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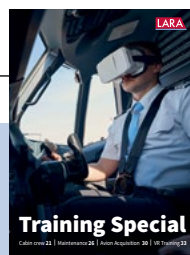
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Next generation station



2025. That's the big entry to service date for regional flight being targeted by two of the aviation industry's leading hydrogen start-ups, ZeroAvia and Universal Hydrogen – both of which enjoyed successful first flights in recent months.

Give that this deadline is a mere two years from now, it strikes me that the timescale seems remarkably ambitious (for comparison, the first COVID lockdowns in the UK happened only three years ago). Especially against the background of lack of infrastructure and stringent

certification standards surrounding next generation sustainable tech.

To echo Star Trek's Picard, one may well go boldly where no one in the industry has gone before, but whether it can be done on schedule and meet safety standards is another matter entirely.

2025 is also the year that will herald the completion of another generational shift for the industry – namely, it is estimated during that year that Millennials and Generation Z will make up around 50% of passengers.

A looming reality that has airlines, airports and service providers wondering how they can appeal to the tastes of a rapidly evolving consumer group. Not only that but airlines and OEMs, from the likes of Lufthansa and easyJet, are ramping up their maintenance training initiatives to attract Gen Z and improve accessibility.

By appealing to and working with the next generation, the aviation industry is focused hard on laying the groundwork now to ensure its sustained survival in the future – both with whom it employs and the technology it deploys.

I wonder if we'll look forward two short years to see if the foundational work done now is good enough – or if it will have fallen just short of the mark.

Lucy Powell – Assistant Editor

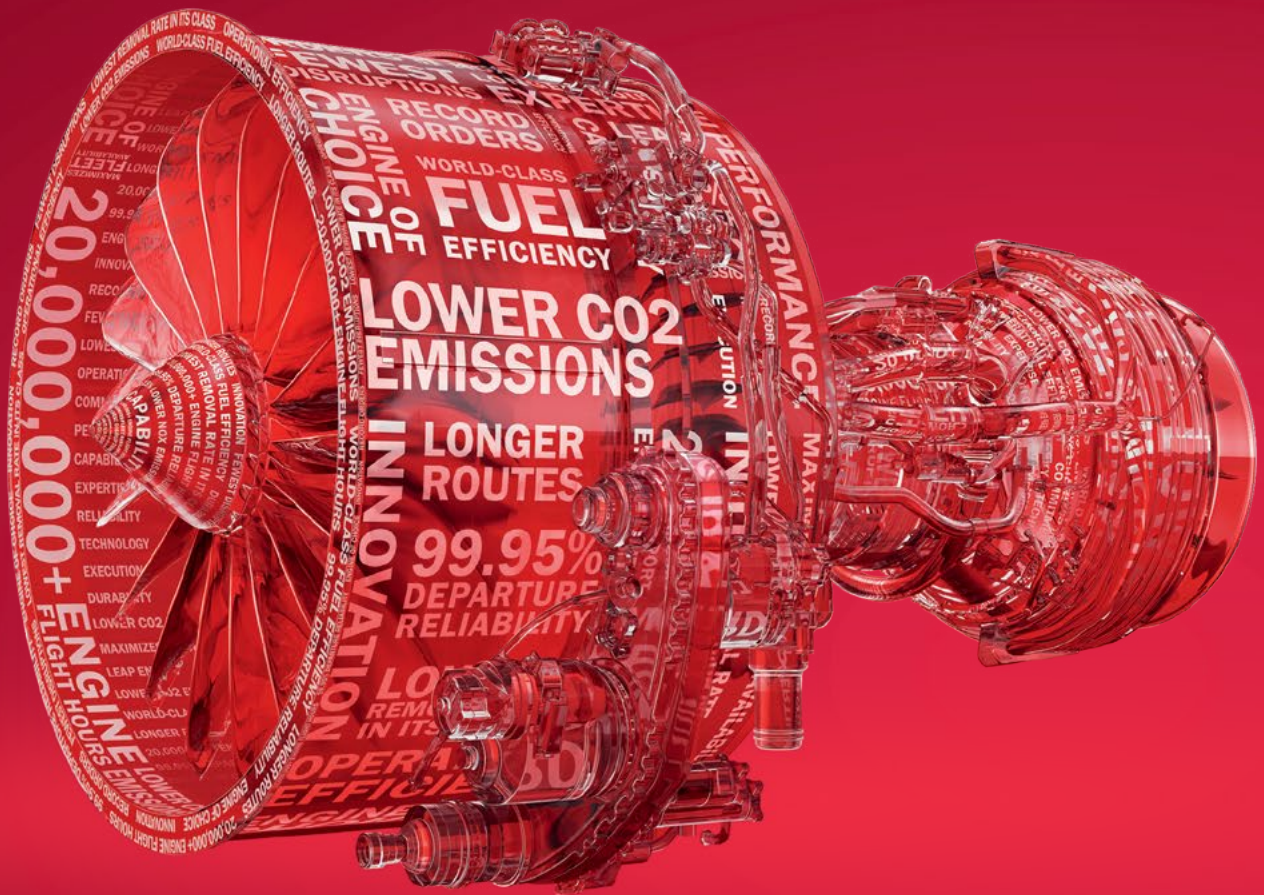
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Delta launches Propel Flight Academy in partnership with Skyborne

Delta Air Lines has launched its new Delta Propel Flight Academy, the fourth pathway of its Propel Pilot Career Path Programme that will work to address the pilot shortage in the US.

Opening in June, the Propel Flight Academy will be based at the newly refurbished 12,000 sq ft facility at Skyborne's Vero Beach campus in Florida, which will be operated in partnership with Skyborne Airline Academy.

Once students have completed their first certificate at the academy, they can apply to the Propel Pilot Career Path Programme.

When they have completed flight instructor training, students can be offered employment with Skyborne as flight instructors.

In this new role, students can train under a full scholarship for Certified Flight Instructor Instrument and Multi Engine Instructor Rating, until the required 1,500 hours are achieved.



Upon completion of the programme, cadets will graduate and gain employment as first officers and serve on one of Delta Connection's carriers, operating regional short- to mid-haul routes.

Patrick Burns, Delta's Vice President of Flight Operations, said: "The Propel Flight Academy is the latest chapter in our long-

standing commitment to invest in and create new, equitable pathways for qualified talent to enter the pilot profession. We look forward to watching a new generation of pilots begin their journey at the Propel Flight Academy and eventually join us in the flight deck to help show Delta customers why no one better connects the world."

Airbus' Tianjin factory delivers first A321neo aircraft

Airbus has delivered an A321neo to Juneyao Air based in Tianjin, China. The aircraft is the first A321neo to be assembled at Airbus's Final Assembly Line Asia (FAL Tianjin).

"Since we announced the commissioning of the first A321 aircraft at FAL Tianjin last November, the relevant final assembly activities and tests went on smoothly, showcasing the maturity of FAL Tianjin to quickly adapt to new products," said George Xu, Executive Vice President, Airbus, and CEO of Airbus China.

"The successful delivery of the first A321 aircraft enables Airbus to honour the popularity of the aircraft for the China market and beyond – and the consistent trust and support from our customers."

The Tianjin FAL facility is one of four A320 family FAL facilities around the world, which



include Hamburg, Germany; Toulouse, France; and Mobile, United States. Since its inauguration in 2008, the Tianjin FAL has delivered more than 600 aircraft.

"Airbus continues to expand and enhance its comprehensive cooperation with China's aviation industry, underlining its long-term commitment to China to ensure customer proximity while supporting the global

commercial aircraft production ramp-up," added Xu.

The A321neo is powered by Pratt & Whitney GTF engines and features 207 seats, with eight distributed in Business class and 199 in Economy class.

In support of China's green aviation strategy, the aircraft's delivery flight will use a 10% sustainable aviation fuel blend.



Envoy Air welcomes six more Embraer 175s

American Airlines Group (AAG) has assigned six more Embraer 175s to US regional carrier Envoy Air's fleet.

The carrier said that American Airlines Group (AAG) would assign six more Embraer jets to Envoy in the coming months.

Once added, this would bring the regional carrier's total fleet commitments to 134 – comprising 107

E175 and 27 E170 aircraft.

Dee Temples, Envoy Air's Senior Vice President, Air Operations, said: "As we transition away from the E145 and focus on our large RJ operation, American continues to invest and have faith in Envoy's ability to offer safe, reliable and cost-effective service to its customers. Envoy has invested significantly in the resources and infrastructure needed to support our

Embraer E-Jet fleet, and deliver outstanding service to American's customers."

Envoy Air is one of three regional carriers that operate flights for American. The other two are Piedmont Airlines and PSA Airlines. Envoy Air also currently operates 22 Embraer E145s, which have an average age of around 19 years.

Avion Express to wet-lease four aircraft to airBaltic

Avion Express has signed a contract with the Latvian national airline airBaltic to wet-lease four 180-seat Airbus A320 aircraft for the upcoming 2023 summer season.

This partnership will facilitate airBaltic's growth to meet the increasing passenger demand and ensure successful scheduled flight operations.

Under the agreement, two of the leased aircraft will operate from the airline's Riga base between 26 March and 28 October, while one will be stationed in Vilnius and

the other in Tallinn from 1 May to 28 October.

Remigijus Jakučinskas, Head of Commercial at Avion Express, said: "We look forward to working closely with airBaltic and contributing to their operations for the peak summer season."

"One of our strengths is the diversified ACMI fleet that allows us to meet the evolving needs of our clients."

Martin Gauss, CEO of airBaltic, noted that while the aviation industry is gradually

stabilising and the demand for air travel is increasing, both the sector and airBaltic face new challenges.

He said: "The industry continues to face technical parts supply chain issues, which means we need additional capacity to ensure customer journeys and avoid flight cancellations."

"Thus this summer airBaltic is cooperating with Avion Express, whose larger capacity aircraft will help to transport a bigger number of passengers."

Superjet International to replace Russians with new UAE shareholder



Italian-based aviation company

Superjet International is set to continue its activities with a new United Arab Emirates (UAE) shareholder.

An agreement was reached between Mark AB Capital Investments, the UAE shareholder, and Russian United Aircraft Cooperation (UAC), which provided for the sale of all 49% shares held by UAC to Mark AB.

The acquisition of the shares is dependent on approvals from the Russian and Italian governments.

Following its success, the new shareholding structure will be split between Mark AB (49%), Studio Guidotti International (41%), and Leonardo (10%).

Camillo Perfido, CEO of SuperJet International, said: "This agreement has a great value for our company as the

interruption of industrial and commercial relations with UAC will allow the company to no longer be burdened by the limitations resulting from the sanctioning regulations set by the European Union. SJI will once again demonstrate the excellent technical skills of its employees, who have managed to face a difficult period with integrity and a sense of responsibility."

The entry of the new shareholder, and the unfreezing of SJI's shares and assets, are mandatory prerequisites, without which the Relaunch Plan cannot be implemented.

This relaunch plan was drawn up together by SJI and Mark Capital AB, and envisions investments of €190 million, of which €110 million will go to the Venice site.

Such investment will make it possible to support the development of new aircraft configurations, the construction of the new SJI branch in the UAE, as well as the continuous development of the aircraft to address market competition.

Universal Hydrogen achieves a 40-seat first for hydrogen-powered flight

Universal Hydrogen has successfully flown a 40-passenger regional airliner using hydrogen fuel cell propulsion, making it the largest aircraft to fly and cruise on hydrogen.

The aircraft, a Dash 8-300 testbed nicknamed Lightning McClean, took off from Grant County International Airport and flew for 15 minutes, reaching an altitude of 3,500 MSL.

For the test flight, one of the aircraft's turbine engines was replaced by Universal

Hydrogen's fuel cell-electric, megawatt powertrain. The other remained a conventional turbine engine.

The flight was conducted under an FAA Special Airworthiness Certificate and was the first flight in a two-year test campaign that is expected to conclude in 2025.

The aircraft that will enter passenger service once this campaign is concluded will be an ATR 72 converted to run on hydrogen.

At present, the company has a healthy

order book, totalling 247 aircraft conversions from 16 customers worldwide. It also has a total of US\$1 billion in conversions and US\$2 billion in fuel services.

Paul Eremenko, co-founder and CEO of Universal Hydrogen, said: "Our business model resolves the chicken-and-egg problem between hydrogen airplanes and hydrogen infrastructure by developing both in parallel and with a uniquely low-cost approach."

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Altea forecasts ‘strong year ahead’ for the global regional air transport industry

Altea’s January report, titled “Perspective on the Regional Aviation Market 2023”, featured insight from one of the company’s partners, Angus von Schoenberg.

Von Schoenberg reflected on the regional aviation market in 2022 and looked ahead to 2023.

In an exclusive interview with *LARA* in March, he elaborated on Altea’s perspective, discussing aircraft values, trading demand, regional aviation financing and competition within the regional aviation space.

Von Schoenberg said: “Despite negative economic headlines, early indicators signal a strong year ahead for

the global air transport industry.” He added that this was also positive for the regional aviation sector “as much of it feeds the wider industry”.

The report also explored Altea’s perspective on numerous industry-wide issues, including reaching net zero by 2050, the development of sustainable technologies and duopoly in the regional aviation market.

Here, Schoenberg acknowledged how regional aviation acts as the test bed for several new start-up technologies, giving rise to new “competitive forces” within the electric and hydrogen space.

He said: “As Altea’s commercial aviation expertise lies predominantly in regional

aircraft, we are continually confronted by new technology developments to an extent that broader service providers to the larger commercial airliner industry are not.

“Altea’s regional aircraft background means that we are acutely conscious of the risks associated with multiple manufacturers offering different solutions.

“Indeed, it is likely that not all the new start-ups will survive in their current form, either because some may merge, while others may ultimately fail.”

To read the rest of von Schoenberg’s comments on Altea’s regional aviation market report, visit www.laranews.net.

