Virgin Islands	97,307
Guadaloupe – St Maarten	141,810	Antigua Barbuda – Saint Kitts and Nevis	90,649
Barbados – Trinidad & Tobago	133,190	Barbados – Guadaloupe	89,339
Barbados – St Vincent	132,071	Bonaire – Curaçao	86,166
Saint Barthélemy – St Maarten	112,626		

Connecting traffic

Direct	3,910,169
1 stop	463,656
2 stops	30,280

Source: ALTA and Amadeus



Empire in the sun: interCaribbean connects up 14 countries and 26 cities across the region.

and aviation maintenance technicians. That doesn't include the indirect jobs created as flight activity increases."

Transit services are extremely important. Just ask COPA and Air Canada, which successfully promote connections from the Americas to/from Europe and Asia as visa free for transit passengers compared to the US which requires a visa and a complicated connection process. So, the loss of interCaribbean's ability to offer transit services is no small thing.

Despite these challenges, interCaribbean is doing well, said Gardiner. "We continue to grow," he said. "Between 2013 and 2018 our traffic has grown 300%."

As successful as interCaribbean is, it is no secret that should the region liberalise, the opportunities would be endless. In the meantime, interCaribbean, as with all airlines serving the region, will plug along under the status quo, awaiting, as Vanderpoole-Wallace suggested, the impossible. ■

"If you can come up with a viable solution, you may think you're a winner, but most likely no government will listen to you."

revenue projections and the deterrent effect of pre-arrival taxes but remain unmoved by a stubbornness to change, said Vanderpoole-Wallace.

Despite all these challenges, interCaribbean has navigated this labyrinth to serving Turks & Caicos, the British Virgin Islands, Antigua, the Bahamas, Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico, St Lucia and St Maarten/St Martin.

COMMANDER OF THE FLEET

Its new jets have inaugurated a Cuba service from Santo Domingo and Jamaica as they join a fleet of Beech 99s, Pilatus, Britten-Norman Islanders, de Havilland Twin Otters and Embraer Brasiliias. With four more ERJ 145s in the offing before Easter 2020, the jets are also scheduled to serve Santiago de Cuba-Tortola with other new routes coming when it sets its winter schedule.

Born in North Caicos, Gardiner founded the airline, which was originally launched as

Interisland Airways in 1991. The airline then became Air Turks & Caicos in 2003 and acquired Sky King, a competitor, in 2008. In 2013, it rebranded as interCaribbean.

Perhaps Gardiner's biggest frustration is with his own airport authority. In 2017, the airline managed to get a transit lounge at Providenciales, easing a 45 minute to 1.5-hour immigration process. That ended when the airport said it didn't have the room.

"That is a tremendous disservice to our passengers, who, by the way, are charged a fee for transit by the government which is not providing the service," he said. "The benefit of having an easy transit service is it allows us to increase frequency to other destinations that otherwise wouldn't have it. If only five passengers on a 30- to 50-seat aircraft transited Providenciales from around the Caribbean, you could fill a plane and have more services to and from those destinations. The other benefit is employment for security, flight attendants, high-tech jobs like pilots, flight dispatchers

Main connections hubs (1 stop):

Miami (MIA)	100,772
Pointe-à-Pitre	61,359
Panama	40,144
Port of Spain, Trinidad	34,488
Antigua	27,689
St Maarten	27,525
San Juan	25,756
Fort Lauderdale	24,563
Kingstown, St Vincent/Grenadines	18,559
Grenada	12,514
Barbados	12,301
Dominica	11,455
Kingston, Jamaica	10,356
Curaçao	10,214
Saint Lucia	8,973



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For regional airline operators, this year's Paris Air Show felt something like a 'cash and carry', with daily announcements of substantial orders and letters-of-intent placed with aircraft manufacturers. It was also a time for carriers to look ahead and plan the aircraft that would make up their future fleets. LARA's Glenn Sands was there to witness some of the key decisions.

The opening day of the Paris Air Show began under a blazing sun. It was only matched by the glare of flash guns as the world's aviation press sat down to hear Boeing's business update briefing on the first morning of the show.

But there was only going to be one topic for discussion.

The briefing began with Boeing's predictions for the commercial aviation sector and quotes of sales, investments and future global growth areas for their commercial airliners. But before any senior Boeing executives started their presentation, all stated how sorry and saddened they were about the events surrounding the two MAX aircraft tragedies. Executive vice-president of Boeing and president and CEO of the company's Commercial Aircraft Division, Kevin McAllister, began his address with one of the sincerest statements I've heard at a briefing.

"We [Boeing] are sorry for what has happened, and we are going to do the right thing to make sure that this never happens again. It's the

number one priority across the company to get the 737 MAX back into service, in the safest way possible. We've got to regain the trust and confidence of all our customers. Any relevant lessons to be taken from the 737 MAX will be applied across all the company to ensure that this never, ever happens again."

They were emotive words from one of Boeing's most senior executives and an honest and genuine account of the company's efforts to rectify those tragic events. McAllister wouldn't be drawn as to when MAX would be back in the air but **»»**





Embraer

Took firm orders for 78 aircraft worth around US\$4.6 billion during Paris Air Show, including a deal for 15 E195-E2s for KLM Cityhopper with options for 20 more.

added that, "It's now in the hands of the regulators and we are assisting in every way we can."

Moving away from the MAX, Boeing's commercial marketing vice-president, Randy Tinseth, explained that the single-aisle market continues to drive global demand and has increased 60% since 2008. "Single-aisle aircraft will be the fastest growing sector and much of that will come at the expense of smaller regional jets," he said.

With a predicted requirement of 32,420 single-aisle aircraft valued at US\$3.75 trillion by 2038, the company is determined to be in the position to supply much of this demand.

But, Boeing faces its deliveries being impacted by a strained political relationship between the US and China. Executives could not hide their concerns over the issue.

"China is a big market. One out of every four aircraft we delivered last year was sent to China, and one out of every three 737 goes to China. So, it is an incredibly important market. The challenges we are facing is how this current disruption will affect the economies of both countries," said Tinseth.

In contrast to Boeing's sombre briefing, ATR could hardly contain their excitement and announced a rash of orders for its 72-600 series. A stand-out deal in terms of quantity was that from regional aircraft

leasing specialist Nordic Aviation Capital. The lessor signed an LOI for 35 ATR -600s, with options for a further 35 and purchase rights for another 35.

REGIONAL TURBOPROPS REIGN

ATR's CEO, Stefan Bortoli, wasn't finished with this announcement. The following day he revealed additional order commitments, including 17 for the company's new 42-600S – the Short Take-off and Landing variant of the ATR 42. This modified variant has optimised capabilities to take-off and land



Boeing (Regional types)

IAG signed an LOI for 200 737 MAX models. There is speculation that these aircraft were sold at a considerable discount to the group.

"One out of every four aircraft we delivered last year was sent to China."

Boeing

on runways as short as 800 m. Three launch customers were announced – Air Tahiti, Elix Aviation and one undisclosed customer.

The company is finalising the process for the official launch of the new 42-600S. It is authorised to take orders for the aircraft, subject to the final confirmation for the launch from the company's board of directors – expected before the end of the year.

Bortoli commented: "It's a remarkable proof of confidence for ATR and excellent news for the communities who will benefit from improved connectivity. No matter the profile or operating environment of our customers, our aircraft prove their superiority for regional operations thanks to unbeatable economics, environmental performance and versatility."

Not wanting to be left in the shade, Embraer announced it had signed a contract with United Airlines for up to 39 E175s. The order comprises 20 firm aircraft and 19 options for a 70-seat configuration. The order has a value of US\$1.9 billion, based on Embraer's current list prices, with all options being exercised. This firm order will be





Eviation

The Israeli start-up company said its nine-seat, all-electric aircraft had received a double-digit order from US regional carrier Cape Air. Price per aircraft around US\$4 million. First deliveries expected mid-2022.

included in Embraer's 2019 second-quarter backlog. United Airlines expects to receive its first examples in mid-2020.

"The E175, operated by our regional partners, has proven to be an important part of our fleet as we continue to grow our mainline airline and provide an enhanced customer experience," said Gerry Laderman, CFO of United Airlines. "As we focus on providing our customers with the utmost comfort and convenience, we will rely on aircraft like the E175 to help us achieve our goal of delivering the best experience in the sky."

A further midweek announcement from Embraer was a deal to sell 15 E195-E2s to KLM that plans to use the aircraft for its sister airline Cityhopper. An option for a further 20 was also revealed to media.

HOME TEAM TRIUMPH

By midweek it was clear who was capturing media attention as Airbus announced a succession of orders for its A321 and A320 models.

Indigo Partners, along with three of its airlines, will acquire 50 examples of the new A321XLR long-range, single-aisle airliner. The MoU includes 32 new A321XLRs and the conversion of 18 A321neo family orders. Twenty of the A321XLRs will be allocated to Wizz Air, 18 to Frontier and 12 to JetSMART.

For a type launched at the show, the A321XLR generated broad interest with a succession of airline representatives lining up to look inside the example on static display.

But the operators' favourites in the Airbus catalogue remain the same, with 20 A320neos ordered by Dublin-based leasing company Accipiter Holdings. Selection of the engine to power these examples has yet to be decided. This order was completed in March but was listed in the order books as undisclosed and the announcement was saved until the week of the show.

Unlike Boeing, Airbus products are slowly gaining ground within the China region. Taiwan's China Airlines (CAL) signed a memorandum of agreement for 11 A321neos and will acquire another 145 examples on lease. CAL selected the A321neo as the best of its type to meet the operator's future needs in the single-aisle category. These 25 aircraft will serve alongside CAL's 23 A330s and 14 A350 XWBs.

For Airbus, the orders at Paris followed the company's 50th anniversary celebrations. They demonstrated that, within the European commercial aviation scene, Airbus is a world-beater whose products are technological leaders for airlines flying long haul or short haul or for regional carriers.

After a few years of being stuck in a rut, the Paris Air Show has its 'buzz' back. Many of the deals were announced quickly at the show but it was obvious from speaking to industry insiders that the positive uplift from the show will run deep into the year. Over a glass of wine and a posh meal in company chalets at the show there's no doubt that more aircraft orders and announcements will follow. ■

See Airbus rises above the rest, page 11.



Mitsubishi Aircraft Corporation

A prospective North American operator entered into an MoU to commence formal negotiations for 15 SpaceJet M100 aircraft. Deliveries are due to start in early 2024.



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Providing that personal touch to passengers is one of the solutions regional airliner operators are focusing on to ensure regular business. Emma Kelly looks at the way technology is helping secure a profitable future.

Personalisation has become a key weapon in the modern battleground to secure passenger business. Just as passengers have become used to receiving personalised offers from retailers on the ground, they now expect the same from airlines. Low-cost carriers were quick to add personalisation to their toolbox and are becoming masters of it as they seek to secure and retain passengers and boost their ancillary revenues.

And personalisation is here to stay. “Products will become more personalised and offers increasingly transparent,” McKinsey & Company predicts in its ‘Travel and Logistics: Data Drives the Race for Customers’ report published last year. Virtual reality and augmented reality will drive the change, with the increased use of digital travel assistants, capable of making and personalising suggestions through the use of machine learning. “Air travel companies will be able – and expected – to engage continuously with customers,” the McKinsey report claims.

Airlines in general haven’t always kept pace with their customers in terms of their marketing, according to McKinsey. “Most carriers are still struggling to provide fully-fledged, easy-to-use digital services,” it laments. “This has to improve if they are not only to withstand downward pressure on prices, but also start creating value from the opportunities afforded by digitisation,” McKinsey adds.

The management consultancy identified three clear technology-driven trends emerging from its research. Firstly, that products will deliver virtual experiences and become increasingly transparent and



Bubbleworks: Scoot staff demonstrate their ‘Scootitude’.

That Personal Touch

personalised; secondly, there will be greater use of digital travel assistants to personalise products; and thirdly, airlines will be able and expected to engage continuously with customers. These trends are set to transform the customer experience, as well as allow airlines to establish lasting relationships with their customers. McKinsey found, for example, that 69% of travellers are more loyal to a travel company that personalises their online and offline customer experience.

Digital travel assistants that are capable of making and personalising suggestions to customers are central to airlines’ personalisation efforts and to the customer

experience, says McKinsey. Not only do they provide support to passengers, but they also open “new revenue pools for airlines in the process,” says McKinsey.

TAKE ME TO YOUR CHATBOT

LCCs have been at the forefront of implementing digital assistants, with airlines offering new capabilities as each digital assistant emerges. Last year, for example, Singapore Airlines’ LCC Scoot became the first carrier in Asia to launch a chatbot capable of supporting transactions. MARVIE – Most Awesome and Resourceful Virtual Intern Ever – was developed in conjunction with Spanish technology 



company Caravelo and can respond to customer queries and handle transactions. MARVIE is available on the airline's Facebook page via Messenger.

Earlier this year, fellow Asian LCC AirAsia launched a new chatbot, AVA (AirAsia Virtual Allstar), powered by artificial intelligence (AI) as part of its website and mobile app update. The update, including AVA, is designed to deliver "a more seamless, user-friendly experience," says the airline. AVA is available as a live chat feature and is capable of instantly responding to passenger inquiries. The virtual assistant speaks eight languages



and was developed in-house by the AirAsia Software Engineering and Technology and Customer Happiness (customer care) teams using technology from Toronto-based AI specialist Ada.

AirAsia is striving to develop a complete travel companion via its website, which now features easier and faster navigation, including upcoming flight notices, search shortcuts and recent searches, as well as links to hotels, travel, duty-free shopping and activities. Last year it partnered with customer relationship company Salesforce on a number of customer relationship initiatives. AirAsia is using Salesforce's Sales Cloud, Marketing Cloud and Community Cloud to create a faster and more personalised service. "This is the year we

Ask me another: Digital assistant apps, such as Scoot's MARVIE and Air Asia's AVA, can respond to customer queries and handle transactions.

focus on making our guests happy. This means placing customers and their needs at the centre of everything we do. Salesforce is the heart of this customer-obsessed approach as it gives us a complete view of our guests across all channels, allowing us to deliver a faster, more personalised service," says AirAsia Group CEO Tony Fernandes.

MAKING IT PERSONAL

Personalisation is far more than just a trend, according to Irish company Boxever, which describes itself as the "market-leading personalisation platform". The company's CEO and co-founder, Dave O'Flanagan, explains: "True personalisation, when taken seriously, runs the length and breadth of a company, driven as a core component of an organisation's brand strategy." Boxever should know a thing or two about LCCs and personalisation, working with LCCs around the world, including Air Baltic, Cebu Pacific, Hong Kong Express, Jetstar, Ryanair, VivaAerobus, Viva Air and Volaris.

Such carriers need to get personal to appeal to and keep their customers. "A shift towards a customer-centric viewpoint is not something that simply shifted overnight, nor has it been caused by the advent of AI. Consumers are simply becoming more discerning and with that expect companies to communicate with them in a genuine and personalised way. Couple this with an increased demand for a relevant and speedy service and that is what has brought about the need for personalisation," says O'Flanagan.

The appeal of personalisation to LCCs isn't really surprising, bearing in mind the very nature of LCCs. "LCCs are driven by efficiency and profit, which makes them focus on the direct relationship with the customer, for the simple reason that paying an intermediary, like an OTA, commission for a sale is not profitable, and also you don't own the ongoing relationship so you cannot cross-sell ancillary products," he says. For some LCCs, their entire business



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model is based on incremental sales through ancillary products, so they need to make it as easy as possible for customers to spend money with them. "LCCs use personalisation to remove friction from the online buying experience. With a lot more direct traffic, LCCs obviously have the greatest need to provide a strong personalised experience to increase sales," says O'Flanagan.

O'Flanagan says the smart airlines are those that collect all of the available data on their customers in order to build a relationship with them and to capture their next trip, "without having to give Google ad spend to drive the customer back to their website". He adds: "They also, for the same reason, possess by far the most data and therefore have the potential of being able to offer the stronger online experience."

LCCs have taken the lead in this area, with full-service carriers like British Airways and Lufthansa still receiving more than half of their sales from travel agents and other third parties. "Shifting consumer trends though suggest this figure will obviously change as more and more customers book their travel online. When this time comes, the LCCs will already have won the personalisation battle over those legacy airlines who are slower to move to more of an Amazon-like travel experience," O'Flanagan says.

Airlines can and should be doing so much more in the area of personalisation, O'Flanagan believes. Many airlines are still only managing basic forms of personalisation, first name emails for example, and are failing to engage consumers who are increasingly demanding. Recent research conducted by Boxever in the United States, for example, revealed a substantial disconnect between what today's traveller expects and what airlines are currently delivering. Tailoring the experience for each traveller is the best way to establish long-term relationships, Boxever believes, pointing to the need to determine the communication channel based on passenger demographic,



"Airlines should be focusing on how their data could be used to improve the entire journey."

Dave O'Flanagan, Boxever

remember personal details, respond quickly when there is any issue, customise loyalty perks and maintain customer trust through transparency.

SERVICE IMPERATIVE

Airlines should be focusing on how their data could be used to improve the entire journey, O'Flanagan states.

Boxever is working with its airline customers to achieve just that. Earlier this year, for example, it started working with Ryanair to drive an enhanced personalised digital experience for its customers across the airline's platforms as part of Ryanair's ongoing customer care improvements. Boxever's personalisation technology uses data from Ryanair's digital channels, tools and databases, interpreted by AI to automate decisions about how to personalise each customer interaction. The result is a personal joined-up experience based on individual customer needs from booking through to check-in, according to Boxever. The Dublin-based company's technology is the "brain" within the airline's digital ecosystem to make every customer interaction more relevant and engaging.

Boxever's focus on personalisation has already yielded results for a number of LCCs. Mexican LCC Viva Aerobus, for example, has been working with Boxever on personalisation to increase conversion to drive revenue, make the booking process

easier for customers and create a next-generation pricing model. Over a six-month period, Boxever and the airline introduced six applications that were aimed at improving personalisation and capturing and responding to real-time behavioural changes. The Mexican carrier says its personalisation project yielded almost US\$1 million in incremental revenue based on one week's performance and increased its net promoter score (NPS) by 60%.

Boxever is refining its tools, with an upgraded Engage personalisation platform having entered service. A number of customers are already benefiting from the enhanced engine, including one unnamed carrier in the Asia-Pacific region that is testing dynamic pricing personalisation as part of its web and mobile app experiences, reveals O'Flanagan. Further developments are planned, including enhancements to allow the customer's marketing team to become self-reliant in creating personalised content and dynamic messaging via their digital channels.

WHY DO YOU NOT UNDERSTAND?

Experience management company Qualtrics is also working with a number of LCCs, including JetBlue, Jetstar, Scoot and Southwest, to improve the customer journey through personalisation. Today's consumer expects personalisation as standard, says Qualtrics. "Guests





expect to be able to tailor their experience more than ever before. They don't want to pay for services they don't use, but also want to feel recognised by the provider," Qualtrics says.

Some 81% of consumers want brands to understand them better and 62% want to receive personalised offers or discounts based on what they have bought before and the majority of consumers are ready to share personal data to get it, according to Qualtrics research.

Qualtrics says personalisation is far more than just knowing your customer's name, with only 8% of research respondents saying they would be more likely to engage with a brand that addresses them by their first name.

Qualtrics believes that to deliver a personalised customer experience you first need to understand the moments that matter most to your customers.

Last year, following the merger of Singapore-based LCC Scoot with short-haul LCC Tiger Airways that resulted in the combined airline serving 66 destinations in 17 countries, Scoot launched a three-year partnership with Qualtrics to improve the customer experience through the elimination of existing pain points, including check-in and last-minute changes. Qualtrics has used its Experience Management Platform and its predictive intelligence engine, Qualtrics iQ, to translate customer feedback into actionable insights using AI and machine learning.

Scoot says it "aims to lead the evolution in the LCC space by recognising the importance of customer experience in retaining and engaging customers."

Qualtrics' work with US LCC JetBlue, meanwhile, saw it measure and manage the airline's customer experience, which resulted in the airline achieving 12 JD Power awards, recognising high performing customer-centric companies and US\$100 million in additional revenue.