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Steady growth: Porter Airlines' CEO Michael Deluce says traffic and revenue are now back above pre-pandemic levels.
Photo: Porter Airlines

A class of its own

With a new fleet being delivered and a continued mission to improve the standard of economy travel for all its passengers, Porter Airlines is set to shake up the Canadian airline industry. Lucy Powell reports.

Porter Airlines is a bold Canadian carrier with big plans. Founded in 2006, the airline sought to revolutionise short-haul flying with its fleet of De Havilland Canada Dash 8-400s, offering a reliable, convenient regional travel experience to its passengers.

Headquartered in Toronto, Porter is the only airline with hubs at both of the city's airports, and also has another hub at Ottawa Macdonald-Cartier International Airport. It also flies from Halifax, and Montréal-Trudeau Airport.

From Toronto, the airline attracts a healthy mix of business and leisure travellers and operates an extensive flight

“The Montreal Saint-Hubert hub will really provide a significant market shift and is something that is pretty exciting for the Canadian industry.”

**Michael Deluce, Chief Executive Officer,
Porter Airlines**

network throughout North America, with more soon-to-be-announced leisure destinations on the horizon.

“We’re off to a good start,” says Michael Deluce, Porter Airlines’ Chief Executive Officer. “We’ve had steady growth and we’re now above pre-pandemic levels as far as traffic and revenue are concerned.”

Porter’s first established Toronto hub, Billy Bishop Toronto City Airport, is a smaller urban airport where the airline operates its Dash 8-400 turboprop fleet, flying to key regional business destinations across Canada.

The second base is Toronto Pearson International Airport, where it is currently launching the majority of its new leisure routes, operated by its newly acquired Embraer E195-E2 jets.

From Ottawa, Porter has routes to destinations including New York and





Recruitment drive: Porter Airlines is looking to add to its current workforce of around 2,500 team members.
Photo: Porter Airlines

Boston, via Billy Bishop airport, which are flown by its Dash 8-400 fleet.

Most exciting, however, is the recent announcement that came at the end of February that Porter will be expanding yet again – this time to a second Montréal airport, Montréal Saint-Hubert, where it will develop and open a new terminal and hub.

On this latest development, Deluce is incredibly upbeat.

“It’s a game changer,” he says. “This will really provide a significant market shift and is something that is pretty exciting for the Canadian industry.”

Whilst Porter will still continue to grow its existing operations out of Montréal-Trudeau Airport, this new passenger terminal will serve as a complementary secondary base.

More than 10 potential routes across Canada have already been identified, including connections to its Toronto hubs, which will be operated by a mix of its Dash 8-400s and Embraer E195-E2s.

The terminal is anticipated to be capable of serving over four million passengers annually, and construction is due to start in mid-2023, with an estimated completion date of late 2024.

Just as it revitalised its Billy Bishop City Airport nearly 17 years ago, Porter is hoping to work its magic again in Montréal with Saint-Hubert.

“We’ve done ground transportation studies demonstrating that Saint-Hubert is a convenient location for a significant portion of the local market,” says Deluce. “This is an opportunity to enhance transportation infrastructure for the region and create substantial economic growth.”

Of course, with great growth plans quickly comes the need for people. The new airport announcement alone is expected to create over 500 permanent jobs, while hiring for the airline has increased tenfold due to its new aircraft and route announcements.

Today the airline has around 2,500 team members – almost double the amount it had pre-COVID – and that number is


“We’ve had steady growth and we’re now above pre-pandemic levels as far as traffic and revenue are concerned.”

expected to grow rapidly over the next several months.

Deluce says: “A broad number [of people we’re aiming to hire] is 100 to 200 per month. We have a lot of hiring happening right now. Not just on the pilot side but the in-flight side, maintenance, and customer service call centres. That’s the pace of hiring we’re going to have over the next 18 months.”

FORWARD-THINKING FLEET

With this time frame in mind, the airline is certainly not looking to rest on its laurels, particularly given the current pace of its Embraer E195-E2 deliveries – a big event that is taking up most of the airline’s attention this year.

The initial order was placed back in July 2021 for 30 of the type, with purchase 

On the move: Porter Airlines is preparing to develop a new hub at Montréal Saint-Hubert Airport.



“This is an opportunity to enhance transportation infrastructure for the region and create substantial economic growth.”

rights for 50 more, effectively doubling the airline’s fleet and giving it the opportunity to expand its operations far beyond the Canadian border to US and international destinations.

An additional order for 20 more E195-E2s was made at the Farnborough International Airshow in 2022, bringing the total firm order up to 50.

At the time of going to press, Porter has eight of the type already delivered and will increase this to 30 in 2023 and reach its total of 50 by 2024.

In February, the airline started putting its Embraer jets into service, launching domestic routes from Toronto to Ottawa, Montréal, Calgary, Vancouver and Edmonton.

More routes are expected to be announced in the following months. Starting in March, Porter will fly from Ottawa and go to New York, Boston, and Thunder Bay, complementing the airlines’ expansion in the region for its E2s. Another route to Charlottetown will commence in May. All will be served by the Dash 8-400s.

As for whether or not the airline will have a preference for business or leisure routes with these new jets now in service, Deluce is clear.

“It’s a mix of both,” he says, “with some of the routes being amongst the largest in Canada and in the US. We’ll also be focused on Mexico and Caribbean destinations, which we’ll see eventually start to filter into our network.”

Although he does not indicate which would be the first out of a list of possible destinations that includes San Francisco,

Short haul: Porter Airlines is looking to add to its roster of Dash 8-400s to meet rising demand.
Photo: Porter Airlines



Dallas, and Orlando, he affirms that at the current time the airline’s initial focus is domestic.

Porter Airlines is also looking to supplement the number of its Dash 8-400s as passenger demand increases and the airline grows.

All 29 of the airline’s turboprop fleet survived the pandemic and are in operation, but there is potential to add to it as the airline continues to feed traffic into its hubs, particularly when its Saint-Hubert terminal is constructed next year.

Deluce says: “Our ‘two year focus’ is getting our 50 E2s to deployment and supplementing our Dash-8 fleet. Beyond that we have 50 additional purchase rights on the E2s that we’ll eventually look to exercise to bring our fleet up to 100. We have a full plate!”

A NEW TYPE OF ECONOMY

Speaking of full plates, as part of Porter’s efforts to operate its Embraer jets, the airline is working hard to “elevate the air travel passenger experience” with its segmented offering on board its E195-E2s and updated offering for its Dash 8-400s.

Whilst there has been a recent flurry of

low-fare carriers (LFCs) cropping up as competition in the Canadian airline industry over the last few years, including the likes of Canada Jetlines and Flair Airlines, for Porter it’s the quality of its product that sets it apart from the LFCs.

“None of these carriers are working to improve the overall economy experience,” says Deluce.

“Ninety per cent of passengers travel in economy, and for the last 16 years Porter has developed a very unique and widely recognised product.

“Whilst at its core it is an economy product, passengers don’t associate Porter’s higher levels of service with this. We’re certainly not an LFC. We’re really focused on elevating the economy experience for all travellers as we roll out our network.”

The airline is not only focusing intently on daily customer feedback with the new rollout of its E195-E2s, but is also looking to attract a wider customer base to add to its already considerable base in eastern Canada.

“The E2 is really allowing us to expand our existing offering across Canada and the US,” says Deluce. “We’re both selling to existing passengers and to new passengers that didn’t necessarily operate or fly on the route

set. We were previously limited based on our original fleet.”

So how would Deluce define the regional airline now, given this route and fleet expansion?

“I would consider Porter to be in a category of its own when it comes to economy,” he says. “Our product is unlike anything else available in North America.”

As part of its updated in-flight service, PorterClassic – which offers complimentary beer and wine served in glassware and premium snacks – will continue on flights across the airline’s Embraer E195-E2 and Dash 8-400 fleet.

However, a new and all-inclusive economy experience, PorterReserve, has been added to this new E195-E2 rollout, which offers a new menu of healthy food with additional vegan, vegetarian and gluten-free options.

Fast and free streaming Wi-Fi services will also be available on board for all passengers.

“We really focused on passengers with all the elements of our economy product,” says Deluce. “We think it’s a unique all-inclusive product.”

Porter also claims to be the only carrier in North America that has no middle seats on its Embraer E195-E2 jets, a decision that Deluce says has so far “resonated incredibly well with passengers”.

While the E195-E2 jets will fly in a 132-seat all-economy configuration, with a minimum 30-inch seat pitch, there is still room for variation.

Twenty PorterStretch seats will have a 34-inch pitch, and PorterReserve seats – the first four rows at the front – will offer up to 36-inch seat pitch and an improved meal service – similar to a premium economy offering.

GREEN CREDENTIALS

When considering the sustainability question behind such an expansion, Porter – along with many other airlines – is focusing on its aircraft type when managing its carbon footprint.

“Ninety per cent of passengers travel in economy, and for the last 16 years Porter has developed a very unique and widely recognised product.”

Not only has the airline made significant investments in improving its sustainability credentials with its new Embraer jets, but also in the packaging served aboard its aircraft.

Deluce says: “Porter operates the two lowest emission aircraft in each of their categories. The E2 in particular is the lowest carbon footprint narrowbody aircraft available on the market. So for the next 10 to 15 years we will position our equipment type [to align with lowering our carbon footprint].

“We’ve greatly reduced any use of single use plastics on board, and there’s been a heavy focus on sustainable packaging.”

This approach carries over into Porter’s ground operations, where the airline has made an investment in electric ground

equipment at Billy Bishop Toronto City Airport.

“Anything that is really operating on the ground has been an investment in electric, and that is something that is continuing to be a focus as more robust opportunities evolve across our network,” Deluce says.

This will eventually include the aforementioned terminal at Saint-Hubert, which will be a fully electric facility connected to the Quebec electric grid, which is powered entirely by hydroelectricity and wind energy sources.

“We’re positioned very well relative to all competitors today from a carbon footprint point of view,” says Deluce, “and that’s something we’ll continue to focus on going forward.” ■

High standards: Porter Airlines says it is focused on elevating the economy experience for all travellers.
Photo: Porter Airlines



Proof of concept

In recent years, as hydrogen flight has shifted from pipe dream to possible, the hope for hydrogen-powered sub-regional and regional flight may well soon become a reality. Lucy Powell looks at the progress being made so far by start-ups in the industry.

As the all-important 2050 net zero target looms, the idyll of true zero-emission flight is one that beckons the aviation industry like low-hanging fruit over Tantalus. So close and yet so far.

At present, the aviation industry's OEMs, start-ups and funding bodies are pursuing two forms of potential hydrogen technology.

The first focuses on fuel cell technology powered by gaseous or liquid hydrogen, which works to convert the stored molecular energy into electricity – that is, a hydrogen-electric propulsion system.

The second focuses on hydrogen combustion in an adapted gas turbine engine.

It is against this backdrop that start-ups and OEMs are working hard to certify the former, hydrogen fuel cell powertrains, retrofitting these systems to aircraft for

eventual sub-regional and regional travel.

Joshua Ng, Director at Alton Aviation Consultancy, notes the importance of these foundational first steps, despite barriers.

He says: "It's a good thing that ambitious start-ups are looking to make progress in this area, but it's difficult to predict exactly when hydrogen-powered aircraft will achieve commercial scale or when corresponding regulations, standards and operating protocols will be introduced. This uncertainty is self-fulfilling, creating a wait-and-see mentality amongst industry players."

COMMERCIAL GOALS

Jenny Kavanagh, Chief Strategy Officer at Cranfield Aerospace Solutions (CAeS), agrees. A member of Project NAPKIN (New Aviation, Propulsion, Knowledge and Innovation Network), this UK consortium

set out to establish a blueprint for the introduction of low or zero emission aircraft into regional spaces.

In its 2022 published report, it theorised that by the end of the decade, retrofit sub-regional aircraft of seven to 19 seats could be commercially viable, which included CAeS' very own Project Fresson – the conversion of a Britten Norman BN-2 Islander to clean power, using hydrogen fuel-cell technology.

"I think the report sends a very positive message," says Kavanagh. "But it also underlines the importance of certain economic factors that will enable an emissions-free domestic aviation future."

Yet there are still benefits to starting small, she notes.

"Introducing this technology first on a small scale will knock down those first barriers to using hydrogen in an aviation environment. This includes the certification rules and standards for the aircraft technology itself, the rules and standards required to operate and maintain hydrogen aircraft, as well as to handle hydrogen in an airport environment."

However, while retrofits will "only get you so far", Kavanagh admits they are a 'vital first step' for the industry on its green hydrogen journey - paving the way for larger technologies and clean sheet aircraft in the years to come.

So what is progress for these retrofit regional aircraft looking like so far?

Lightness of being: ZeroAvia wants to make its motor, inverter and fuel cell system designs as efficient as possible.





Bigger and better: hydrogen aircraft will use liquid fuel to improve scale and range once the technology becomes certified.

Photo: H2FLY

BREAKING FREE

In January, ZeroAvia's 19-seater gaseous hydrogen-electric fuel cell powered plane – a Dornier 228 (D228) – soared for 10 minutes at its Cotswold airport base in Gloucestershire.

Since then, the company has been busy getting its flight-testing programme under way, aiming for certification of its ZA600 (600 kW) powertrain by 2025.

Thus far, its journey toward certification and relationship with the UK Civil Aviation Authority (CAA) has been a fruitful one.

James McMicking, ZeroAvia's VP Strategy, says: "This is the first type [of this technology] these authorities have ever seen. But the progress we've already made and the journey we've been on with the UK CAA with our two testbed aircraft [Piper Malibu and the D228] has been a really important part of the process for us to learn more about these systems. It's educational in two directions, which has helped to accelerate these timescales [to 2025]."

The rigour of the CAA certification process, now well under way, has served as a boost rather than a limitation.

"We feel like we've got ahead of the game a bit – generating data the CAA needs for certification and getting the company ready for this first engine type that we want to actually produce," McMicking adds.