With margins in the airline business being thin and competition intensifying, airlines

"Qualtrics, which is working with LCCs including JetBlue, believes that to deliver a personalised experience you first need to understand the moments that matter most to your customers."

need to do whatever they can to attract and retain their customers. "Offering more options is more likely to flush out passengers who want to treat themselves who might not go for a full upgrade jump. We've recently seen the emergence of 'business class lite' – an unbundled business class fare coming out next year by one airline that realised some passengers just want the better seat without the other frills that come with that business class price. Offering passengers, a personalised experience drives long-term loyalty while maximising the revenue available," Qualtrics explains.

Fixing things when they go wrong is vital for airlines in order to establish loyalty, Qualtrics believes. In its latest research, it

found that 80% of customers who had a bad flight experience said the airline did nothing to address the situation. "There's an opportunity for airlines to outdo rivals when it comes to closing the loop with dissatisfied customers or taking more ownership of delivering bad news and solving problems,"

Qualtrics says. It adds: "Anything you do would need to be balanced against cost and return on investment, but top airlines like JetBlue are going all in on saving the day for customers who are having bad experiences at any point during their journey."

Qualtrics believes that agile, touchpoint-led feedback coupled with operational data will allow airlines to increasingly personalise the passenger experience while finding out what really matters to them. It says: "By gaining a deeper understanding of what passengers truly value, airlines will be able to cater more closely to those needs and drive long-term loyalty."

Airlines need to be careful, however, with how far they go with personalisation and what they do with their valuable customer data. "Airlines need to be careful that they recognise the border between being personalised and becoming intrusive," says Helene Dubos, chief marketing officer at software and IT consulting company Conztanz. The French company has worked with airlines including Flybe, Air Corsica, Luxair, Brussels Airlines, Air Tahiti, Air Caledonie and Air Berlin.

Its OneProfiling software allows airlines to build up customer profiles by scanning all available information on customer details, behaviour, previous purchases and experiences, enabling airlines to really understand their customers and develop a relationship with them. "Once you have a true picture of an individual, you can then begin offering them services which are relevant to them," says Conztanz.

Dubos warns, however: "Just enough" personalisation is what consumers feel comfortable with." ■

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Regional Gateway welcomes all stakeholders from the aviation community and attracts a diverse network of industry professionals from around the globe.

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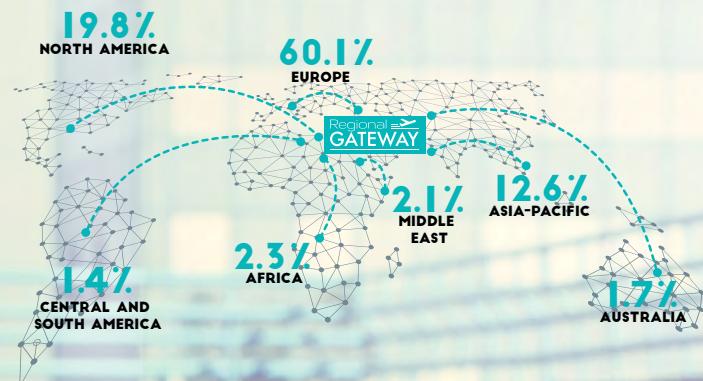
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Enhancing economy

The commercial aircraft seating market is set to boom and with airlines looking to fly further with more passengers, LARA's Kimberley Young looks into some of the key trends driving the seating and cabin interior market.

As demand for air travel sky-rocks – leading to an increase in the number of aircraft needed to meet demand – the commercial aircraft seating market is expected to see a similar strong growth, with Valour Consultancy forecasting a

market worth \$4.9 billion in 2028, up from \$3.8 billion in 2018.

For low-cost carriers (LCCs) densification is the key trend in cabin configurations that has seen increasing use over the past few years and is expected to continue.

This drive for high-density cabins has also seen the average seat size shrink, with Valour noting a drop from around 18.5 inches in the early 2000s to 17 inches by the middle of the decade, while average seat pitch has gone from 35 to 31 inches, and to 28 in some cases. There have even been whispers of 27 inches though this is something we are yet to see in practice.

Seeking to accelerate growth, the Philippines-based low-cost carrier Cebu Pacific is set to receive 12 new aircraft in 2019 to support its expansion plans and make the most of this new capacity with cabins configured to optimise the space available.

For example, earlier this year the airline received its first A321neo with 236 seats, offering 31% more capacity than its A320 through the Airbus Cabin Flex modification.



"The low-cost carrier segment is increasingly moving into longer-range and single-aisle operations – an area where we feel our offering can really make an impact."

Phil Hall, Mirus

The airline also placed a 31-aircraft order with Airbus in June for 16 A330neos and 15 A320neo-family aircraft (including 10 A321XLRs and five 194-seat A320neos).

With 460 seats, the A330neos will have 5.5% more capacity than its current fleet of A330ceo aircraft, a density made possible through "a more efficient layout of the cabin interiors and new generation seats." Meanwhile, the A320neo will result in a 7% reduction in cost-per-seat, while the A321XLR boasts a range of up to 4,700 nm and could potentially fly 220 passengers for up to 11 hours.

Speaking on the announcement, Lance Gokongwei, president and CEO of Cebu Pacific, said the airline's strategy is to replace the fleet with bigger and more fuel-efficient aircraft, "maximising available airport slots in Manila and other megacities we serve."

To support these high-density cabin configurations while also delivering passenger comfort, Valour's Craig Foster says seatmakers and OEMs are looking to improved ergonomic designs of seats and composite materials that may provide "similar, if not improved, comfort compared

to the bulky metallic structure and foam-dense designs used in the past." He adds, "Their argument is that, in general, newer seat designs and materials provide two to three inches of 'equivalent pitch' over older seat designs."

SITTING COMFORTABLY?

Founded in 2015 and with a first, and major, delivery to AirAsia in 2018, Mirus Aircraft Seating's Hawk seat utilises Formula One and automotive technology to deliver a lightweight solution for airlines, whilst offering maximum passenger space.

"The low-cost carrier segment is increasingly moving into longer-range and single-aisle operations – an area where we feel our offering can really make an impact," the CEO of Mirus Aircraft Seating, Phil Hall, comments. "However, the challenge that we face day-to-day is convincing airlines that a new seat, using new designs and new materials, can offer long-term benefits to them, including fuel savings and maintenance costs."

Earlier this year, TUI Group selected Mirus's Hawk seat as part of a multi-million-

Eyes on the Hawk: Mirus's innovative lightweight seat is attracting LCC attention.

pound upgrade of its Boeing 767 fleet. In conjunction with the airline, Mirus developed an enhanced comfort system that could deliver up to 12-hour sectors, with the seats to be retrofitted on a number of the group's aircraft, with deliveries starting this year.

"We have received considerable interest from other airlines for similar designs for long-haul travel employing the same (or similar) enhancements, with a majority of this interest coming from LCCs looking to fly further," Hall tells LARA.

The manufacturer is also working on a new seat concept, the 'Kestrel', but is tight-lipped on the details ahead of the unveiling. What Mirus can confirm, however, is "the Kestrel's focus is on passenger space in high-density cabins with very low weight benefits."

A GIANT STEP

Also designed for economy class, particularly on long-haul routes, Recaro Aircraft Seating's bestselling CL3710 seat weighs in at less than 12 kilograms which Recaro argues makes it one of the lightest products in its class.

The CL3710 hosts a six-way adjustable headrest and patented high literature pocket, which moves this feature from the "critical" shin clearance area, while the in-flight entertainment system box is fitted flat under the seat pan to open up more legroom.

Now, according to its CEO, Dr Mark Hiller, Recaro is taking long-haul comfort a step further to better support sleeping in economy with the 'Sleeping Comfort' concept.

Recaro's concept, which won the Crystal Cabin Award for Passenger Comfort Hardware this spring, includes three new elements to improve posture and reduce pressure points. The enhanced features include the Abrazo headrest with additional side support, an extended seat-bottom option to support the legs – increasing the seating surface and reducing pressure points – and a flip cushion to help support the lower lumbar area in a cradle or sleeping position.

Considering the applications for this concept, Hiller suggests this could offer »»



Take three: Recaro's CL3710 seating is lightweight, slimline and provides a high-level of comfort.

LCCs an option for ancillary or additional revenue by creating a few rows at the front of the cabin with these additional features, or even a premium economy class.

FLYING FURTHER

The launch of Airbus's A321XLR at the Paris Air Show gained the attention of several low-fare airlines seeking to reach even further with single-aisle aircraft. With a range of up to 4,700 nm (15% more than the A321LR version) in a two-class layout, the aircraft will enable operators to open routes such as India to Europe, or China to Australia and extending the Family's non-stop reach on transatlantic flights.

Configured with long-haul full-flat seats – or up to 244 passengers in single class layouts – Airbus says the A321XLR cabin will benefit from the 'Airspace by Airbus' interior. Among the enhanced elements, explains Anaïs Marzo da Costa, head of Aircraft Interiors Marketing, will be LED mood lighting to help reduce jet lag as well as the latest IFE and connectivity options, a cabin altitude pressurised at a level of 6,000 feet in a typical flight profile to help reduce fatigue on arrival, as well as larger overhead storage bins to reduce passenger stress at boarding.

During the Paris Air Show, the A321XLR achieved 48 orders, commitments for a

further 79 and 99 conversions from A321 to XLR. The aircraft seemed particularly popular with LCCs, with interest coming from airlines including Cebu Pacific, Flynas [Saudi Arabia] and airline group Indigo Partners who signed to acquire 50 of the type to be allocated between Wizz Air [Hungary], Frontier [US] and JetSMART [Chile]. JetBlue also converted 13 aircraft in its existing A321neo order book to the XLR version for scheduled delivery to begin in 2023.

Back in April, New York-based JetBlue announced its intention to launch a service to London from New York-JFK and Boston in 2021 using the A321LR aircraft. Now with the XLR, the airline can consider possibilities between northeast US and destinations in south, central and northern Europe. For these longer-haul flights, JetBlue said it's developing a "reimagined" transatlantic version of its premium Mint product, as well as an enhanced transatlantic Core experience for the A321XLR.

With the launch of the A321XLR, Valour's Foster suggests it could result in an increased demand for premium economy and lie-flat seating in business class among low-cost carriers.

Airbus's Marzo da Costa explains that segmentation of cabin classes has been growing. In the period between 2008 and

"Some may take a business class or premium economy in addition to the economy cabin as a way of increasing ancillary revenues."