It is set to choose between the Dornier 228, Textron's Cessna Caravan or De Havilland's Twin Otter as its launch airframe later this year.


Stuttgart-based hydrogen fuel cell developer, H2FLY, is also going full throttle towards achieving certification and commercial flight.

With at least a decade of research into hydrogen fuel cells already under its belt, the company enjoyed a successful test demonstration of its pressurised gaseous hydrogen-powered Pipistrel Taurus G4 glider, HY4, back in 2016, and in 2022 flew a 77-mile journey between Stuttgart and Friedrichshafen.

CEO and co-founder, Professor Doctor Josef Kallo, says its experience has only helped to push the start-up closer to certification of its eventual CS25 aircraft, a Dornier 328, which it is working on in partnership with manufacturer Deutsche Aircraft.

The company is aiming for a technical test flight by 2025, and commercial flights by 2028.

He says: "We started in 2015 with our first four-seater, HY4. But having test campaigns over the last six years meant that we understood which component and which technology breakthroughs we needed to develop to be fast and first to deploy this powertrain – a very good starting point for the 328 hydrogen fuel cell."

In November, H2FLY formally started work to integrate a liquid hydrogen storage 



system tank on to its HY4 aircraft, which is currently undergoing testing at its base in France.

Yet many more milestones are still to come throughout 2023. At the time of writing, the liquid hydrogen storage system is set to be coupled with the fuel cell of the testbed aircraft by March. The company then hopes to have the ground testing of its demonstrator aircraft finished by the end of May so that it can commence flight testing in the HY4.

“What we can say now is that between June and September this year we will begin the liquid hydrogen storage system flights,” confirms Kallo.

LIQUID VS GAS

Both H2FLY and ZeroAvia have flown demonstrators with pressurised gaseous hydrogen. However, the eventual goal is that the hydrogen aircraft will use liquid to improve scale and range once the technology becomes certified, as the industry progresses to bigger aircraft.

Both companies are looking to solve the challenges that working with liquid

“Introducing this technology first on a small scale will knock down those first barriers to using hydrogen in an aviation environment.”

**Jenny Kavanagh, Chief Strategy Officer,
Cranfield Aerospace Solutions**

hydrogen might produce – H2FLY for its 1.5 MW hydrogen power system and ZeroAvia for its ZA2000 2-5 MW powertrain, which is being worked on in tandem with the ZA600.

“The gaseous hydrogen buys us some time, and it buys the sector experience from introducing hydrogen as a concept,” says McMicking.

“When it comes to liquid hydrogen, which you have to use for bigger aircraft, we have

more learning to do, more standards and systems to develop.

“Gaseous hydrogen tanks are heavy and they are limited in capacity, so if you really wanted to extend the performance of those products then making the switch to liquid hydrogen makes sense, but only if it suits the type.

“For smaller aircraft, like the D228, you only need small volumes.”

Kallo agrees: “For aviation, the main goal is to understand how to use the hydrogen first, but also how to improve the range. And we think [at HY2FLY] that liquid hydrogen storage system is the way to go.”

Storage of hydrogen is a focus point. Gaseous hydrogen is stored in heavy tanks with limited capacity, whilst liquid hydrogen – with its increased energy density – means that special cryogenic tanks have to be created in order to insulate it from the warm, ambient air.

This being so, the design of powertrains is particularly important when it comes to making this hydrogen retrofit as efficient as possible.

HY2FLY is working alongside cryogenic tank designer Air Liquide Technologies, to combat this, whilst it supplies the fuel cell system. In February, it successfully passed vibration and liquid hydrogen leakage tests, which Kallo said was vital to “kickstart the mechanical integration process” in the HY4.

For ZeroAvia, the learning and development around liquid hydrogen is being done in tandem with its gaseous hydrogen fuel cell development.

McMicking explains how ZeroAvia is working towards being as efficient as possible.

“We have our own motor designs, inverter designs, fuel cell system designs,” he says. “That’s really important when it comes to designing an engine that’s as light as possible. Because every kilo you leave in there, or extra element of drag, is going to cost your customer in terms of payload and speed.”

There is also heat ejection to consider as the powertrain technology scales up from

Milestones: H2FLY has a busy schedule of flight testing planned for the remainder of 2023.



gaseous to liquid hydrogen as it works to power bigger engines.

“We want to get a much higher power density, because it becomes more important to squeeze power out of a massive engine,” says McMicking.

“As you increase power through the fuel cell, you have more heat to reject. We can operate our fuel cells up to 200 degrees Celsius, so you increase the temperature difference to the outside air.

“Therefore it’s much easier to reject heat, and that’s the only way you practically move up to multiple megawatt type engine applications.”

COST ADVANTAGE

ZeroAvia recently enjoyed a breakthrough whilst testing the high-temperature proton exchange membrane (HTPEM) systems within its fuel cell design, which means they can be used for larger aircraft in the future – including its ZA2000 powertrain which will power larger turboprops, like the De Havilland Dash 8-400.

For the type used in its 600 kW powertrain and tested on the Dornier 228, its low-temperature PEM fuel cells will still be used.

Another factor to consider is the maintenance that might be needed on these new technologies when compared to conventional turbine or jet fuel engines.

H2FLY’s Kallo says: “What’s really important is the behaviour and start up and shutdown of the aircraft. The response of components when they degrade – so we see if it needs maintenance.

“The main goal is to understand how to use the hydrogen first, but also how to improve the range. And we think that liquid hydrogen storage system is the way to go.”

**Professor Doctor Josef Kallo,
CEO and co-founder, H2FLY**



“Saying you can fly up to 1,500 km in range is great, but what’s more important is the detailed work we undertake to understand the system so we can redesign and improve it.”

McMicking notes some of the maintenance benefits that using gaseous hydrogen powered fuel cell will bring to operators.

He says: “There’s very little mechanical stress inside a fuel cell, one of the things that makes it reliable compared to a turbine. The whole system is going to require much less maintenance which is going to present a cost advantage to the operator.”

A QUESTION OF INFRASTRUCTURE

Flight testing is one factor, but infrastructure for handling and refuelling is one of the larger elephants in the room

when it comes to questioning just how quickly and far regional hydrogen propelled flight can truly progress.

But this isn’t deterring either company from its development.

“I don’t think lack of infrastructure is a block to development,” says Kallo. “I think it’ll take around two years and then we will have dedicated infrastructure.

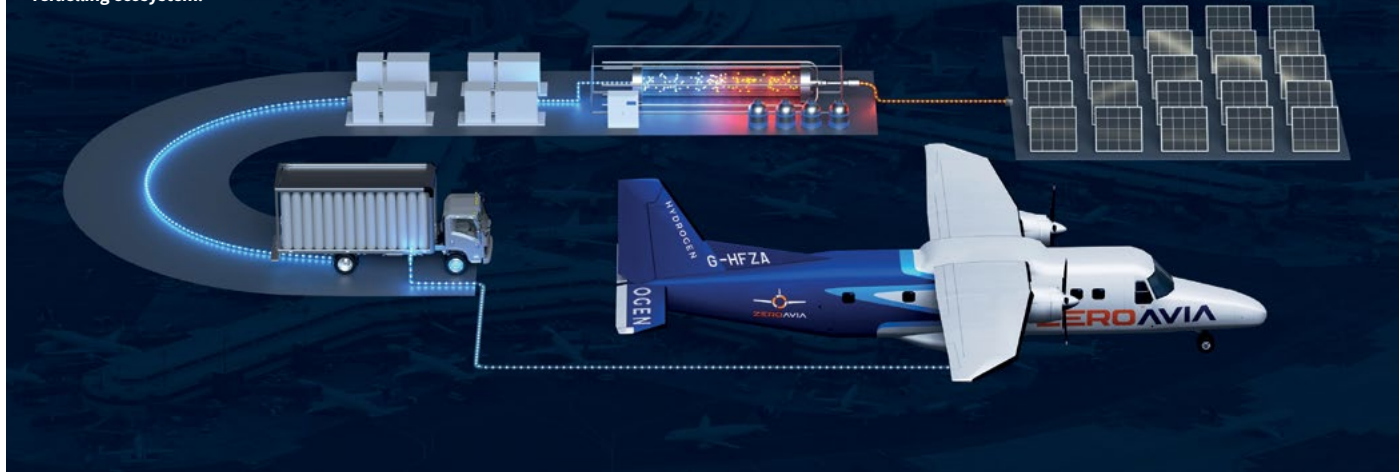
“I call it equilibrium priority setting, because without the infrastructure we cannot do the development, and this has to be as fast as possible.

“So yes, we are fighting on two fronts between infrastructure and development right now, but I think in two years we will be able to completely focus on developing our CS25 powertrain.”

H2FLY, in partnership with Stuttgart Airport, is set to develop and build an



Blueprint: an example of ZeroAvia's hydrogen airport refuelling ecosystem.



aviation centre to support hydrogen electric propulsion testing, with the hope that it will become a hub for research and development for hydrogen aircraft. The Hydrogen Aviation Centre is expected to open in late 2024.

"This should be a crystallisation point for all sustainable-related hydrogen activity," says Kallo. "It will look at the whole

ecosystem – the refuelling, the handling, using the hydrogen plane, ground operations at the airport, flight operations – so it's very important."

ZeroAvia's latest airport partnership is with Birmingham Airport, but it has others with Rotterdam Hague, AGS (Aberdeen, Glasgow and Southampton), and Edmonton in Canada, where it is working to help them

understand how to introduce hydrogen refuelling and explore the development of hydrogen fuel infrastructure.

The company is also developing and operating its own production facility – Hydrogen Airport Refuelling Ecosystem (HARE) – at its Cotswold Airport base in Gloucestershire, focusing on gaseous hydrogen via what it terms "mobile refuelling".

"We're experimenting with a number of ways to move it around and handle its production," says McMicking.

"It's end to end – so this is from electrolysis compression all the way to delivery to the aircraft, both using a pipeline, i.e. mobile refuelling. This is to prove out the operational concept of getting fuel to the aircraft.

"Thankfully, there's this huge repository of data and standards for which the aerospace industry can refer. And so we think that again helps with making that first step into hydrogen aviation."

Infrastructure, scale and maintenance challenges aside, it's clear that breakthroughs have been made by these start-ups.

Yet while there is still a way to go, there's little doubt that it will be within the sub-regional and regional aircraft crucible that the immediate future of hydrogen flight will be forged. ■

Bring it in: pilot Jon Killerby and ZeroAvia's VP Europe Sergey Kiselev celebrate the success of January's flight.



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airBaltic trainees' classroom learning is supported using a range of tools, including virtual tours of aircraft. Above left, the airline's A220 training simulator.

Setting new standards

With a spate of training academies and airlines offering training for cabin crew, Tim Guest takes a look at the importance of safety when training new recruits – and the industry's response to the recently updated EASA guidelines for cabin crew attestation.

There are many examples in the annals of aviation emergencies in which skilled cabin crew have made the life-or-death difference for travellers caught up in the nightmare reality of an air disaster, underlining the importance of effective cabin crew training.

In Europe, initial cabin crew training, whether delivered by an independent academy or a low-fare or regional airline, ensures their initial cabin crew training

follows EASA regulations (European Union Aviation Safety Agency).

This requires each cabin crew member to go through initial training and hold an attestation of that training – the EASA Cabin Crew Attestation (CCA) process.

Anyone intending to work as a cabin crew member in commercial air transport within a European country or member state of the EU must hold a valid CCA certificate of professional competency,

meaning their CCA must be compliant with the rules set out by the regulation (EU) No 1177/2011 and Regulation (EU) 2016/425.

At the end of last year, EASA introduced updates to its guidelines on the “conduct of initial training” in a 42-page document.

Published on 1 December, the document provided guidance on the implementation of new changes, with the aim of helping training providers and competent authorities to build their initial training offerings “on the same pillars” as previous guidelines.

The goal? To achieve “the intended harmonisation on the conduct of this training in the European Union”.

One of the issues the new guidelines intend to overcome is that of the duration of initial training. EU Aircrew Regulation 290/2012 was introduced to ensure the harmonisation ►►



Keeping it real: cabin crew training in safety and emergency procedures (SEP) makes use of doors, fire, smoke and slides.



of qualification requirements for cabin crew, but it did not set out any “minimum duration” for initial training courses.

As a result, a wide variation has been observed across the EU from various training establishments, with courses lasting anywhere from 50 to 168 hours.

This variation is something which could potentially negatively impact on the recognition of an applicant’s CCA when applying for a job and is a factor which the new EASA guidelines hope to eliminate so that any CCA is transferable and mutually recognised anywhere in Europe.

With an eye to the new EASA guidelines, as well as interest in other aspects of initial cabin crew training, *LARA* spoke with a handful of stakeholders for their qualified views.

GOING LIVE

At airBaltic, EASA guidelines were implemented in its cabin crew training long before they were published, with only small adjustments made.

Agris Kalejs, the airline’s Safety Training Standards Manager, says: “The EASA workgroup invited us – air operators and training organisations – to take part in the development process along with the industry authorities.

“As an air operator, we are combining the cabin crew attestation training with the first aircraft type and company conversion training.

“That gives us the opportunity to include real aircraft type training elements, virtual tours and aircraft visits, as well as regular, extraordinary and emergency operator procedures in the early stages of cabin crew training.”

He adds: “In my opinion, the guidelines were more aimed to approved cabin crew training organisations that do not have a fully equipped aviation training environment and real equipment, meaning they would need to adapt their training to generic procedures and equipment.”

Over on the training academy side, there

is a little more time needed to factor in the changes to these EASA guidelines. London Waterloo Academy (LWA) is one of these places providing initial cabin crew training and attestation among its many courses for air crew.

On this topic of EASA’s change in attestation guidelines, Anna Dalton, director at LWA, says the academy is “adjusting the updates and looking for new ways to deliver the training” and that the changes were due to “go live in July this year”.

However, despite this, she adds that these changes have not affected the way in which current training is carried out. “Safety is our number one priority, and this is evident in the way we conduct our training.”

SAFE AND SECURE

For airBaltic, the airline places considerable emphasis on the teaching of safety and emergency drills in its cabin crew training, such as water escape, fire escape, smoke-related emergencies and





Gearing up: London Waterloo Academy provides initial cabin crew training and attestation, including in SEP. Photo: LWA

first aid, Kalejs says.

“AirBaltic Training has an in-house fire trainer with nine different smoke scenarios, a cabin mock-up with a slide attached, a A220 door trainer with a virtual slide and different malfunctions, as well as a B-737 door trainer. All this is augmented with a large selection of real emergency and safety equipment that is adapted to training needs.”

Theoretical training in classrooms is also supported, with airBaltic’s Learning Engine (ABLE) that includes videos, virtual tours of aircraft computer-based presentations, different reading materials and quizzes to check trainees’ progress.

Each theoretical training module is completed with practical drills and simulations of extraordinary, or emergency scenarios covered in the classroom.

“Ditching drills for our cabin crew and flight crew are conducted in a swimming pool with artificial waves, rain showers and sound simulations,” says Kalejs.

“We use real-life jackets, a generic raft and

a helicopter line for lifting casualties out from water. The first-aid theoretical training is augmented with practical drills, including recovery position training, CPR and defibrillator practice.

“Practical use of supplemental oxygen equipment and use of airBaltic first-aid kit equipment is also a part of the first-aid training.”

THEORY AND PRACTICE

LWA’s Dalton adds to this, outlining how the academy undertakes its own cabin crew training.

She says: “We teach candidates a wide range of modules, including providing first aid and dealing with emergencies, such as safety procedures and emergency response. Apart from theory lessons, we have an external day with one of the airlines for practical Safety and Emergency Procedures (SEP) training to ensure that each trainee has a better understanding and practical experience of a real

Going the distance

As well as training at academies, cabin crew can also work towards their attestation via distance learning.

As of February this year, distance learning technology provider CPaT introduced its Cabin Crew Training Suite, offering premium, dependable distance learning solutions for airlines wishing to train their cabin crews with more efficiency while reducing costs.

“CPaT researched the needs of the cabin crew training community and determined that our platform could provide significant benefits and contribute to the quality of cabin crew training in the airline industry,” says Greg Darrow, CPaT’s Vice President of Sales.

The training suite consists of three main components: Aircraft Systems for Cabin Crew; Cabin Crew Safety Courses and General Subjects; as well as Interactive 3D Cabin Trainers.

The suite also includes Invent, CPaT’s content-authoring software, which enables airlines to tailor their training programmes to individual aircraft.

“Airlines are able to customise the emergency equipment, specific features, furnishings and accessories that the students will need to train on and have the ability to leverage CPaT’s robust aviation asset library to do so as well as upload their own imagery and reference material,” says Darrow.

In addition to minimising costs, CPaT’s distance training software enables airline crew training flexibility, convenience, improved training outcomes and increased accessibility, offering a training experience akin to virtual reality without the need for any VR equipment.

Currently available for Boeing B737 NG, Boeing 737 MAX, Airbus A320ceo and Airbus A320neo aircraft, CPaT expects to add more aircraft to its Cabin Crew Training Suite in 2023 and 2024.

Elena Lodge

environment, this includes doors, fire, smoke, slides and so on. We cover all subject materials required by current aviation industry regulations, both in the UK and Europe.”

Finally, both Kalejs and Dalton confirm that they do not have any age restrictions

for their cabin crew trainees. “We recruit candidates from 18-plus up to 50 age group, who are successful during recruitment, as many passengers feel safe when they see mature flight attendants,” says Dalton. “We are committed to ensuring that all of our cabin crew graduates are well prepared and

equipped with the skills necessary to join the airline industry.”

Kalejs agrees, saying: “If they are able to go through the HR selection process, pass medical examinations and complete all mandatory training and checks, all are welcome to join airBaltic.” ■



As old as you fly

EasyJet’s “Empty nesters” recruitment campaign recently set out to encourage adults over the age of 45 to join the airline as cabin crew.

The airline’s own research of 2,000 British adults found 78% of parents aged 45 and over want to take on a new challenge once their children fly the nest.

Since 2018, the airline has already seen a 27% increase in cabin crew over the age of 45, including a 30% increase in those over 60 in 2022.

Talking to *LARA* about the campaign, an easyJet spokesperson said: “This campaign

was about challenging stereotypes about the job and showing that being cabin crew can be a job for anyone with the right skills, no matter what their age.

“A growth of this age demographic within our crew community is a trend we had been seeing for some time and so we wanted to tap into this and encourage more talented people looking for a career change later in life.”

The spokesperson added: “With part-time as well as full-time opportunities, it also means easyJet is also able to offer a job with flexibility that we know lots of people might

not think this job could offer, so we want to raise awareness of this too. And the response has been fantastic. Days after the campaign went live we saw an increase in daily applications of more than 75% and visits to our careers website almost tripled.”

EasyJet’s spokesperson offered a final word on crew training and EASA CCA guidelines, saying: “In regards to crew training, safety is easyJet’s highest priority. We adhere to all relevant regulations, work closely with all of our regulators on the latest guidance and we are following this updated guidance.”

EasyJet’s ‘Empty nesters’ recruitment campaign recently set out to encourage adults over the age of 45 to join the airline as cabin crew. Photo: easyJet



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The young ones

Robust demand: AAR has around 3,000 direct and indirect technician roles worldwide.



The global aviation industry is facing major shortfalls in maintenance personnel as workers retire and leave the industry. Emma Kelly looks at what needs to be done to attract and retain the next generation of aerospace mechanics.

As airline operations around the world return to pre-pandemic levels, the maintenance, repair and overhaul (MRO) demand is correspondingly increasing.

The global operational fleet is now at 98% of where it was in January 2020, with 27,400 aircraft in operation, according to the Global Fleet and MRO Market Forecast 2023-2033 published in late February by global management consulting firm Oliver Wyman.

By 2033, the worldwide commercial fleet is expected to expand by 33% to more than 36,000 aircraft – with a compound annual growth rate of 2.9%.

In order to keep this fleet flying, the global MRO sector is expected to grow another 22% this year, following an 18% growth in 2022, with MRO spending predicted to be US\$125 billion by 2023, according to Oliver Wyman.

This is all very positive for the MRO industry, but there is a major obstacle in the way, and one that the MRO sector is not alone in facing – a labour shortage.

“While aviation is most assuredly on a growth trajectory after a devastating two years of losses, it’s currently carrying a lot of baggage that can’t be easily checked,” the report says.

It also highlights the “tight labour market” facing all regions and all aspects of aviation.

Oliver Wyman says the issue is primarily a North American problem, but other regions will “feel the squeeze” when the fleet and demand surpass previous peaks.

In North America, aircraft mechanic supply is “on the cusp of a shortage that will manifest itself this year once the sector recovers beyond 2019 levels”, the report says, adding: “In 2023, we expect to see a shortfall of more than 12,000 – or 14% of



the total mechanic workforce in North America. And the problem of too few mechanics will plague MRO through 2033. The peak of this regional shortfall is projected for 2027 when the gap could extend beyond 40,000 mechanics.”

The global aviation maintenance industry was facing a shortage of certified mechanics before COVID-19. But the pandemic made the situation a whole lot worse, resulting in early retirements and people leaving the industry.

In its Not Enough Aviation Mechanics Report, which focuses on North America, Oliver Wyman says the shortage will “threaten aviation’s ability to grow profitably if it remains unaddressed”, with the situation affecting everyone from the smallest MRO to the largest airline, but with independent MROs and regional airlines likely to feel the effects the most.

LEADING THE CHARGE

MROs on the front line appreciate the extent of the looming crisis and are addressing it.

AAR has approximately 3,000 direct and indirect technician roles worldwide, the vast majority in the US.

“Like the rest of the industry, we face challenges with this talent shortage,” says Ryan Goertzen, Vice President, Aviation Workforce Development.

In 2018, AAR established the Eagle Career Pathway Program, initially with Western Michigan University, to help grow the aviation technician pipeline for the future – a move that has already proven beneficial. The programme has expanded to eight schools across the US.

“We continue to identify innovative approaches to attracting more students to aviation careers, such as creating aviation sheet metal programmes to expedite the process of beginning a career and launching our AAR Fellowship Program to offer tuition support and hands-on experience,” says Goertzen.

AAR also works closely with the non-profit organisation Choose Aerospace, which offers a high school aviation curriculum

based on FAA certification standards, with 200 students enrolled in the curriculum across 14 schools.

AAR experiences “unique labour shortages” at all of its locations and modifies its approach accordingly, says Goertzen.

In Illinois, for example, AAR is working with the state authorities on a workforce grant programme to develop local talent. It is also working with Embry Riddle Aeronautical University to launch the first maintenance SkillBridge Program to attract exiting service members.

AAR also worked with the US Department of Labor to create a National Apprenticeship Program, which was approved in February 2021.

“Our first group of 25 that enrolled across AAR’s four US-based MROs graduated in January,” says Goertzen, adding that there are approximately 150 employees currently participating.

MOVING MARKETS

Lufthansa Technik (LHT), which employs more than 20,000 people worldwide, has had to be proactive and resourceful when it comes to filling its labour demands.

The personnel market has turned into an employee market, says Dr. Frank Bayer, VP of People at Lufthansa Technik Group, forcing it to use headhunters for some specialist areas.

LHT is also facing “an insanely long and arduous bureaucratic process” to bring people to Germany to work for them from other countries, says Bayer.

Following the pandemic, LHT’s apprentice training is returning to 2020 levels, with 186 apprentices and 23 dual students (school graduates who combine their degree courses with practical work) starting at LHT’s German locations in August 2022.



Above and top, Lufthansa Technik is fully committed to apprentice training.

For the start of training in August 2023, LHT is looking for approximately 250 apprentices and about 60 dual students, says Bayer.

The company has adopted some new ways to attract young people, including visual advertising in print, online and social media channels, on public transport and fast food restaurants under the slogan “We are Aviationers”.

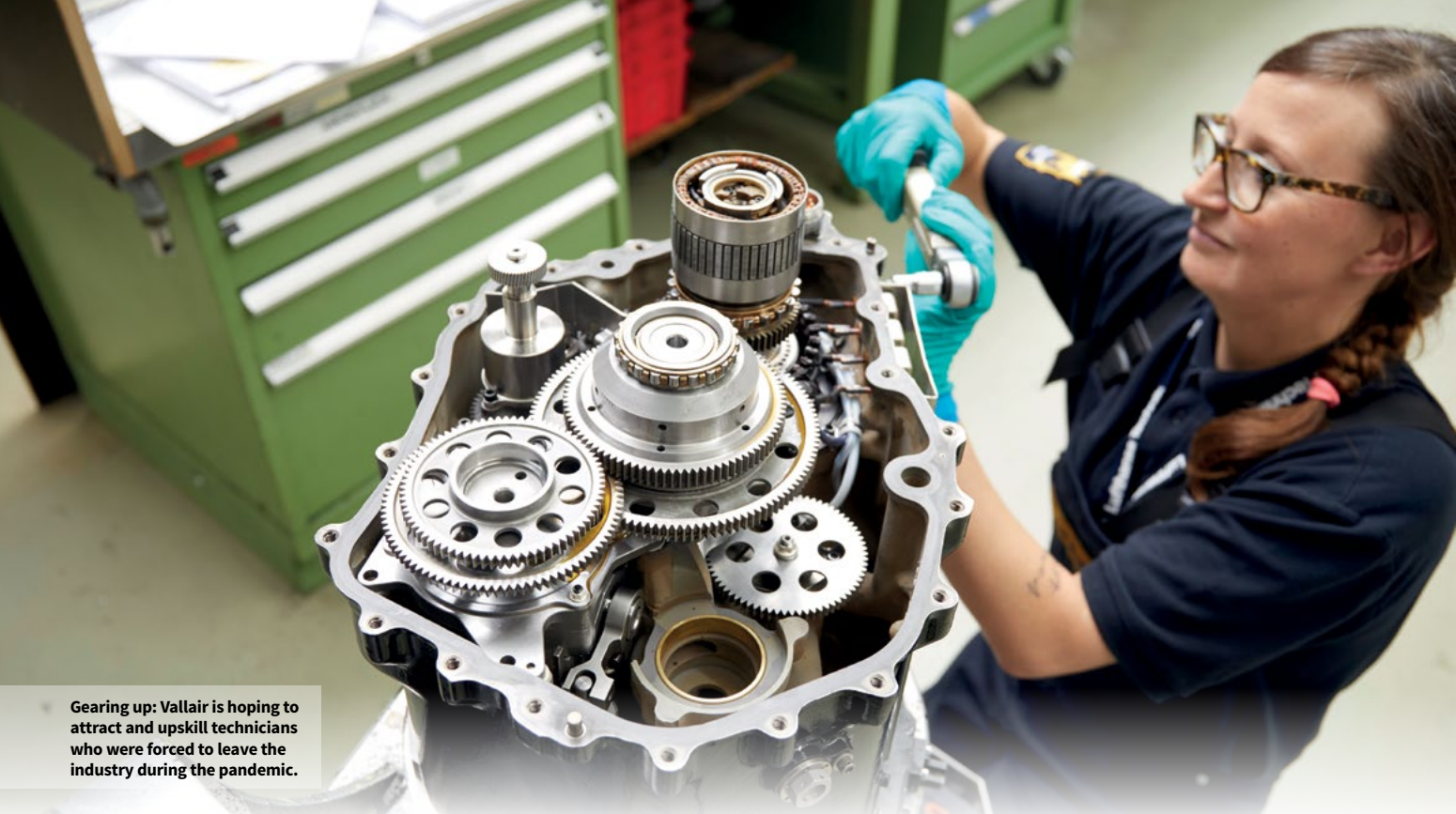
It has also established projects with schools and universities, offering internships, attending job and trade fairs, and inviting schools to visit its Hamburg base.