2012, Airbus deliveries of the A321 were 15% single class and 85% two classes, and from 2013 to 2018, three class layouts represented around 20% of deliveries. The company also saw some four class layouts.

For the extra-long-range aircraft, however, she agrees, "LCCs tend to stick to one or two class configurations on widebodies, so we expect to see the same on the A321XLR. Some may take a business class or premium economy in addition to the economy cabin as a way of increasing ancillary revenues."

CABIN EVOLUTION

As passengers become more aware of their options, Mirus is also seeing a need for cabins to evolve to changing needs. CEO Hall says, "passengers are now looking for more diverse cabin propositions to suit their own specifications in regard to in-flight experience, meaning that to keep up with demand, airlines need to see the class structure as much more fluid than it has traditionally in the past."

Hall continues: "To maximise this shift we see that there are increasing opportunities for airlines to offer multiple upgrade opportunities, in smaller step changes, that would end up placing between the usual three [classes], which some airlines have already started to offer. As passengers drive this change, we expect to see more inbound enquiries for seat development to allow these choices and it is an area that we see Mirus continuing to develop in the future."



Long shot: The popularity of the A321XLR at Paris for LCCs such as Cebu Pacific will result in increased demand for premium economy and lie-flat seating.

The key focus on lightweight seats will of course remain important, suggests Recaro's Hiller, particularly with the increasing awareness of sustainability, and the considerations for comfort too will also remain crucial as airlines fly longer-range. "But what will be a new direction for interiors would be flexibility of the cabin," Hiller comments, "better utilising the cabin

according to the needs of the passenger, and maybe of the route, to provide the airline as much flexibility as possible."

This flexibility will be particularly important for low-fare airlines, to reconfigure the aircraft to suit the route.

Solutions of this ilk already exist at various levels, such as the SkyCouch launched with Air New Zealand in 2010, or

Recaro's 'Smart Cabin Reconfiguration' concept (a collaborative research effort of Airbus, THK and Recaro Aircraft Seating) whereby seat pitch can be increased in flights not fully occupied by folding up the unused seats.

The different segmentations of the cabin could even evolve into areas based around activities or orientation, Hiller suggests, with airlines looking for family zones or 'working spaces' for business travellers.

Of course, the development cycles and implementation mean these concepts will have a longer time frame before we see them in the cabin, but it seems we could be heading slowly away from the typical cabin classes and towards more flexible and tailored options. ■

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Chain of logic (and logistics)

Bernie Baldwin examines the complex juggling act performed by MRO companies who supply airlines with thousands of components at minimal notice, around the globe, as fast as possible – so their aircraft stay in the air.



There can be few things more annoying for an airline than to be losing money because an aircraft is stuck on the ground simply for want of a spare part. This problem does not occur, of course, when airline maintenance departments keep plenty in stock, but these are the days of just-in-time supply chains and those chains need to be well-controlled.

As a renowned parts supplier, AJW Group is well-versed in the most challenging aspects an aftermarket provider faces in helping airlines keep an optimum inventory level. The company's president and CEO, Christopher Whiteside, observes that

all airline operators have an individual approach to inventory risk management.

"Some take an excessively conservative approach to stocking inventory, whereas others have extensive inventories which can be challenging to dispose of due to the age and volume of components. This can be compounded by difficulties in obtaining accurate historical data on component usage from airlines and attitudes towards inventory pooling," Whiteside notes.

"The key is for providers to take a bespoke approach to help airline operators manage their inventories effectively," he continues. "As a

proven specialist in supply chain management, AJW can not only optimise the supply of component inventory for airlines but help them balance stock levels and increase financial efficiency through asset management programmes."

While AJW knows how to plan the inventory, transporting it all to the correct location is another specialist discipline and one which Kuehne + Nagel has been working towards perfecting. Erik Goedhart, the logistics company's senior vice-president, Aerospace, appreciates all the demands he and his team face.

"The biggest challenge is to be involved in network development" 

and fleet management planning,” he says. “Once logistic providers and airlines are collaborating with the business leaders of the airline, together with procurement and logistics, new standards will be set. Once the logistic provider has the data backbone of routes of the airlines, MRO facilities, overhaul planning, a logistic network can be engineered as a backbone. That is the basis for logistic transport and stock planning.

“Once an airline opens a new route, the whole model will be recalculated and updated,” Goedhart, a former Fokker Aircraft Services VP, adds. “And once there is a decision on overhaul or refurbishment location, the same recalculation applies. Where should major and minor stocking locations of what part be? What is the

“IT applications are used to track from production logistics right through to the production lines.”

lowest possible cost to get the parts there? The same for engines. Where are spare engines in the network either with OEMs, MROs or other airlines? One look at the google map locations of stands or engines and global visibility will help.

“Once the basic model is in place, it can be updated and data can be used for

prediction instead of static reporting only,” he explains, before moving on to the external forces which can affect the task.

“One key element in global trade now is the reduced predictability. Specific trade wars and Brexit-like programmes are unpredictable, but increasingly affecting supply chains. For airlines, this means it will be more costly to get parts into an affected country and out of that country.

A COMPETITIVE WORLD

“Besides cost, it will take longer so increasing the value of stock in the supply chain. For sure, like OEMs, MROs will look for hubs in trade-neutral environments. Over the course of Brexit [since the UK referendum in 2016], we have been asked by one OEM to set up a

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new hub in mainland Europe and did so within six weeks of intense co-operation and collaboration. For a major MRO, we prepared a mainland location for global spare part support as well."

As with any discipline in the aviation industry, competition is fierce in the supply chain sector. So Kuehne + Nagel must ensure that its logistics services and programmes deliver a differentiated service to airlines and MRO organisations.

"In the end, any logistic offering is 60% generic (the basic layer), 20% aerospace (the dedication) and 20% customer (the tuning)," Goedhart declares. "The difference is in dedicated teams, innovation and digitisation, plus more down-to-earth people and having one global IT system. This is nowadays all about data management with passionate people.

"The difference in service is in increasing the reliability in the supply chain while lowering total cost. For the customer? Measurement will be daily on the achieved "on-dock dates" for the production lines, the AOG recovery time and the lead time of aircraft in MRO," he remarks. "To excel we developed dedicated offerings like KN EngineChain for engine movement and transport (a piece of equipment worth up to \$30 million nowadays), KN InteriorChain (to keep down the days an aircraft is too long in MRO for refurbishments because of logistics) and KN SparesChain (reducing stock in the total supply chain).

PANACEA FOR PAIN-POINTS

"Sometimes the market developments come in a way that just new offerings are not good enough. We notice that the term AOG is being used in many ways in aerospace logistics. 'AOG', 'hot AOG', 'standard AOG', 'need to ship AOG', and many other phrases. The initialism AOG stands for 'Aircraft on Ground' and that is the pain-point," Goedhart emphasises. "The usual aerospace logistics services levels are routine, critical and express (or AOG). This is not enough for the pain-point. For that

"One key element in global trade now is the reduced predictability. Specific trade wars and Brexit-like programmes are unpredictable, but increasingly affecting supply chains"

Erik Goedhart, Kuehne + Nagel, senior vice-president, Aerospace



reason, Kuehne+Nagel last year acquired Sterling, the world leader in this section. And we call it the fourth service level, above any current template, to set new standards in aerospace service levels with customer dedication and interaction second to none."

Delivering a differentiated service is also part of the AJW ethos. "This starts by taking each customers' requirements on a case-by-case basis and aligning its offering to the carrier's individual needs. AJW has become renowned in the market for its innovative, agile and efficiency driven approach," Whiteside states.

MAKING LIFE EASY FOR EASYJET

"For example, AJW is easyJet's strategic partner for the management, storage and distribution of the airline's components, and consumable and expendable inventories across its European network of approximately 50-line stations," he points out. "In addition, easyJet fully outsourced to AJW the responsibility for component repair and overhaul; and the purchase of all consumables and expendables in support of the airline's '320-some' aircraft. In exchange, AJW provides easyJet with the certainty of reduced operational costs and delivers benefits from preferential OEM relationships – support that increasingly includes predictive analysis solutions. AJW provides a complete supply chain and logistical solution to easyJet that delivers the right part, to the right place at the right time.

"AJW has built on its strategic supply chain management relationship with easyJet by developing a new and exciting long-term supply chain management agreement with the airframe OEM, Bombardier. This represents a significant expansion and strengthening of AJW's total component repair business to now support Bombardier business aircraft, including LearJet, Challenger and the Global series," adds Whiteside.

"A key feature of the agreement is the strategic sourcing of repairs from OEMs and MROs, including the AJW Technique



maintenance hub in Montreal, for component repair and overhaul service. As part of the agreement, AJW is providing dedicated repair specialists, utilising its world-class portal and predictive analysis to support Bombardier in improving customer service, component reliability and time on-wing,” the CEO confirms.

No matter which specialisation a company has in the supply chain business, innovations in IT must be monitored so that the right application can be employed where it is needed. “Having advanced digital tools in place is essential to help an airline make cost efficiencies,” Whiteside elaborates. “Technology can be used to forecast demand for parts and tracking shipments of them, and that’s crucial for a company such as AJW which typically dispatches 4,500 shipments of aircraft parts a week. While most are under 50 kg (110 lb), there are a few larger ones like engine inlet cowls or internal drive generators.

“Traditionally, AJW used RFID technology to track every step in the delivery of urgent parts for AOG situations. It pulls this data into a central data warehouse and matches all tracking data to each customer order, meaning AJW can see every movement of delivery,” he continues. “Right now, we are testing the live GPS-based transmitters on shipments so AJW and its customers will know exactly where a shipment is, physically and in real time. The trial is for AOG deliveries for a major airline.”

PREDICTING FAILURE

The other critical IT system, according to Whiteside, is forecasting demand for parts, with a need to do this for multiple customers. “AJW has its own forecasting software, fed by hundreds of thousands of data points on hours flown and part removals, all segmented by aircraft age. We take the mean time between the unscheduled removal of a part and put it into a forecasting tool, helping to predict accurately the timeframe for most component failures,” he explains. “This is

“Some take an excessively conservative approach to stocking inventory, whereas others have extensive inventories which can be challenging to dispose of due to the age and volume of components.”

Christopher Whiteside, AJW Group president and CEO



only one element of predictive analytics – AJW also invests in forecasting staff, who then work with the software and render ‘sanity checks’ on predictions. For live analytics, humans are always needed.”

Goedhart also has examples of Kuehne + Nagel’s latest IT usage. Most of these, he indicates, are on the digitisation of the aerospace supply chain.

KEEPING TRACK

“First, there is a massive amount of aircraft data to be shared and linked to logistics systems and thus create predictability. We, as a logistics company, can combine this data with physical trade data and prediction of global trade,” he comments. “In parallel, we launched several digital solutions – for instance, sea explorer, whereby we have direct connection with every ship in the world and can increase the reliability of arrival times as never before. This even enabled us to launch KN Pledge, the first ever global solution for sea freight transport with guaranteed delivery time and full money back in the case of it not being achieved.”

IT applications are used to track from production logistics right through to the production lines, Goedhart adds. “To achieve that analysis of the suppliers, reduce stock in the value chain (for one OEM we worked together to reduce stock in the supply chain from 37 days to 7 days), it means integrating the customer ERP with the provider ERP.

“Then comes the management of unserviceable parts. By having the repair shops of the customer in our systems, we have been able to reduce the number of days in the repair cycle as well as lowering transportation costs by up to 30%,” he remarks. “Finally, for engines we have an app following engines ‘live’ all around the world. With this, we limit risks by dimension measurement before trucking (on app) and manage the visibility and calibration of engine stands and tooling.”

So how can the supply chain be developed further and what element of the logistics process can be changed to make a



significant difference to the quality of the service? At AJW Group, the answer is once again customer focused.

"The customer demands live real-time visualisation of their product," Whiteside reports. "While service execution is paramount to any customer, our changes and desire are to offer a comprehensive global end-to-end visualisation of product for the AJW global aerospace supply chain, while enhancing our real-time event management."

Considering an element he'd change if he could, Goedhart responds, "Very interesting question with a very surprising answer. It is not about the change in one element of the logistics process itself which will have the biggest impact, that will be if logistics is linked to the business model of our

"The key is for providers to take a bespoke approach to help airline operators manage their inventories effectively."

customer and their customers. "For instance, what is the cost of a grounded aircraft on an outstation because of a logistic failure? Customers' dissatisfaction and later-than-planned departure is the minimum impact. The biggest impact is the accommodation of passengers overnight, crew fly in [due to the previous crew's duty

time being reached], loss of revenue and so on. For an A380, you're counting to US\$1 million per day as a tangible measurement," he emphasises.

"What is measured in logistics is mostly the cost-per-shipment and risk associated with low rates of shipment, not the impact on the total value chain and end customer," Goedhart argues. "Therefore, for perhaps 1 cent/kg more, we advise on a few key criteria for the selection of aerospace logistic suppliers – a global company, dedicated aerospace teams, one global IT system for tracking and KPI reporting, innovation to lower total costs, and financial stability."

The message is straightforward. When setting up a supply chain, ensure each link is strong. ■



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The long-life money-makers

Out-of-production aircraft types are still playing valuable roles all over the world. Bernie Baldwin reports on some of the programmes which are keeping them airworthy.

Opting to keep an aircraft type in service longer than its original design life is a major decision and not just within an operator's purview. It needs the co-operation of the manufacturer. There also needs to be a good enough reason to extend the life of an aircraft type, plus a critical mass of aircraft to undergo the programme and make the whole project worthwhile.

Now back under its original brand with De Havilland Aircraft of Canada, the Dash 8 Series of turboprops has had lifetime extension programmes (LEPs) applied to two of the models in the family, the Dash 8-100 and Dash 8-300. Each of the programmes was implemented while Bombardier held the Type Certificates for the Dash 8.

De Havilland Aircraft's chief operating officer, Todd Young, who served Bombardier Commercial Aircraft as vice-president of Customer Service & Support and, immediately prior to the switch of ownership, was VP and general manager, head of Q Series Aircraft Programme, recalls how the business case for a life extension programme came about and why the new Type Certificate holder supports it fully.

"The life extension programme evolved primarily from the unique operational characteristics of the Dash 8 to open up markets that other aircraft cannot support economically or at all. This drove demand to retain these aircraft from a performance and economics standpoint," he explains.

"When reviewing the business case, De Havilland determined that keeping

aircraft flying was a win-win for De Havilland as well as operators. For De Havilland, this represents an aircraft which continues to require aftermarket services and support for another 40,000 cycles. Maintaining the fleet size in service also incentivises the supplier and MRO support base to remain active," Young adds.

"For operators, the alternative of sourcing a used Dash 8 with 40,000 cycles remaining from the market is a difficult task from a price and availability standpoint. Used Dash 8s are hard to find. However, the cost [for operators] to embody our Extended Service Programme (ESP) in order to obtain this additional utilisation of their existing asset is far less than the cost of any alternative, so the choice is easy," he declares.

Of all the airlines which have taken advantage of the Dash 8-100 ESP, Widerøe is arguably the best known. The airline launched the programme, which took the economic life of the aircraft from the original 80,000 flight cycles to 120,000 flight cycles.

The airline chose to implement the ESP because of the environment in which these aircraft work, including short runways north of the Arctic circle. At present, Widerøe believes that there is no other type on the market to do the job its current fleet does, so the business case was clear.

The airline has been putting aircraft through the ESP at a steady rate. By the

Short-haul star in for the long haul: A Widerøe De Havilland Dash 8-100 takes on passengers.





Antiquis Rex: Saab's 340 has clocked up 35 years in service and is still going strong.

end of 2018, 16 had gone through the programme and the 17th will have the work done for its life extension this year. Overall, there are eight Dash 8-100s in the Widerøe fleet still to go through the ESP.

As noted, the De Havilland Dash 8-300 also has an ESP. Like that for its fellow family member, this takes the original certification for 80,000 cycles and increases it by 50%.

The ESP for the Dash 8-300 incorporates a Service Bulletin which helps to identify the prerequisite modifications required for life extension, including the structural and system components that will require replacement. A maintenance programme supplement – when successfully carried out – confirms permission to operate beyond 80,000 cycles.

Chorus Aviation, parent company of Jazz Aviation, was the launch customer for the Dash 8-300 ESP. The work on the first ESP was carried out by Jazz Aviation's own support services division, Jazz Technical Services (JTS) in 2017. The aircraft was the first of a minimum of 19 Dash 8-300s scheduled to be put through the programme over a five-year period through to 2022 at JTS's facility in Halifax, Nova Scotia.

Saab is another OEM to produce a lifetime extension programme – and has done it twice for the same type. The Saab 340, celebrating 35 years of airline service this year, was originally designed with

“Providing all the requisite procedures have been followed, the life is extended to 60,000 cycles immediately and can be further extended to 80,000 cycles a short time later.”

operational limits of 90,000 cycles or 45,000 flight hours, whichever occurred first. In the first change to that original design, the implementation of the Service Bulletin 340-51-022 extended the design service goal to 60,000 flight hours, though the limit of 90,000 cycles remained the same.

Saab then created a further extension to the Design Service Goal from 60,000 flight hours (assumed SB 340-51-022 is incorporated) to 80,000 flight hours. Again, the permitted number of cycles remained at 90,000. By performing both service bulletins,

Saab says the operating life of the aircraft can be extended by 25-30 years, assuming an aircraft has a typical operation of around 1,200 flight hours per year.

The operator of the world's largest fleet of Saab 340s, Regional Express (Rex) of Australia, has been putting its fleet through the LEP designed by the OEM. With 57 of the type, the airline is putting each aircraft through the LEP as it reaches the initial design threshold.

CHOOSE LIFE

The carrier believes that based on its operational profile, implementation of the LEP will add 15-20 years to the service life of each aircraft. Being the owner of its entire fleet, Rex has every incentive to take care of its aircraft, especially when there is no direct replacement available among the new turboprops on the market.

Turboprops are not the only types with such programmes. BAE Systems Regional Aircraft has LEPs for both the BAe 146 and Avro RJ families that similarly enable the types to continue operations for longer than their initial planned lifecycle. Andrew James, the company's managing director, recalls: “Given the market conditions around 2010 where the BAe 146 and Avro RJ fleets were in long-term leases with strategic customers (Brussels Airlines, CityJet, SWISS and so on) and with the



onset of some aircraft being converted into a firefighting role, it was a strategic decision for the business to invest in the life extension programme.

"The technique used for the LEP on the Regional Aircraft fleet was to revisit the original structural design assumptions made at Type Certification and compare them with the actual behaviour of the fleet based on in-service data," James remarks. "Thereafter, re-analysing the structure of the aircraft using existing analytical toolsets – for example, finite element modelling and damage tolerance analysis.

"The project also ensured that production modifications, Service Bulletins and Airworthiness Directives post-Type Certification were reviewed for any potential

"The ESP for the Dash 8-300 incorporates a Service Bulletin which helps to identify the prerequisite modifications required for life extension."

impact," he continues. "A similar process was followed for systems components which was worked in conjunction with the OEM vendors. The overall output was that no structural items were required to be replaced and the aircraft carried on with a

revised inspection regime and there were only a small number of systems components which required to be tracked or replaced."

Part of the first LEP – on the BAe 146 – was the introduction of two manuals, one covering corrosion – the Corrosion Protection and Control Programme (CPCP), and one covering fatigue – the Supplementary Structural Inspections Document (SSID). The former is brought into play when an airframe reaches 20 years of age and introduces an indefinite calendar life, while the latter is introduced when an airframe reaches 40,000–50,000 cycles. Providing all the requisite procedures have been followed, the life is extended to 60,000 cycles immediately and can be further extended to 80,000 cycles a short time later.



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On the Avro RJ, an update to the existing SSID was used to complement the existing CPCP. Again, the objective of SSID was to extend the airframe life to 60,000 cycles on completion of this programme.

BAE Systems Regional Aircraft also has an LEP for the Jetstream 32 turboprop. In this programme the airframe life limit of the aircraft can be increased by approximately 50%, taking it from the original 45,000 cycles to 67,000 cycles. In addition to providing many more years of useful service to operators, having an LEP in place improves the residual values of an aircraft.

The J32 LEP, like those for the jets, involves a revised structural maintenance programme for the aircraft embodied through the SSID, which operators can buy via a Modification Service Bulletin.