Partnerships also extend beyond the company’s bases in Germany to its international locations. In Singapore, for example, Lufthansa Technical Training has a long-running partnership with Temasek Polytechnic to provide aircraft technical training.

LHT has increased its training capacity, including opening a new engine training centre in Hamburg. This year alone, some 376 new employees will undergo training at the centre.

Trainees, who have already completed a technical or trade apprenticeship in another field, will be able to take on independent tasks in the workshops after just four to six months of training at





Gearing up: Vallair is hoping to attract and upskill technicians who were forced to leave the industry during the pandemic.

the centre, says Bayer, with trainees being courted from all walks of life.

He tells *LARA*: “Over the next five years, more than 1,000 new colleagues, who were originally trained for example as carpenters, automotive mechanics or dental technicians, will be qualified to repair the latest engine technologies.”

UPSKILLING THE INDUSTRY

Fellow European MRO Vallair faces the daily challenge of recruiting and retaining good people, says director Armel Jezequel. The French company currently employs 130 permanent technicians and mechanics at its narrowbody maintenance and paint facility in Montpellier and its Châteauroux widebody maintenance and conversion facility, supplementing with 15-30% extra personnel when needed.

Vallair seeks to attract talent at industry forums and events, as well as through school and college career programmes. “We have close relationships with schools and colleges in France and several long-term partnerships,” says Jezequel, with a focus on local recruitment drives.

Last year, Vallair invested in French training organisation Aircraft Academy, which provides online and classroom-based training for Airbus and Boeing aircraft engineers and mechanics, with plans to train 300 aircraft technicians over five years.

Jezequel says: “Since we invested in Aircraft Academy last year and opened up our new educational facility with on-site practical training in Châteauroux, we have broadened our network and plan to expand across Europe.”

Vallair is training mechanics, technicians, production strategists, engineering services managers and technical support personnel, with 70 people recruited last year and 80 positions available this year.

“Our plan is not only to train people for Vallair, but also build a centre of excellence that airlines and MROs can access,” says Jezequel.

Vallair is hoping to attract and upskill mechanics and technicians who were forced to leave the industry during the pandemic, with not all countries and companies able to offer income support schemes.

“These excellent people, who could be in their 40s or 50s or 60s, need to refresh their skills to re-enter the workforce and return to the industry,” says Jezequel.

Vallair and the Aviation Academy are providing opportunities to upskill, including courses to obtain type ratings for the Airbus A320neo and Boeing 737 MAX.

“We are also introducing a fast-track programme for mechanics wanting to switch from the A320 to A330, that will create a really interesting dual-skilled workforce,” Jezequel says.

PULLING TOGETHER

Collaboration is vital in order to address the crisis, MROs agree.

Industry needs to work with governments, education bodies and the local community to get results, says AAR’s Goertzen.

He points, for example, to AAR’s work with the State of Illinois to create a pipeline to its Rockford facility, which demonstrates what’s possible when “everyone is rowing in the same direction”.

He says: “We evolved from struggling to staff the facility, with 85 employees in 2018, to a staff of 350 in just 18 months. We achieved this through a multi-faceted approach that included the state government, local government, airport director, non-profit organisations and the local community college.”

A grant from the State of Illinois enabled AAR to fund mentors, as well as capital improvements for the college, including the purchase of a Bombardier CRJ-200 for use in technician training.

But Goertzen says more work is needed “to introduce this incredible six-figure career to students, parents, educators and counsellors”.

Vallair’s Jezequel agrees: “Parents, teachers, career advisers all have a role to play too – a vocational path is a great direction to take for young people.”

He adds: “We are suffering from the legacy

of a trend that was set in place around 25 years ago when manual labour was equated to low skills or poor education, thus socially inferior. We have to ensure the new generation understands, values and learns hands-on skills of a high calibre.”

LHT’s Bayer concurs that the industry is feeling the effect of the “academisation” trend whereby students focus on university.

“We need a new narrative giving children the confidence that professional success and a good salary go hand in hand with a completed apprenticeship and not just with a degree,” he says.

Finding out what members of Generation Z want from a job and providing the right environment is crucial.

“We undertake a variety of efforts to offer young people a great working environment,” says Bayer, who points to ways for them to connect through events and gaining feedback, at the same time allowing the MRO to gain new perspectives through reverse mentoring, keynote speeches on how Gen Z sees professional life, development paths and the work-life balance.

LHT also offers young talent the ability to explore the world through training at its overseas stations.

Aviation’s mission towards zero emissions, with new aircraft, technologies and fuels, should be attractive to the next generation, Vallair’s Jezequel believes.

“We have to build a whole new industry,” he says. “That’s exciting – young people care about the environment and they want to work in a field that offers equal and diverse opportunities and aviation offers that.

“Today’s 20- to 25-year-old maintenance people will work on new-generation aircraft and implement new technological advances. They will be able to do this all over the world with recognisable and transferable skills.

“If we can instil a passion for aviation, it is a career for life with fantastic opportunities and great rewards.” ■

A global issue

Far from being limited to one geographical area, the licenced aircraft maintenance engineer (LAME) shortage is global, reaching as far south as Australia.

The Regional Aviation Association of Australia (RAAA) says all aviation sectors are affected on a daily basis, with regional areas particularly badly hit, threatening local air services.

In its “Aircraft maintenance engineer shortage – crisis and opportunities” report, the RAAA says the LAME shortage is now at crisis point – and if it is not addressed immediately, the continuing airworthiness of the Australian aircraft fleet will be significantly compromised.

It notes that since 2014 there has been a rapid decline in the apprentice intake, following changes to apprenticeship training and the licensing pathway. Since 2016, an average of just 135 aircraft engineer licences have been issued, as opposed to an average of 297 in each of the 10 years prior.

Aircraft engineering provides an exciting,

challenging and rewarding lifelong career, says the report, particularly with the predicted growth in future aircraft types, the growth of uncrewed aircraft operations and advanced air mobility.

The report highlights seven areas of recommendations, calling for international LAME licences to be recognised and for aircraft engineering to be added to the Federal Priority Migration Skilled Occupation list.

In addition, education is required to support current and future LAMEs, with a lack of understanding around the current licensing pathway due to its complexity, despite its introduction 11 years ago.

Australia also needs to create a pathway for other experienced engineers, including ex-defence force personnel, while CASA needs to remove the challenges associated with the current Diploma in Aeroskills examinations.

The RAAA also calls for government incentives to employ aviation apprentices and the creation of a National Aviation Academy for apprentices.

Solutions: Australia’s RAAA says the shortage of licenced aircraft maintenance engineers has reached crisis point.





Stepping up: demand for training centres and flight simulators to fill them is growing.

Mumbai climbs

Gen24 Group recently acquired simulator manufacturer Avion. Lucy Powell went to find out more about how its simulator will work to enhance the Group's plans in India under new management.

The aviation industry in India is booming, and with it the demand for pilots and training centres.

With India close to adding well over 800 aircraft to the market in the coming years –

in part, thanks to the huge Air India order for 470 Airbus aircraft, as well as rapidly growing LFCs like Indigo – there is arguably no better time to train to become a pilot.

The pilot shortage means the Indian

market is forced to look elsewhere for foreign pilots at much higher costs, or Indian pilots are conducting training outside of India – something that has a negative impact for the country's National Civil Aviation Policy (NCAP), which is working to improve the quality and amount of training facilities needed to meet the demands of the industry.

It is in this growing market that Avion is stepping up to fill the gap. In February, it announced that it had been acquired by Gen24 Group – an Indian company set to capitalise on this demand for training centres and simulators.

“The demand-supply mismatch doesn't only exist for the availability of pilots, but also for modern training devices,” says Gen24 Group and Avion's CEO, Manoj Pandey.

“Avion has proved to be one of the industry's key players over the past years. Its



“The training industry will start looking beyond conventional training devices and will embrace modern technology that focuses on things like economy, sustainability and agility.”

Manoj Pandey, CEO, Gen24 Group and Avion

focus on sustainability and agility makes it ideal for handling the pilot training surge.”

Avion’s acquisition by Gen24 comes at a fortuitous moment. Not only is there increasing demand for simulators at training facilities, but its technology will complement Gen24’s expansion to provide quality flight training in India and worldwide.

At present, Gen24 is already coming up with an approved training organisation (ATO) in India to address these rising demands, and Avion – as a manufacturer of simulators – is on hand to further this vision.

With only 35 Indian civil aviation authority (DGCA) approved flight training organisations in the country, there is a vast untapped opportunity for training service providers and training simulators across the market.

“The acquisition will help us leverage Avion’s modern and innovative technology, which will support major airlines with high-end training for their pilots,” says Pandey.

“It is our opinion that the significant change that will happen as a result of this acquisition is that the training industry will start looking beyond conventional training devices and will embrace modern technology that focuses on things like economy, sustainability and agility.”



Dotted line: Gen24 Group recently acquired Avion Group and Avion Simulators. Top, members of the Avion team.

AHEAD OF THE GAME

Hot on the heels of the acquisition came the announcement of a bumper order for eight Avion A320 Full Flight Simulators, which are set to be delivered to upcoming Mumbai-based Flight Training Company, Gen24 Flybiz.

“The deal is a win-win for all the stakeholders,” says Pandey. “While Avion has fresh blood and a progressive road map ahead of it, Gen24 has in-house expertise and an impeccable partner in the form of Avion.”

The first two of the FFS devices are currently being readied for shipment, being due to arrive in time for the scheduled opening of the training centre in July.

Over the course of the next 18 months, all eight simulators are planned to be qualified and fully operational, with the company

going for both EASA approval and certification by the Indian DGCA.

“We’re ahead of the game,” says Wouter Hollenga, Avion’s Marketing and Sales Officer. “Being one of the first with a training centre like the one we’re planning in Mumbai, it’s a huge advantage. There’s not a training centre in Mumbai currently with an A320 FFS, so we’re filling a much-needed demand.”

Pandey says: “The acquisition by the Gen24 Group allows Avion to ramp up production and its R&D in line with the market’s development and demands.”

Avion is now due to undergo a major expansion. “We are currently recruiting for multiple positions,” confirms Pandey.

Moreover, the Avion R&D team is being increased not only to modernise the existing A320 product and develop new



Two views from the cockpit of Avion's A320 Full Flight Simulator, eight of which have been ordered by Gen24 Flybiz.

programmes, but to expand its training product support.

"Based on the expected global growth, we have entered the market at the right moment," says Pandey. "Today I can say that the number of simulators shall be commensurate with the industry's growth story."

MAX-IMUM EFFORT

With this expansion, Avion also has plans to develop Boeing 737 MAX simulators, the first of which will follow the A320 FFS and be delivered to India in approximately one to two years' time.

"The philosophy of Avion, to build sustainable and affordable simulators that

can fit anywhere into the world, fits perfectly into the narrowbody aircraft industry," says Pandey.

The A320neo and the 737 MAX are currently the two most popular narrowbody aircraft from the two OEMs, and Avion naturally wanted to capitalise on the success of its A320 simulator. The 737 MAX proved to be the most obvious second product.

"Both these aircraft types are used by many low-fare and regional airlines that benefit from having a FFS at their home base," Pandey says. He references the Air India order where 75% of the aircraft orders placed are either 737 MAX or A320s.

That doesn't mean that development for other aircraft types is off the table in the

"Today I can say that the number of simulators shall be commensurate with the industry's growth story."

Manoj Pandey, CEO, Gen24 and Avion

future. Gen24 and Avion are keeping tabs on the developments with fleet expansion and simulator requirements.

SUSTAINABILITY AND AGILITY

Sustainability within the industry is also of major concern to companies like Gen24 Group and Avion.

The Avion A320 FFS uses up to 70% less energy than standard simulators and is constructed using aluminium frames, making it the lightest FFS in the world at only seven and a half tonnes. It will also make it the most sustainable one in India to date.

"The main advantage of our simulator is that you can implement it in a hangar anywhere in the world," says Hollenga, explaining the sustainable design of the A320 FFS.

"Normally you would see big hoses for air conditioning, separate rooms for servers. In our simulators, everything is integrated into the design."

A note which Pandey agrees with, particularly from a design perspective.

"Sustainability and agility have always been core to Avion's identity," he says. "Besides staying up to date with the OEM's data packages, Avion's research and development programme concentrates on continuously improving the device's ability to be ahead of these movements."

Movements, like sustainability or growing pilot demand, that Gen24 Group and newly acquired Avion are getting well ahead of the curve to take advantage of – with India its next, and ultimately biggest, training and simulation target. ■



Switched on: BAA Training has integrated VR as part of a move away from paper-based training. Photo: BAA

More than science fiction

The certification of VR in pilot training may well be a long way off when it comes to fixed wing flight. But as cadets return to the flight schools, and training centres look to include newer technologies in their training regimen, what benefits can VR training offer the next generation of pilots? Lucy Powell investigates.

Whilst the time for mass utilisation of Virtual Reality (VR) in pilot training may not yet be fully upon all training academies and airlines, there have been some studied successes and contracts signed by notable airlines over the past couple of years.

Most notably, a study by Embry-Riddle Aeronautical University students at the end of 2021 documented how 58 students reduced their solo flight time by 30% thanks to its PILOT (pre-flight immersion laboratory) programme. But the benefits of using VR as part of pilot cadet training

remains a barely explored landscape.

Despite headway being made with rotorcraft by EASA, when it comes to fixed wing there are at present very few formal rules and no certifications about VR technology within pilot training.

The closest regulatory nod came in the wake of the pandemic when EASA published its updated guidelines on allowing virtual classroom instruction as a substitute (or complement) for face-to-face learning.