Just as BAE Systems looked back at in-service data as it designed its LEPs, Todd Young reports that when deciding the key technical and technological elements which needed to be dealt with to extend aircraft life cycles, a similar process was used when developing such solutions for the Dash 8.

"The development and design of the Dash 8 along with the extensive testing to meet and to maintain the legacy characteristics of previous De Havilland aircraft led to not only the original life span at 80,000 cycles (one of the highest in the market), but the ability to explore what would be necessary to extend this by another 40,000 cycles," he comments.

SPARES 'ON DEMAND'

"Via review of certification data, analysis and some testing, the definition of the revised maintenance programme along with the replacement of some parts was derived to achieve this. At present no other OEM can achieve this level of life extension," Young declares.

As these programmes continue, the availability of spares could become a challenge. There may be some used serviceable material on the market for a while, but if a point comes where parts production by current methods becomes non-viable, the possibility then is that additive manufacturing/3D printing could

help future life extension programmes by being able to deliver spares 'on-demand'.

While BAE Systems' James does not currently foresee too much benefit in 3D printing as a factor in LEPs, Young sees some possibilities.

"The technology and capabilities have to evolve very quickly and then continue to do so. With the introduction of some 3D printed parts into aviation, which are already starting to be installed on aircraft, there is no doubt that as the technology continues to evolve this will become a source for certain spare parts and ultimately new designs on new and existing aircraft," the De Havilland COO states.

The OEMs of aircraft types which are no longer in production but still in high demand, have worked hard to give the customers more of what they want from the aircraft that fit their needs. Investment in replacing types such as the Saab 340 and the Dash 8-100/300 has not been forthcoming for a long time, so airlines seem likely to be turning to lifetime extension programmes for some years to come. ■

Still in its prime: Through its Extended Service Programme, the Dash 8-300 has added an additional 40,000 flight cycles to its working life.



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"At Air Arabia we always look for innovative solutions to bring further efficiency to our operations. Selecting AMOS as our new MRO software across the group reflects the importance we place in adopting latest technologies to support our fleet growth requirements."

Group Chief Executive Officer of Air Arabia

Air Arabia takes off with AMOS, the world-class M&E software solution.

Air Arabia has chosen AMOS to address the demands of a dynamic, fast-changing industry.

The system will not only support the Middle Eastern carrier's fleet growth but also the digital transformation process towards paperless operation.



Grease was the word and paper was everywhere... now it seems that the digitalisation of MRO not only means enhanced efficiency but improved safety, too.

Perfect Partners – MRO and IT get close

The aviation technician must cope with a bewildering array of new technologies. The change is combining old-fashioned wrench turning with Silicon Valley know-how. John Persinos examines the procedures and practices now in place, and how they're working together.

Information technology and maintenance, repair and overhaul (MRO) are increasingly intertwined. Mechanics have gone hi-tech.

The overriding goal within MRO's adoption of IT is to enhance mobility and digitalisation. This trend is occurring in tandem with digital advances in the cockpit and the increasing use by pilots and mechanics of hand-held Wi-Fi devices, such as tablets.

Ronald Schaeuffele, CEO, SWISS Aviation Software, pinpointed some of the major developments that he's witnessing in terms of IT and how it intersects with MRO.

"There are lots of buzzwords thrown around when it comes to this topic, but at the end of the day, it boils down to the pursuit of greater mobility and digitalisation," Schaeuffele said. "MROs are trying to get rid of paper. MROs have engaged us to digitalise their shop floors.

Our system presents mechanics with PDFs that they can electronically sign-off on a tablet, which still gives old-school mechanics a sense of the tactile. It's paperwork, but only presented to the mechanic on the tablet."

Schaeuffele said a digitalised process not only enhances efficiency, but also safety. "By digitalising MRO work, there's greater assurance that the mechanics get the right paper trail," he said. "They don't have to search for manuals, and they're guided by the software. They see everything they have performed, step by step. With a bunch of papers, you don't really get the assurance they understood everything, and the requirements have been met."



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What are the biggest challenges posed to MRO technicians, in terms of IT training? According to Schaeuffele, it's the fact that "most of the MROs are more or less still working with paper."

John Stone, vice-president of Product Management at Ultramain Systems, said IT has impacted MRO for decades.

"IT is being used to help improve efficiencies in conducting maintenance by helping with planning and scheduling of maintenance checks and tasks," Stone said. "It is also used to provide required technical documentation to aviation authorities. Unfortunately, for many years, the standard approach has been to record maintenance activities on paper and then enter the results into after-the-fact computer systems."

For instance, Stone pointed out, most maintenance today is accomplished by mechanics using printed paper task cards which are signed-off using pen and ink, then scanned, catalogued and stored for review by authorities. Regulatory authorities require these records to ensure required maintenance was accomplished on time, done correctly and done using the correct technical documentation. However, in today's world of growing technologies, after-the-fact scanning and filing has proven to be an inefficient practice of conducting maintenance."

"There are lots of buzzwords thrown around when it comes to this topic, but at the end of the day, it boils down to the pursuit of greater mobility and digitalisation."

Nick Godwin, managing director of Commsoft, said the pace of market development has been defined by the speed of mobile connectivity and corresponding enhancements in various database technologies.

"This supports a general trend from traditional regulatory compliance and extensive stakeholder reporting towards greater prediction

and economic optimisation, as best-of-breed MRO IT systems are connected to other key business finance and operations systems and more accurate data is validated at source and processed more quickly," Godwin said.

Godwin noted that systems such as his company's OASES product come with extensive data views which can be accessed to generate business KPIs and also offer extensive customisation of reports for each stakeholder, while maintaining key audit and transactions logs for critical security requirement with extensive controls of rights and permissions. The latter is vital as data are readily accessible."

All three companies — SWISS Aviation Software, Ultramain, and Commsoft — provide paperless IT solutions for MRO end users.

RISE OF THE MACHINES

MRO industry leaders pointed to a cutting-edge trend that's revolutionising MRO: the rise of artificial intelligence (AI).

AI is invading nearly all industries, bringing with it capabilities once only dreamed of in science fiction. "Disruptive" technology destroys the old paradigms but historically has improved productivity and quality. Such is the case with AI and its role in the daily life of the aircraft mechanic.

Instead of seeing AI as a threat, the aircraft mechanic is starting to see it as a career opportunity. Maintenance schools are creating new courses in AI and MRO shops increasingly require familiarity with AI for hiring.





It allows the aircraft mechanic to process data at blistering speeds without sacrificing safety and quality of work. As is often the case with rapid technological change, regulatory bodies are falling behind in adapting to the migration of AI into the MRO space. Unions also are bracing themselves for a new ball game in terms of whether a human or a machine should conduct sensitive maintenance work.

Various regulations that govern aircraft tech require the aviation technician to use only approved devices that do not attach to or interfere with the aircraft. Smart glasses, smartphones and high-definition cameras are providing new means for the aircraft maintenance engineer to collect and interpret data, to improve safety as well as operator satisfaction.

All this disparate data from various devices needs to be quickly analysed and rendered into actionable steps for the aircraft maintenance engineer. Decision making is increasingly delegated to computers that function rapidly — far more rapidly than the human brain.

One of the most influential breakthroughs in the AI realm is in computer vision. Smart cameras with ultra-sophisticated 3D chips

"IT is being used to help improve efficiencies in conducting maintenance by helping with planning and scheduling of maintenance checks and tasks."

can run deep learning models and scan in real time what's occurring in the visual field of mechanics. This capability is being adopted by aircraft mechanics for their routine maintenance checks, in conjunction with entries filled into their digital logbooks.

The aircraft maintenance engineer is relying on smartphones as sensors. These phones can collect information about subtle, aberrant vibrations and similar anomalies in engines and other aircraft parts. They can also measure unusual activity during test runs. With an overlay of AI, diagnostics can be conducted

considerably faster and more accurately. Internet service providers like GoGo, Global Eagle and Viasat are becoming part of the MRO/AI infrastructure. They have the networks and bandwidth to collect data and transmit it to AI data centres.

NEW APPROACHES TO AIRCRAFT TECH

"Modern artificial intelligence is opening new doors in MRO, giving the aircraft mechanic new and formerly unheard-of capabilities," says Richard Aboulafia, vice-president of Analysis at the Teal Group, an aerospace consultancy based in Fairfax, Virginia. "Advanced technology in MRO is creating a gusher of new data that needs to be interpreted in real time, at fast speeds. Artificial intelligence helps the aircraft mechanic do this."

Aboulafia foresees a wave of new apps emerging soon that are built around AI, to give aircraft maintenance engineers "haptic" touchless interaction with AI computer centres.

The key is for Silicon Valley to develop these AI-centric apps without violating industry standards and regulations. Aircraft tech has high barriers to entry because of its

Technology breakthrough: Aircraft mechanics are deploying computer vision smart cameras and AI diagnostics for faster, more accurate maintenance checks.



Step by step: Mechanics working with digitalised MRO don't have to search for the right manual, they're guided by the software.

red tape and myriad safety rules. Any new technology must jump over hurdles set by the FAA and other regulatory bodies.

But the change already is happening in tangible ways. Lufthansa Technik has developed an automated inspection and repair robot, governed by AI, to look for combustor cracks, while several airlines have experimented with AI-controlled drones for automated aircraft exterior inspections.

With these robots and inspection drones, an aircraft mechanic is still needed to supervise operations and review the results, but fault-recognition AI seems to be on a course to remove the need for human eyes.

Advances in AI machine learning are opening the door to predictive and



preventive maintenance predicated on aircraft and engine sensor inputs.

But the airplane mechanic need not fear for their job. These AI-related technologies do not threaten to replace human workers. Instead, they provide productivity gains, quicker turnarounds and more accurate

inspections. That benefits the MRO field, aircraft operators, passengers, and customers.

Disruptive change is inevitable, especially in the complex field of aircraft tech. The aircraft mechanic should embrace, not fight, artificial intelligence. ■



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Reinventing airline software from the ground up

The Sabre Technology Exchange (STX) event in Las Vegas in June witnessed its largest ever attendance, more than 1,600 customers from across the travel industry were brought together representing airlines, hotels and travel distribution. Henry Canaday reports on the latest 'tech' processes coming to the industry.

Born in 1960 as part of American Airlines and spun off as a separate company in 2000, Sabre now handles US\$260 billion of the \$1.2 trillion in global travel and lodging spending. But if you include all travel and destination spending, there is a \$5 trillion market out there. The travel technology giant wants to help hotels and airlines tap into that gigantic market. With bookings up 5% and shopping transactions up 50% in the past two years, Sabre is looking to provide the tools for truly personalised travel selling by 2025.

Personalised selling of all travel would be a huge revolution for airlines and other travel providers. But Sabre is also transforming itself to be part of that revolution. Over the past two years it has replaced much of its management team, has shifted its infrastructure from data centres to the far more flexible cloud and is even changing the

way it builds and offers applications. In short, the company is trying to combine the experience, connections and software assets of a 60-year old organisation with the agility and appeal of a Silicon Valley start-up.

At the Sabre Technology Exchange in Las Vegas in June, CEO Sean Menke and other Sabre executives emphasised both new approaches and enduring assets.

L.O.V.E NDC

Sabre was not always a fan of IATA's New Distribution Channel, or NDC. Now, vice-president Kathy Morgan said Sabre is "fully committed to NDC and beyond NDC." Sabre is certified at NDC Level 3 and is working on Level 4 for servicing transactions. Next comes certification for executing NDC at scale, where speed, performance and reliability are crucial. Sabre's experience in handling billions of transactions should help here.

"The travel technology giant wants to help hotels and airlines tap into that gigantic market."

Sabre intends to acquire NDC-specialist Farelogix and is working on NDC with partners like American, United and Delta Air Lines, American Express and nearly 60 other companies. In the first quarter of 2019, Sabre released its first API for travel agents to consume NDC content and will shortly enable United to sell by NDC.

After eight years of talk, NDC is starting to become real. IATA's ONE Order plan for simplifying ancillary sales by decoupling them from rigid PNRs is coming up next.

IATA has set a goal of 20% of airlines' indirect sales being conducted through NDC by 2019. "It's a long road," Morgan said. "We have no deadlines but will move as fast as needed."

The aim is to enable airlines to sell as creatively – and profitably – in the indirect channel as they increasingly do in the direct channel.

Closely related to NDC is revenue management. Sam Chamberlain, manager of Pricing Optimisation, outlined the future here. First will come dynamic availability optimisation based on the latest real-time



- 1:** Sabre Hospitality Solutions SVP Brian Jorgenson leads a panel of Sabre hotel and lodging leaders.
- 2:** STX keynote speaker Rachel Botsman, expert on the explosive new era of trust and technology.
- 3:** Sabre CEO Sean Menke shares his vision for the future.
- 4:** Sabre Hospitality Solutions leaders from around the world, including VP Frank Trampert (standing), share their thoughts on the future of intelligent retailing.
- 5:** Sabre senior principal Mike Hoppin demonstrates airline products to customers.

information, including competitive information. Next is dynamic pricing optimisation. And finally, will come retail optimisation, or the personalisation of offers to customers.

Airlines are moving from separation of fares and inventory to integrating these two crucial sales elements. The trick is to do it without making things too complex. And automating as much as possible.

Sabre introduced its fare optimiser in 2018. Chamberlain estimated it reduces the time to set prices by 90% and yields incremental revenue of 0.5%. This is not true dynamic pricing yet, but an important step towards it.

Sabre is now doing dynamic availability, based on very rich data, including shopping data drawn from its own GDS. Revenue analysts do this now manually, based on limited and delayed data. Automating the process to exploit all the data can add another 0.5% to revenue, Chamberlain estimated. Etihad Airways is now using both the fare optimiser and dynamic availability. To ensure automation does not result in downward spiralling of average fares, controls are in place.

Sabre does a lot of business with airlines in part because it offers a much broader suite of software than just revenue-side applications and passenger service systems. Sabre's vice-president for Operational Solutions, Cam Kenyon, emphasised Sabre's movement manager, ability to generate highly efficient flight plans, and network planning applications. Plus, Sabre is now designing APIs such that airline customers

“The airline software company has both a new look at the top and some very new equipment under the hood.”

can easily design and add their own side solutions to Sabre tools.

Often, Sabre's commercial applications and operational solutions come together, as is the case with IROPS (irregular operations). Sabre's IROPS Re-accommodation solution considers, during a snowstorm for example, where to move passengers based on both technical options and customer value. Sabre has redesigned IROPS Re-accommodation's user interface and improved its optimisation algorithms to support larger operations with better results. Overall, response time and efficiency have been boosted 40%.

Sabre's Flight Plan Manager provides a strong degree of operational control and has proven popular in the market with airlines like WestJet and the LATAM Group using the tool, which can save up to nearly 2% of fuel. Kenyon said Sabre is investing heavily in movement manager for airport movements, and its crew management application is starting to penetrate South America and Southeast Asia.

The quality and breadth of Sabre's applications recently prompted Jetblue Airways to renew its reliance on the



software company for a wide range of applications. But Sabre execs know they must get even better to stay competitive in the airline IT market.

Dave Moore, senior vice-president of Platform Development, says the new Sabre must manage complexity, deliver innovation and enhance the travel ecosystem. One way to speed up innovation is to expose and explain Sabre applications' 'entry points,' APIs, so customer developers can build new solutions quickly.

And Sabre itself is moving toward developing micro-services, instead of big end-to-end apps. The company can then 'compose' a solution out of several apps, enabling it to innovate faster.

Shifting from data centres to the Microsoft cloud lets Sabre spin up new apps faster or add scale to current apps and databases quickly. With the cloud, Sabre's development teams have seen a 90% reduction in testing time and a 50% reduction in development time.

The veteran airline software company has both a new look at the top and some very new equipment under the hood. ■





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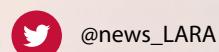
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Nur Gokman, chief executive officer at IT consultancy Hitit Computer Services, talks about the technological changes and software innovations her company has introduced to the airline and travel industry. Its upgrades now allow the Istanbul-based company to manage its networks online, from passenger service systems to financial, operational and loyalty management solutions. And Hitit has more planned.

... Hitit's Nur Gokman

Looking to the future, how or what do you predict will be the emerging software needs for the global aviation sector?

The airlines are facing tougher market conditions, they're looking at their technology provider to deliver the solutions to create the highest revenue with the minimal cost. They'll need a flexible system if they want to change their business model, and to support distribution freedom and meet the latest standards such as NDC [New Distribution Capability]. They will require a direct connection to all major distribution channels such as GDS [Global Distribution System]. Increasing both ancillary and direct sales channels is vital for an airline looking to improve its cash flow.

Another major emerging software need for airlines is personalisation functionality. The ability to use big data, provide personal promotions to passengers and defining the customer value, will be a major differentiator for airlines in the future.

In terms of regional and LCC, are there differences in the software these airlines request, compared to the larger operators? If so, what are they?

Low-cost carriers require unlimited ancillary support from their system, as well as the ability to sell ancillaries through all channels. While a regional flag carrier might

focus on the network connectivity of the system, an LCC will require as much automation as possible in order to reduce personnel costs.

You have recently been granted an NDC Level 4 Status by IATA. What does this mean for Hitit and its growth?

At Hitit we strive to be ahead of industry best practices and standards, while embracing innovative solutions. We see NDC as a game changer for all players in the aviation sector, from the traveller, to the travel agency and the airline. We expect that soon airlines' OTA* channel will be "speaking only the NDC language". NDC Level 4 is the highest certification awarded by IATA, and we see it as a testament to our efforts to be at the forefront of air travel solutions. With our suite of NDC services, our partner airlines will be able to differentiate and customise their offers, reduce time-to-market, and sell air products that have real value for the traveller.

What are the most challenging aspects or software solutions airlines are asking you for?

Hitit sees its airline customers as partners. With our partner airlines we make up a great team, focused on enhancing the qualities and standards of aviation technology, in support of our passengers' demands.

Airlines' requests for software solutions or services are never a burden to us. However, some aspects can be challenging from time to time, such as customer-value calculation, customer experience, dynamic pricing, and ancillary offerings for high-value passengers.

In terms of overseas growth, where do you see the largest future market for Hitit?

Various performance results and forecasts reveal that Africa is one of the largest future markets and we expect that it will continue its growth trend over the next 20 years. Based on these predictions, we have a clear strategic focus on Africa. In addition, the new low-cost business model for airlines has started to dominate the industry, with the ability for airlines to benefit from improved cost performances. Hitit anticipates a significant growth of LCCs throughout the world over the next several years, and we believe Latin America has the potential to be one of the largest future markets. ■

Prior to founding Hitit 25 years ago, Nur managed Turkish Airlines' IT Centre, Product Development Department for many years. Nur has a BSc. Mathematics & Physics degree from Istanbul University.



ST Engineering and Air NZ trial inspection drones

ST Engineering and Air New Zealand have teamed up to trial the use of drones to inspect aircraft.

ST Engineering has developed an unmanned drone system, known as DroScan, which takes a planned route around the outside of an aircraft to inspect its surface and produce high definition images, which are then processed using a software with smart algorithms to detect and classify defects. Aircraft engineers can then review and confirm or carry out further inspection for defects if required.

Air New Zealand is collaborating on the trials with ST Engineering at its facility near Changi Airport in Singapore, where the airline undergoes heavy maintenance checks. Carrie Hurihanganui, chief ground operations officer for the airline, said using a drone for aircraft inspections will save time, “taking around one to two hours, compared to up to six – depending on aircraft type – which means repairs can start sooner if needed, and our aircraft will be able to get back in the air more quickly.”

The airline has trialled DroScan on a number of aircraft undergoing maintenance inspections in Singapore. Hurihanganui added, “In future, there may be an opportunity to use the device in New Zealand, for example, to conduct ad hoc inspections after lightning strikes.”

ACSS launches SafeRoute+

ACSS, an L3Harris Technologies and Thales company, has launched SafeRoute+, an ADS-B In retrofit solution for airlines, which is expected to be certified in the third quarter of the year.

Featuring a new design with an all-new display, the company says it enables airlines to enhance safety and efficiency and improve on-time performance without extensive and costly cockpit modifications.

Terry Flaishans, president of ACSS, said the new design is significant for the industry as “It’s the only retrofit cockpit surveillance system available for ADS-B In technology,” and adds that the new ADS-B Guidance Display “makes upgrades affordable and yields a much higher return on our customers’ investment.”