But beyond the mixed bag of immersive technologies – in which VR is included, alongside augmented reality and mixed reality – with the mass return to pilot academies by cadets, where does that leave VR in the pilot training space?

Whilst VR integration in cabin crew training and maintenance training has picked up steam, when it comes to pilot training VR technologies pale in comparison to the Full Flight Simulators (FFS), Flight Training Devices (FTD) and flat panel trainers on a cadet's journey to the cockpit.

However, despite the technology's natural limitations when compared to the larger training devices, companies and training schools are working hard to





That's handy: the Airbus A320 (pictured) is an aircraft type that many pilots start their careers on. Photo: VRpilot

develop their product offering and invest in VR technology – or incorporate it as part of their pilot training.

GOING WITH THE FLOW

VRpilot, a Danish software developer, is one such company. It has created an array of VR solutions for professional flight training which includes VRguide, a 360-degree video platform designed in accordance with EASA guidelines around distance learning, and its main product, VRflow, an interactive cockpit procedure trainer.

At present, VRpilot has 12 different customers for VRflow which are divided amongst airlines, flying schools and military applications.

This includes the likes of US regional carrier, Horizon Air, and pilot training schools Aviomar and BAA Training, which use the product in versions tailored to their procedures and specific needs.

The company currently offers its customers nine different aircraft types as part of its VRflow programme.

Notably, each of VRflow's catalogue of aircraft types are narrowbodies – Airbus 320, Boeing 737NG, Boeing 737 MAX, and Embraer E175.

VRpilot has also announced work on its first turboprop VR programme for the

ATR-600 series, which will be available in spring 2023.

On why the decision was made to develop procedural training programmes around these types, and why its VR technology is so vital to assist regional aircraft training, VRpilot's Chief Technology Officer and Partner, Thor Paulli Andersen, is clear.

"Regional aircraft, like the ATR, A320, or B737 NG, is an aircraft type that many pilots

start their career on," he says.

"At this point in their career, pilots have little to no knowledge about the training philosophy of larger aircraft – flows, multi-crew cooperation, complex systems – and they can be overwhelmed by the number of things to learn on their first type rating.

"Our VR procedure training is a cost-effective way that pilots can get familiar with the cockpit layout, as well as learning all the procedures and flows, before they even step into the FFS."

The Boeing 737 NG and the 737 MAX are currently the most popular products, closely followed by the A320 – not surprising given the popularity of these aircraft in regional, low-fare, and legacy fleets around the world.

So with this in mind, how does the headset operate?

Generally speaking, virtual reality software works by generating 3D imagery using stereoscopic imaging. Within the VR headsets, the screen in front of each eye shows objects from two different angles, giving the user the impression of depth perception and distance. Spatial tracking sensors in the headset allow the user to move around and interact with the world.

What goes where: the Boeing 737 MAX (pictured) is among the most popular VR training modules. Photo: VRpilot





Visual checks: improvements to VR technology are enabling instructors to track trainees' eye movements.

For the trainee pilots, however, VRpilot's VRflow software has been purpose-built for procedure training in aviation, including features unique to aviation such as handling task-sharing between pilots or call-outs.

One of the main features of the platform is that it can implement customised procedures based on the customer's manuals and adapt to their specific cockpit layout.

Paulli Andersen says this ensures that the training material VRpilot delivers matches the actual procedures 100%.

He adds: "The use case for VR grows day by day. As the technology improves, we're finding new ways to enhance our training sessions – like introducing eye tracking for improved visual check verification."

VRpilot is currently looking to add more features and products to its portfolio that will help to assist cadets with their training. These include aircraft systems lessons, exterior inspection scenarios and traffic circuit procedures.

All beneficial and positive developments. But the question remains, how well does

this technology translate to the training schools that use VR in the classroom?

AHEAD OF THE CURVE

Flight school BAA Training, one of Europe's top three independent training centres, is one such centre that has integrated VR technology as part of its pilot training programme, partnering with VRpilot.

Spurred on by a desire to move away from paper-based training, it introduced the technology in January 2021 and hasn't looked back.

"We wanted to be well-equipped for the modern world and boost the quality of our training with the help of VR," says Aivaras Lukauskis, Head of Product Development at BAA Training.

The school currently has a few dozen of these headsets in its Vilnius and Barcelona training centres, and is planning to introduce the technology into its facilities in Vietnam and Paris.

At present the school uses VR headsets as additional training tools to help students

absorb the material quicker and more efficiently. Devices are used in the MCC training stage of the ATPL Integrated training and CPL Modular courses. As for the APS MCC programme, the VR goggles are the recommended tool for studying the flows.

BAA also uses VR for type ratings on its Airbus 320 and Boeing 737 NG. VR for Boeing 737 MAX is already developed ("flows are being aligned," says Lukauskis) and the Embraer 175 is next on the list.

"We expect VR to be growing rapidly in the future, so we don't want to fall behind," adds Lukauskis. "We aim to include VR as an OTD [other training device] part of our regulated type rating and other programmes soon."

SCALING UP

Despite the lack of regulations and certification around VR, the potential for this technology is still massive. And while the question of whether VR will one day ultimately replace devices like flat-panel trainers is contested, at least in the form **»»»**



and with the capabilities it possesses now, VRflow asserts that it might one day be possible.

“We see a potential for VR training devices to take over a lot of the learning objectives that flat panel trainers cover today,” says Paulli Andersen.

“It’s easier to scale up with VR devices since they each cost a fraction of just a single flat panel trainer. And the immersion of VR is on another level.

“Users often forget they’re not sitting in the real aircraft and visual learning aids – like flow arrows to the VR graphics – can be added, something a flat panel trainer is not suited for.

“It’s also very easy for us to customise cockpit layout and procedures [with VRflow], which adds a lot of value.”

BAA’s Lukauskis takes a slightly different view of VR technology’s potential.

“It will never replace devices as big as flat panels or FSTDs,” he says. “However, it should and will phase out paper tigers or mock-ups. It also has other benefits, such as a quick and easy set-up and accessibility due to its portability.”

For Lukauskis, the major challenge VR currently presents to training is the environment.

“It’s different than a classroom or FSTD device, and they [cadets] are using a handled joystick instead of fingers,” he says.

BETTER, FASTER, STRONGER

However, industry developments are under way that are looking to reduce the use of joystick or handheld devices and make clicking the buttons feel more real to improve its accessibility and overcome this limitation.

As for the overall benefits VR technology has for pilot training, both Lukauskis and Paulli Andersen agree that there is one crucial, stand-out benefit – it is creating better, faster, simulator-ready pilots.

“Simulator time is precious, so good preparation via other training devices like VR can help them concentrate on different



Heads up: virtual reality technology is helping make pilots ‘simulator ready’ at an earlier stage of their training.

“The use case for VR grows day by day. As the technology improves, we’re finding new ways to enhance our training sessions – like introducing eye tracking for improved visual check verification.”

Thor Paulli Andersen, Chief Technology Officer, VRpilot

scenarios in FSTDs,” says Lukauskis. “It’s cheap to run and accessible everywhere due to its portability. It builds muscle memory and develops motor skills, since the virtual cockpit features real-life distances, buttons, and lever positions. It helps students get well-accustomed to the cockpit while in the multi-crew environment.”

Paulli Andersen agrees.

“Pilots learn their flows and procedures a lot faster than with previous generations of training devices,” he says.

“It ensures better performance in the simulators and in the aircraft. VRflow makes the training more intriguing and interactive, motivating students and improving their performance. VR is great because it puts the student in a 1:1 virtual scale of a cockpit.

This gives them an immersive training experience and enables muscle memory training.”

Another final benefit of VR that’s worth mentioning, and which Paulli Andersen highlights, is the improved speed and reduced travel costs – something that is noteworthy given the industry’s growing need to train pilots quickly and the expense of training.

With all the benefits on offer to cadets, for the next generation of pilots coming through the inclusion of VR in pilot training is highly beneficial.

As to whether regulatory bodies are quick to catch up to this burgeoning technology or not, only time will tell. But for the here and now of pilot training, VR is just the start. ■

LARA



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Airlines are increasingly taking a holistic view of digital transformation.

Paperless possibilities

Airlines are increasingly taking a holistic view of digital transformation for maintenance records – and as the latest trends demonstrate, low-fare carriers in particular are beginning to transform their methodologies. Keith Mwanalushi reports.

Appropriate access to maintenance data is crucial for airlines as it allows them to keep track of the maintenance and repair history of their fleet.

John Bowell, Chief Commercial Officer at flydocs, says this information is critical to ensure the safety, reliability and, ultimately, airworthiness of any particular aircraft.

“It also identifies patterns and trends that can help airlines improve their maintenance processes,” he says.

Easy access to data analysis can be used to identify potential trends before they become major problems. Additionally, Bowell mentions that digital maintenance

records can help airlines comply with regulatory requirements, as they make it easier to produce the necessary documentation and reports.

“This can lead to cost savings by allowing airlines to schedule repairs and maintenance more efficiently, as well as by reducing the likelihood of unexpected downtime,” he says.

Live and up to date digital records can also aid airlines in identifying areas where they can improve their maintenance processes, such as which components or systems are most likely to fail, and address them proactively.

“Airlines can also use their maintenance data to track the performance of their aircraft over time, which can help them make more informed decisions about when to replace the aircraft or make other major investments,” says Bowell.

Nate Hicks, VP of Product Management at GE Digital Aviation Software, similarly indicates that maintenance data is important to a variety of different teams and software tools that are helping airlines manage their fleets more efficiently.

He says maintenance information like work task card identifiers can be used to cross-reference many other pieces of information that can be tagged against digital records or fed into configuration tracking tools to keep different systems in sync.

“Other bits of information like parts installed or removed, part cycle counts, airworthiness directive or service bulletin status are vital pieces of information that help keep track of critical asset management statuses for reporting,” Hicks says.

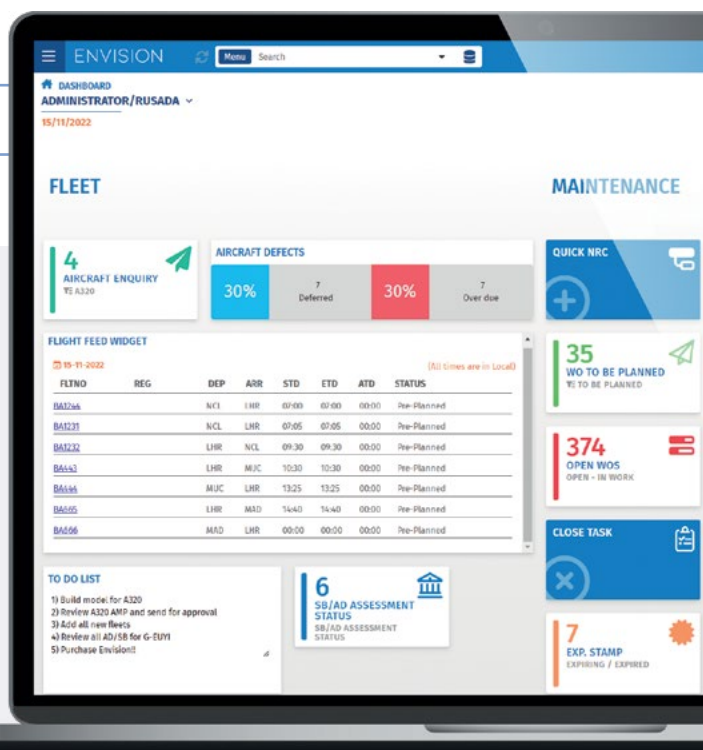
“When this type of data is shared efficiently between different software systems, airline operators can gain better data insights and save time by eliminating manual data inputs.”



“Having a maintenance tracking software that can keep up with these ever-changing industry demands can bring exponential benefit.”

**Richard Landsbury, Sales Director,
Rusada Aviation Software**

**Good data provides
visibility on levels of
maintenance tracking.**
Photo: Rusada



PREDICTIVE MAINTENANCE

Predictive maintenance is now gaining more traction and given that this is all based around data, having a robust system in place to manage this seems more important than ever, says Richard Landsbury, Sales Director at Rusada Aviation Software.

“Having a maintenance tracking software that can keep up with these ever-changing industry demands can bring exponential benefits and is something airlines should consider carefully as part of their operational strategy.”

Some experts like Rob Mather, Vice President Aerospace and Defence Industries at IFS, argue that uptake on predictive maintenance has been slow across the industry, with early attempts merely extrapolating based only on historical data, with mixed results.

He says: “As we saw in a recent pilot programme we ran with Icelandair, when you combine sensor data from next generation aircraft such as the 737 MAX, with new machine learning models, you can achieve stunningly accurate, individual serial number-specific failure models predicting when an individual component will fail.”

Landsbury admits the industry’s move to paperless processes has historically been quite slow, albeit for several justifiable reasons. However, in the last 12 months or so, he has seen an increasing openness to change.

“Moving to a paperless operation especially in the maintenance hangar can be a major change and requires a significant effort on behalf of the airline and technicians,” he says. “This might seem like an expensive and laborious task. However, the benefits of this far outweigh the investment.”

According to Mather, one of the key benefits of maintenance digital transformation is better access to data to enable information-sharing and strategic decision-making.

He says IFS aviation maintenance software provides either one or several records that are digitally accessible from any device across the maintenance department.

“This reduces the time since all the data is available to everyone within one system, instead of thumbing through paper,” he says. “When a document is electronically signed by a technician, inspector, supervisor, or other maintenance personnel, it becomes an electronic record, encrypted, and permanently stored in the aviation maintenance management database.”