SafeRoute+ ADS-B In applications are hosted on its TCAS 3000SP™ or T3CAS® computers and executed using the existing Navigation Display (ND) and Multi-function Control and Display Unit (MCDU), as well as the new ADS-B Guidance Display (AGD) from ACSS.

The company says the new retrofit architecture makes it practical and economical for operators to start using ADS-B In applications in 2020. SafeRoute+ currently offers five applications operators can choose from; which increase situational awareness, reduce missed approaches, enable higher achievable throughput, optimise spacing buffers and reduce fuel burn.

While the first generation of SafeRoute was certified using Class 3 Electronic Flight Bags (EFBs), the new SafeRoute+ architecture eliminates the need for what it says are costly Class 3 EFB devices.



Honeywell goes compact for Urban Air Vehicles

Honeywell has unveiled a compact ‘fly-by-wire’ system that packs the ‘brains’ of an airliner’s flight controls into one system, roughly the size of a paperback book, which the company argues is the next-step for autonomous and Urban Air Mobility vehicles.

The company says the flight control computer will add stability to these aircraft designs by driving electric actuators and dynamically adjusting flight surfaces and motors for smoothly following flight paths and reducing turbulence. Honeywell suggests it allows designers to “push the limits of aerodynamics” removing the need for heavy hydraulics, control cables or pushrods.

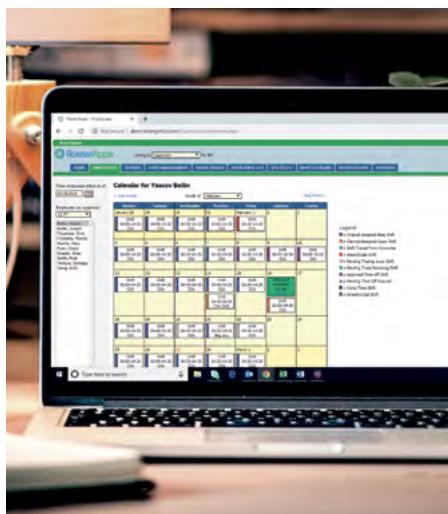
The flight control computer is built to aviation industry certification standards and has architectural features derived from Honeywell’s existing compact fly-by-wire systems for aircraft.

The offering features a triplex flight control computer architecture, which Honeywell says provides multiple backup options and removes the risk of relying on one system failure. Each computer uses lockstep processing – meaning it has two channels that constantly check each other’s work.

The new compact computer can be held in one hand, compared with similar technologies installed on larger aircraft that are roughly the size and weight of a fully-loaded suitcase. Honeywell argues its solution will draw less power, cost a fraction of current systems and can be used on multiple aircraft types – including more traditional aircraft vehicle designs.

Eavia’s new electric aircraft, Alice, which was unveiled at the Paris Air Show, features Honeywell’s Fly-By-Wire system as well as a BendixKing AeroVue cockpit.

Envoy Air selects ARCOS RosterApps



Envoy Air has selected ARCOS RosterApps workforce management solution, replacing and automating its multiple computer and paper systems that schedule and track time and attendance for 13,000 ground employees.

Envoy currently relies on a custom-built automated time and attendance system and manual processes which are time intensive to maintain. ARCOS RosterApps will give managers a centralised, automated way to track overtime and schedules, update policies and ensure compliance with changing regulations. Managers will see overtime requests in real time so they can compare requests against available budgets.

With the mobile component, ground staff will be able to manage schedules, shift requests and bids from computers or smartphones, at work or home. Notifications will come via email and text and supervisors can approve and deny requests, assign overtime and see a complete shift history for reporting and analysis.

ARCOS RosterApps will integrate with existing systems to ensure Envoy continues to adhere to the requirements of its work agreements with labour unions.

Meggitt and Lufthansa in deal for MRO services in China



Meggitt and Lufthansa Technik have signed an agreement for the provision of comprehensive component MRO services for commercial aircraft in mainland China.

Under the agreement, Lufthansa Technik Shenzhen (a joint venture between Lufthansa Technik and Beijing Kailan Aviation Technology) will build local MRO capabilities for Meggitt products, including heat exchangers, valves, fire detectors and fire suppression. The partnership will provide customers in mainland China with repair and service for a range of products, delivered from LTS's 25,000 sq.m facility.

Stewart Watson (above left), president of Meggitt's Services and Support division, said: "This is a long-term partnership for the fastest growing market in the world." Meggitt has invested significantly in its facilities across Asia as part of its investment programme in the region and Watson added that the ability to offer Chinese customers an in-country capability will enhance the levels of support.

Ben Scheidel (above right), chief executive officer of Lufthansa Technik Shenzhen, said the company looks forward to establishing "this new and unique collaboration as the exclusive MRO shop for a wide range of Meggitt products in the Chinese market."

He added that the engineering and data exchange between the two companies would "increase safety, reliability and simultaneously optimise costs for our customers."

GKN Aerospace in milestone for Wing of Tomorrow



GKN Aerospace has manufactured the first demonstrator wing components for Airbus's 'Wing of Tomorrow' (WoT) research programme. The parts are samples of a section of the wing spar.

GKN Aerospace argues that the wing technology will improve the productivity of the composite manufacturing process, and suggests the use of composite components can result in up to 20% weight savings on large commercial aircraft.

"The manufacturing of the first composite demonstrators under the WoT programme is a true milestone," said John Pritchard, CEO, Aerostructures and Systems Europe and Asia of GKN Aerospace. "We are proud to be a partner of Airbus in the WoT research programme. The demand for lighter, stronger and low maintenance composite wing structures seamlessly fit our sustainability goals. The Aerospace Technology Institute is providing vital support for the UK's position on the next generation of aircraft."



Norwegian Air Shuttle CEO **Bjørn Kjos** is to leave the position after 17 years and continue in a new role as an advisor to the chairman, effective 11 July. Until a new CEO is appointed, the CFO **Geir Karlsen** will act as interim CEO while chairman Niels Smedegaard will take on a more active role in the management.

Atlas Air Worldwide president and CEO **William J. Flynn** will retire from the company effective 1 January 2020, after a 13-year tenure, and will become chairman of the board. John W. Dietrich, current executive vice-president and chief operating officer, has been named as successor. He becomes president and COO effective immediately and will retain the role of president when he assumes the CEO position in January.

Aero Norway has appointed **Klaus-Peter Leinauer** as a new director of sales and marketing. Leinauer joins with more than 20 years' experience in the engine MRO industry, having worked at SR Technics for seven years with responsibility for sales in Europe, Russia and the CIS.



Dr Thomas Wittmann has taken over as one of two CEOs of **Lufthansa Systems** as of 1 July, leading alongside CEO Olivier Krueger who has held the position since 2015. Dr Wittmann began his career at Lufthansa Group in 1995 at Lufthansa Systems. He succeeds Stefan Auerbach who took on a new position at Eurowings in May.

JetBlue has promoted **Scott Laurence** to the role of head of Revenue and Planning while **Don Uselmann** has been promoted to the role of vice-president, Loyalty and Personalisation. Chief commercial officer **Marty St. George** announced plans to leave in June after 13 years with the airline.



Canada Jetlines appointed **Jyri Strandman** as chief operating officer as of 1 July. With over 30 years in the aviation industry, Strandman most recently held the position of COO at GoAir. Prior to this he held progressively senior roles with Spirit Airlines.

Nico Bezuidenhout, current chief executive of African LCC fastjet, is to leave at the end of September to re-join **Mango Airlines** as CEO from 1 October. Bezuidenhout was the founding CEO of LCC Mango Airlines, managing the business from 2006 to 2016. In the interim, **Mark Hurst**, current deputy group CEO, will assume the Group CEO and acting CEO positions at **fastjet** until a permanent replacement is appointed. Hurst joined fastjet in July 2018 and was appointed as deputy group CEO in January.



United Technologies has named **Christopher T. Calio** as president of Pratt & Whitney, effective on the retirement of **Bob Leduc** in early 2020. Calio has served as president of Pratt & Whitney's Commercial Engines business since 2017. He joined parent company United Technologies in 2005.

Matt Prainito has been elected to the position of vice-president of station and in-flight operations at **Horizon Air**, beginning his role immediately. Prainito started with Alaska in 1997 as a customer service agent taking on various leadership roles before becoming managing director of station operations in 2016, where he was responsible for the State of Alaska, Hawaii and the Pacific Northwest stations.



United Airlines has named **Sarah Murphy** as senior vice-president of **United Express**. She most recently served as United's vice-president of Global Operations Strategy, Planning and Design, and was instrumental in launching the airline's core4 service model.

Aviation calendar 2019

SEPTEMBER

4-6

Aviation Festival, London, UK

<https://www.terrapinn.com/conference/aviation-festival/>

4-7

RAA Annual Convention, Nashville, USA

<https://www.raa.org/convention/>

9-12

APEX EXPO, Los Angeles, USA

<http://expo.apex.aero/>

11-12

AeroEngines Europe, Istanbul, Turkey*

<https://www.aeroengineconference.com/en/home.html>

18-19

Dispax World, London, UK*

<https://unrulypax.com/>

21-24

World Routes, Adelaide, Australia*

<https://www.routesonline.com/events/204/world-routes-2019/>

24-26

MRO Asia-Pacific, Singapore*

<https://mroasia.aviationweek.com/en/home.html>

OCTOBER

8-10

ERA General Assembly, Juan Les Pins, France

<https://www.eraa.org/events/era-general-assembly-2019>

15-17

MRO Europe, London, UK*

<https://mroeurope.aviationweek.com/en/home.html>

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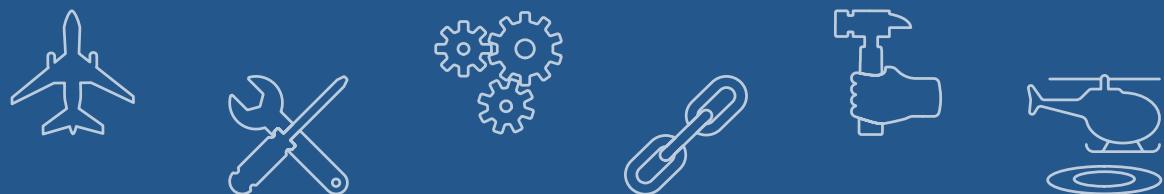


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