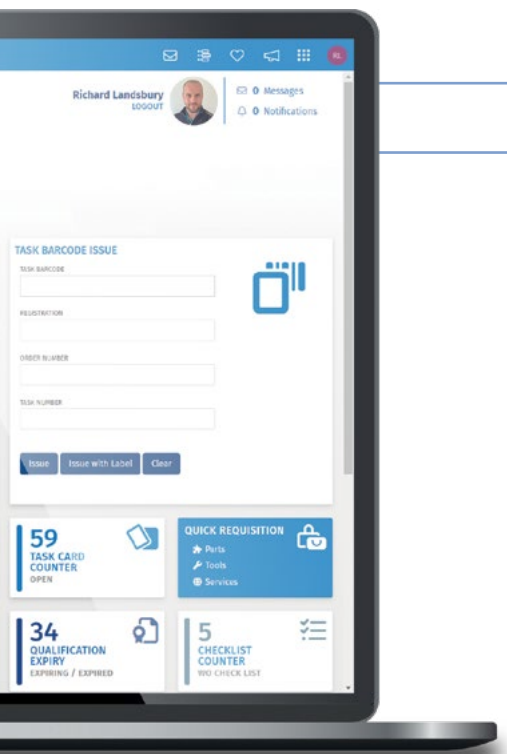
Mather stresses that these records can then be viewed and verified at any time but cannot be altered.

“Audit trails become much more efficient and the ability to instantly search for and retrieve a specific set of records to investigate a maintenance issue or even

“This might seem like an expensive and laborious task. However, the benefits of this far outweigh the investment.”

**Rob Mather, Vice President Aerospace
and Defence Industries, IFS**





“Airlines can also use their maintenance data to track the performance of their aircraft over time, which can help them make more informed decisions about when to replace the aircraft or make other major investments.”

John Bowell, Chief Commercial Officer, flydocs

respond to a regulator’s request is hugely beneficial.”

Furthermore, Mather indicates that if all the maintenance data of labour, part replacement, tool scheduling and work assignment is in one system, there is nothing to print, shuffle or distribute.

He says all stakeholders can immediately see their new assignments as planners push electronic job cards out to a mechanic’s device.

Lufthansa Technik (LHT) is also pushing ahead with solutions for the digitisation of core MRO processes for operators as they build their digital MRO stages.

The company recently pulled in 2,300 digital experts following the 100% acquisition of Lufthansa Industry Solutions (LHIND) announced in January.

With the closer integration, Lufthansa Technik aims to provide even more digital services in addition to its recently announced Digital Tech Ops Ecosystem.

Frank Martens, Senior Director Sales AVIATAR Digital Products at Lufthansa Technik, says that if the data coming from all the players in the tech ops ecosystem is connected to MRO and airline systems, analytics of reliability parameter, M&E-system data and documentation will lead to new possibilities in predicting malfunctions of aircraft.

He says this is especially of note for low-fare carriers (LFCs) with their agile

approaches to finding the most efficient solution in a very short time, so this will be very beneficial as the new ecosystem will be capable of reacting swiftly.

ADAPTING TO NEW-GENERATION AIRCRAFT

New-generation aircraft like the MAX, Neo and E2s are flooding into the LFC and regional airline fleets. These aircraft generate more data, which can be used by the operator to optimise its technical operations and to increase the reliability and efficiency of their fleets.

Martens feels this requires an infrastructure and digital solutions like the AVIATAR platform developed by Lufthansa Technik, which he says can handle this amount of data – making it ideally suited for LFCs.

“It is key to be able to use off-the-shelf and scalable digital solutions, if they want to use such valuable data to improve tech-ops and MRO services,” he says.

In addition, Martens highlights the importance of having partners who can support lean LFC organisations with the necessary know-how.

“Just the pure amount of data is not a value in itself,” he says. “But it is key to choose the right data for a specific operator. The impact of newer, more digitised aircraft is an opportunity for airlines to become more digital, too. And as a consequence, the

digital transformation of MRO services will continue.”

For new aircraft types, Hicks feels this primarily impacts the ability of aircraft assets to share real-time aircraft data more seamlessly through aircraft data management systems.

“When this type of data is shared wirelessly and quickly, either in flight or at operator hubs, it can drastically reduce the time it takes to process data and can help maintenance engineers and technicians rapidly diagnose faults or even predictive maintenance items that will prevent future faults and flight interruptions and delays from occurring.”

Newer aircraft are also being fitted with increasingly more advanced systems which not only transmit data back to base but can predict when faults will occur.

Embraer’s “AHEAD” programme is a great example of this, and Landsbury from Rusada reckons it would be a shame for operators to miss out on these key advantages by having antiquated systems in the background.

“Our developers here at Rusada are always keeping on top of industry trends and technological advancements to make sure our flagship product ENVISION is at the forefront of what is possible and can interact and interface with these new systems to further enhance their use,” he says.





LHT are pushing ahead with solutions for the digitisation of core MRO processes. Photo: Lufthansa Technik

"If a saving can be made by not grounding an aircraft, or having a part available when it otherwise wouldn't be, this is of huge benefit to LFCs – putting even more emphasis on having a sophisticated software solution in place."

CONNECTING LFCs AND REGIONALS

The general trend in the industry is one of affinity towards a digital approach and aviation companies are actively looking at digitalising strategies to further streamline and automate.

Bowell from flydocs says: "We don't tend to see hesitation in adopting digital

technology. However, many airlines are at different stages of digitalisation and this can cause challenges in itself, particularly when transitioning records."

He provides a case study during an aircraft redelivery, where there is a large amount of data being exchanged and this transition can be more complex if the involved parties have different record management approaches, such as digital records versus paper records.

At flydocs, they are privy to the emergence and evolution of modernisation and digital innovation in the airline industry.

"The LFC market has started to adapt to the changing industries and businesses to transform their methodologies," says Bowell.

"We see great interest from the LFC market as they provide significant efficiencies and futureproof their asset not only on our

records platform to ensure smooth redeliveries, but also through our new lease asset management product which creates a digital twin of the leased asset stating where we are in the life cycle."

As Bowell indicates, this trend also provides options for optimised maintenance to remove risk and cost at lease returns.

"Not only do they have all of the above, but our flydocs platforms allow them to demonstrate real-time compliance on demand," he says.

In recent years, several LFCs have expressed interest in MRO systems that can effectively digitally connect flight crew and the maintenance department.

"I think this is an important trend that we're seeing within the industry and is not limited to LFC airlines," says Hicks from GE Digital.

He notes that several airlines are starting to explore electronic logbook and technical log applications that allow flight crew and pilots to report maintenance faults or findings before the aircraft lands.

This then gives maintenance teams time to prepare the necessary tools and parts to quickly swap parts or do corrective actions without causing flight delays or cancellations.

"What we are experiencing is a desire for airline maintenance and software systems to work together in an integrated ecosystem with flexibility and optionality to plug and play with various different solutions that provide the customer's desired outcomes," says Hicks.



"When this type of data is shared efficiently between different software systems, airline operators can gain better data insights and save time by eliminating manual data inputs."

Nate Hicks, VP of Product Management, GE Digital Aviation Software



Martens reports that the introduction of the AVIATAR electronic technical logbook at Wizz Air last year has exceeded expectations.

He says: “The number of phone calls between pilots and the maintenance control centre has dropped significantly because everything is documented digitally now and not with handwritten notes any more. It is

“Where a spreadsheet solution for planning MRO events might take you two days to work on, it’s a five-minute job on Aerogility.”

Phil Cole, Business Manager for Civil Aviation, Aerogility

Advantageously agile

Aerogility, an AI-based aviation decision support software specialist, helps airlines by streamlining their heavy base maintenance, major component replacement processes (such as landing gear) and powerplant scheduling – all without a single sheet of paper in sight.

“They [airlines] spend the majority of their time using our user planning interface,” says Aerogility’s Business Manager for Civil Aviation, Phil Cole, who hones in on the massive benefits the AI tool can offer airlines.

“There’s instant feedback,” he says. “Where a spreadsheet solution for planning MRO events might take you two days to work on, it’s a five-minute job on Aerogility. There are huge productivity gains to be made.”

The company uses a technology called agent-based modelling, a form of AI that

amazing to see how fast text messages from the cockpit are answered by the control centre and speed is key during turnarounds for an ULCC like Wizz Air.”

In terms of challenges, Howell concludes by noting that airlines that do not have proper systems and solutions in place for managing their assets and lease returns may encounter a variety of challenges.

He defines these as potential difficulties in tracking and maintaining components, compliance with regulatory requirements and industry standards, ensuring airworthiness and maintenance of the

aircraft, increased costs due to inefficient processes and potential damage to their reputation due to delays or missing data during redelivery or airworthiness compliance audits.

All of which, if unmanaged, may result in aircraft being grounded and unfit to fly.

“During redeliveries there may be disputes with lessors, penalties for late returns and difficulty in securing new leases,” he says. “Proper asset and lease management is crucial for maintaining compliance to ensure all aircraft are airworthy and efficiently managed.” ■

LFCs are seeking digital solutions to overcome challenges in the industry. Photo: Lufthansa Technik



works to simulate real-world scenarios generate insights for forecasting, planning and decision making, and is unique within the airline industry.

“One of the amazing things about this is that it’s easy to just change one small factor or number of factors in a model, rerun it, and get a different set of results,” says Cole. “It’s a what-if analysis. You can run two very different scenarios really quickly.”

As testament to its success, and the need for MRO companies to digitally evolve, Aerogility recently signed a contract with

an Antipodean airline as its fourth customer and in January celebrated five years working with long-standing customer easyJet.

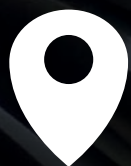
Cole says: “The airlines who come to us are those who butt up against the limitations of a spreadsheet solution – those who have a larger number of aircraft to track. That’s where we come in, helping them minimise cost and ground time, and maximise availability of aircraft. If an aircraft isn’t in the air, it’s not making any money.”

Lucy Powell



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Propulsion powerhouse

Lucy Powell spoke to Earl Exum, President of International Aero Engines (IAE), about reaching 40 years with the V2500 engine programme, and what's next for the powerplant's future.

Just over 40 years ago, on 9 March 1983, a consortium of companies that included Pratt & Whitney Aero Engines International, Japanese Aero Engines Corporate and MTU Aero Engines established International Aero Engines (IAE).

From this diverse expertise came the V2500 powerplant, an engine that would eventually become the workhorse of the aviation industry – powering everything from military aircraft to Airbus A320ceo family commercial and passenger-to-freight (P2F) aircraft across the world.

Today, the V2500 powers 60% of the global in-service A321ceo fleet, with the average engine age standing at around 13 years.

Forty years on, as Pratt & Whitney celebrates the establishment of International Aero Engines (IAE) and extended 2045 agreement, what does IAE's President, Earl Exum, see for the engine's future?

"The V2500 is in its prime," he says. "We see a long runway for the V2500 fleet, and IAE is committed to supporting the V2500 fleet and its operators."

Exum foresees V2500-powered aircraft

serving both the commercial and cargo markets for at least another 20 years.

IAE's biggest customer today is American Airlines, which operates 399 A320ceo family aircraft and has a further 218 A321s.

With a third of the V2500 engines only on their first run, and around 70% of V2500-powered aircraft under 15 years old, the expected remainder of its service life is a long one.

First run engines can remain on wing in excess of 30,000 hours before their first shop visit – equating to around 10 years.

As of its 40th anniversary, the V2500 fleet enjoys a 99.97% dispatch reliability rate, and the collaboration has produced 7,800 V2500s – close to the 8,000 engines originally predicted in 1983.

IAE also continues to produce spare engines – the V2500-A5 variant – for Airbus A320 family aircraft, catering for both commercial and cargo operations.

Existing customers do this to eventually replace run-out V2500s, which Exum says are used in passenger and increasingly in cargo operations.

With this in mind, Exum isn't expecting a

surge in retirements of the engine over the next five years and has no plans to scale back its operations, particularly with such robust MRO capabilities in place.

The V2500 is backed by a global network of 17 facilities, which includes nine partner facilities.

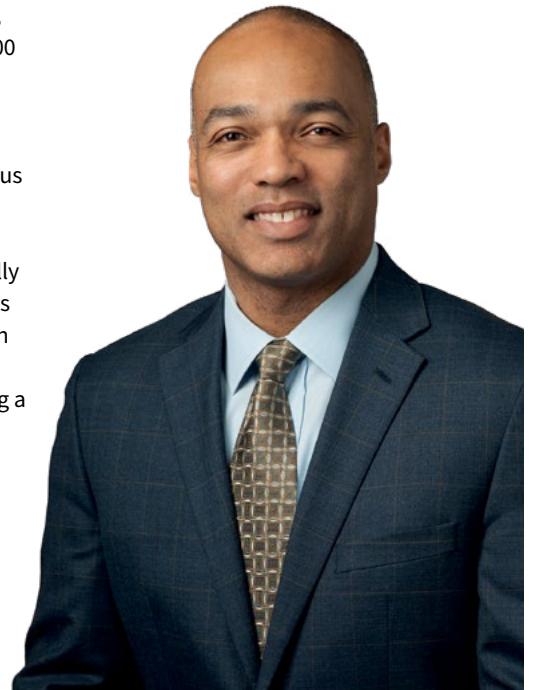
"We have the right capacity for our fleet today and are expecting nearly 1,000 overhauls and targeted project visits this year," Exum says, adding that IAE expects to remain at this rate for a number of years, with plans to sustain MRO support until 2045.

Even with supply chain issues and lack of spares across the global MRO network, these mitigating factors haven't deterred IAE.

"We would still like to see MRO shops turn customers' engines faster, but things are moving in the right direction," Exum says.

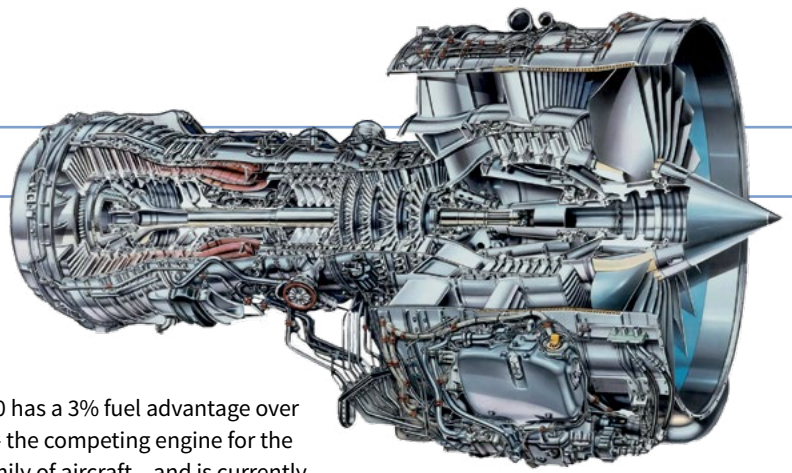
He adds that IAE is currently progressing with its own mitigation strategies to limit the effect these shortages are having on its own supply base.

The company is also coordinating with customers on solutions to minimise any further operational disruption. >>>



"Forty years is an impressive milestone and we look forward to the continued collaboration among the IAE party companies"

Earl Exum, President, International Aero Engines



SUSTAINABLE SURVIVAL

As more airlines shift towards swapping out their fleets – from A320ceo to A320neo – in a bid to boost their efficiency and sustainability credentials, what does that mean for the V2500?

Apparently not much. This behaviour by some operators is a factor that Exum isn't concerned by.

"Commercial aviation has seen a strong rebound, especially in the single aisle market," he says. "But it will require mature and newer engine variants. The V2500-powered aircraft will play an important role in the industry's efforts to meet its goals of net zero. We continue to seek new sustainability opportunities for the V2500 engine."

The V2500 has a 3% fuel advantage over the CFM56 – the competing engine for the A320ceo family of aircraft – and is currently approved for operation on 50% sustainable aviation fuel (SAF), which will only benefit the engine in the coming years as the industry shifts to SAF.

Even with commercial airlines swapping out fleets, there is still the passenger-to-freighter conversion market to consider, which whilst already strong for the V2500 engines is still a viable focus for the future.

"The passenger-to-freighter conversion market is a growth opportunity for the V2500 but demand for the V2500 is strong across the board," says Exum.

The V2500 powers 60% of the A321ceo global fleet.
Source: International Aero Engines A.G.

Reflecting on IAE's journey to date, he adds: "Forty years is an impressive milestone and we look forward to the continued collaboration among the IAE party companies, our customers and our suppliers – all of whom were critical to the success of IAE and the V2500 engine."

Despite the industry's frenetic focus on sustainability, old (or "older") is still just as good. And with the V2500, it's evident that there's still lots of life in the workhorse yet. ■

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Speaking the same language

As the world's airlines rapidly return to or surpass pre-pandemic levels of business, many are increasingly facing the need for new aircraft capacity. Alan Dron reports on the benefits that ACMI leasing can provide.

With order backlogs at both Airbus and Boeing amounting to several years' worth of production, finding new aircraft is increasingly difficult. This is driving demand for leasing – either directly from a lessor or by bringing in aircraft from a specialist wet lease or ACMI (aircraft, crew, maintenance and insurance) provider.

This leasing market has expanded steadily over the past three decades, with more than half of airlines' equipment now being leased rather than owned.

That situation is likely to become increasingly accentuated in the next few years.

Shane Matthews, Head of Strategic and Market Analysis at lessor SMBC Aviation Capital, says: "We are confident that leasing will be the largest source of aircraft finance in the near term as we expect airlines to continue to rebuild their balance sheet strength post the pandemic and leasing gives them the best means to do so."

"We are also seeing many airlines look to modernise their fleets in recent times and this can only be done, on the narrowbody side, by leasing aircraft – as both Boeing and Airbus are effectively sold out for the next five years."

There are two main types of airliner lease, operating and finance. The primary difference between the two is that, under an operating lease, the lessor retains ownership of the aircraft at the end of the lease period, while under a finance lease, the airline can exercise a right to take ownership.

"During the pandemic, some airlines who were not traditionally very active in the leasing market did look at finance leases as a means to raise capital while holding on to some equity participation in the asset," notes Matthews. "This demand has eased back recently and we are seeing more demand for the more traditional operating lease."

Avolon, one of the world's biggest lessors,

said that the industry responded to the relaxation of COVID restrictions with the quickest supply ramp-up in history.

"Lessors drove all the growth in the world's fleet in the past three years, now managing 53% of it by value," the company said in an outlook document for 2023.

Avolon described the industry as being "in a high-speed climb" in early 2023, as companies sought to return to growth and profitability.

It noted, however, that lagging production rates at major aircraft manufacturers have had an effect on leasing companies as well as airlines, making it tricky for them to grow.

CARGO AND CAPACITY

Meanwhile, airline demand is continuing. Almost counter-intuitively, the pandemic created a rash of new airlines, as entrepreneurs sought to take advantage of suddenly available aircraft that had been pensioned off by existing airlines – or returned to lessors by airlines trimming their fleets.

These new carriers helped keep demand for leased aircraft higher during the crisis than might have been thought.

Major lessors looked to portfolio trades, together with mergers and acquisitions, to continue growing.

Consolidation in the leasing market accelerated, with Carlyle acquiring FLY Leasing and AMCK, SMBC completing



Carrying capacity: the Airbus A320 family is the backbone of the Avia Solutions Group's 170-strong cargo fleet.





the acquisition of Goshawk, and DAE acquiring the Sky Leasing portfolio.

The attractiveness of the market means new players are also emerging, notably Saudi Arabia's first lessor, AviLease.

The sudden need for cargo capacity during the pandemic saw many airlines converting passenger aircraft into makeshift freighters.

While demand for cargo space is now dropping to 2019 levels or lower, the boom in e-commerce means that construction of converted or new-build freighters is accelerating.

That, in turn, has attracted leasing companies, which have piled into the freighter market, seeking to take advantage of demand for cargo aircraft.

Meanwhile, airlines that specialise in providing capacity for fellow operators are also enjoying strong market conditions.

GROWING FOR IT

Lithuania-based Avia Solutions Group (ASG) is the world's largest company specialising in providing ACMI services to airlines.

"This last year, at peak season, we operated close to 150 passenger and cargo aircraft," says Jonas Janukenas, ASG's CEO.

"As of now, we operate more than 170 aircraft, mainly the Airbus A320 family, and we're still growing."

The group's constituent airlines are Avion Express, SmartLynx and KlasJet (the last of

Value proposition: Avia Solutions Group has recently started to add 737 MAXs to its fleet.

these has until now been operating Boeing 737s as business jets, but is now introducing 737-800s for ACMI work).

ASG has a comparatively young fleet – typically 12 to 14 years old, or middle-aged in airliner terms.

Janukenas says there are several factors behind the growth of the ACMI sector.

"The European airline market is quite competitive and quite seasonal," he says. "In summer, by IATA's definition roughly six

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months, the number of flights is much higher than in winter – let's say between 30% to 40% more flights.

"This means either that an airline maintains over-capacity during the winter, or it uses providers like us to cover their peaks, which means that they can save significantly on cost and, as we all know, the current market is very tight in terms of pilots."

Out of the northern hemisphere peak season, ASG places its aircraft in other regions of the globe, such as Latin America, Asia and Africa (see box out).

"In this market, supply creates demand," says Janukenas. "When there are reliable, significantly sized suppliers, it means that airlines can rely more and more on ACMI capacity. Additionally, some aircraft deliveries are late, which is another driving factor [in airlines requiring extra capacity]."

Using aircraft from an external supplier means that "airlines can concentrate on things they do best – route planning, marketing and sales".

Why has ASG recently decided to bring in examples of the Boeing 737 MAX when it has an almost-entirely Airbus fleet?

"It has a slightly greater range," says Janukenas. "For some clients, that's important. And of course we're mindful of cost. No disrespect to Airbus, but MAXs, I would say, are more favourably priced in the market."

"Boeing's problems [following two fatal crashes in Indonesia and Ethiopia] have been sorted out. On the other hand, if we look at the order book, probably because of events related to the MAX, there was quite a good availability [of the aircraft]."

"We see good market opportunity and

demand for our services and we will increase further. I can't disclose exact numbers but definitely we see much bigger opportunities than right now – and in ACMI, size matters, because to achieve good service and good on-time performance, you need spare aircraft. You need really capable management and staff, which very small providers can't ensure."

Are more airlines moving into the ACMI market?

"Definitely so. It's a good tool in airlines' toolkit for managing capacity."

STAYING COMPETITIVE

While ASG has long focused on ACMI work, a more recent "convert" to the model is Ireland's CityJet.

Originally a scheduled carrier, it made the leap into wet leasing in the latter half of the 2010s.

A former subsidiary of Air France, CityJet used to operate most of its scheduled services on behalf of the French flag carrier from London City Airport.

When owned by Air France it had a relatively strong brand behind it. The company regained its independence in 2014 and, although it was still operating some services for Air France, the bulk of its scheduled flights were made under its own branding.

"Progressively over 2014-16, we found that being an independent regional airline operating primarily out of London City meant that our marketing and passenger acquisition costs were quite high," says CityJet's CCO Cathal O'Connell.

Additionally, other carriers



'Change is just around the corner'

The use of ACMI assets varies across the globe. Europe is a particular hotspot but other continents, such as Africa, are only now discovering the business model's advantages.

Dainius Staniulis, Vice-President Commercial at Avion Express, says that some African airlines already use ACMI, but it is still largely seen as an emergency tool.

But Staniulis believes that change is just around the corner, saying: "The African market is very attractive for us due to seasonality."

"Europe and Sub-Saharan Africa are counter-cyclical markets, meaning peak seasons for the continents and particular countries can be different."

"Europe is the most cyclical market in the world, with huge demand in the summer season and very low demand during the winter season."

"Meanwhile, in Africa it can be considered as the other way round, making it an excellent opportunity for operators, allowing them to deploy ACMI capacity depending on the hemisphere."

"African, Middle Eastern, Caribbean, and even Canadian markets can be great choices to respond to European seasonality."

"We can only respond to customer requirements – we may be able to influence their strategy but ultimately they decide what they need."

Cathal O'Connell, CCO, CityJet



“We identified regional jet wet lease as a growth area and decided to supplement our scheduled operations with further wet lease operations.”

Cathal O’Connell, CCO, CityJet

launched services on CityJet’s routes.

“We found our scheduled services were becoming less and less competitive,” says O’Connell. “As the scale of our operation reduced, the overhead cost didn’t really change – we still needed Amadeus and a call centre, plus the unpredictable costs of EU261.

“We came to the conclusion that there really wasn’t space for an independent regional airline trying to be competitive and profitable in the market we were in, especially in London City where most competitors were subsidiaries of major European airlines.

“We identified regional jet wet lease as a growth area and decided to supplement our scheduled operations with further wet lease operations.

“We secured our first contract with Scandinavian Airlines (SAS) in 2015. We initially thought we would do 60-70% scheduled and 30-40% ACMI, but as the market evolved in 2017 to early 2018 we decided it would be much more efficient as a business if we were fully wet lease,

because the infrastructure required to manage [it] is very much less.

“Under wet lease agreements, we do not hold responsibility for many of the expensive parts of operations such as passenger marketing, sales, fuel, ground handling, etc – our role is to deliver our aircraft at the boarding gate to provide punctual and reliable service to our customer airline.”

CUSTOMER REQUIREMENTS

By 2019, CityJet had a portfolio of clients for its ACMI services: Aer Lingus (two Avro RJ85s), SAS (21 Bombardier CRJ900s), Brussels Airlines (four CRJ900s), Air France (three RJ85s) and Lufthansa (one RJ85).

COVID saw airlines halting contracts and CityJet had to enter examinership, the Irish equivalent of the US Chapter 11 process, to restructure financially.

However, it emerged and is rebuilding. It now operates 21 CRJ900s and is taking on a further five, larger CRJ1000s in 2023.

At the time of writing, the Ireland-based

carrier was operating 15 CRJ900s on behalf of SAS and had secured contracts for two CRJs for Brussels Airlines and two for Lufthansa from the summer 2023 season.

As an ACMI operator “our decisions are made in other people’s boardrooms,” says O’Connell.

“We can only respond to customer requirements – we may be able to influence their strategy but ultimately they decide what they need. If a potential customer requires us to have a different aircraft type, we’re absolutely open to evaluating that.”

O’Connell believes that the requirement for ACMI services in Europe will continue to increase.

He notes that last summer saw major airlines such as easyJet and Eurowings wet-leasing significant numbers of aircraft for the summer peak and this year is also looking strong for wet-lease airlines, particularly for A320/737-sized aircraft.

“For SAS, we deliver SAS-branded aircraft, our crew are in SAS uniforms. We recruit locally, so almost all our cabin crew speak a Scandinavian language and our planning is fully integrated into the SAS processes.

“This level of integration delivers a seamless product to SAS passengers which is very different from an airline that’s just brought in for a summer season. The long-term relationship is what matters.” ■

CityJet has built up a portfolio of clients for its ACMI services, including Scandinavian Airlines.



State of the nation



Faye Malarkey Black, CEO and President, Regional Airline Association

With regional airlines facing pressure in the United States, Lucy Powell spoke with the Regional Airline Association's President and CEO to discuss her career to date in the association, and what needs to be done to help the US regional sector stay flying.

From the leafy boughs of a tree-turned-imaginary aeroplane to head of the Regional Airline Association (RAA), its CEO and President, Faye Malarkey Black, understands more than most about the power that travel can hold.

Named head of the RAA in 2015, Malarkey Black has held a significant tenure in the organisation – one ostensibly shaped by travel and now, by the significant crisis facing the sector she champions.

“Being named CEO of RAA after many years serving the organisation has been a great honour,” she says.

As head of the association, Malarkey Black focuses on the lifeline that travel can bring to small and rural communities; places served exclusively by regional airlines that range from the humid American south far up to the frigid runways of Western Alaska.

“Most of my work centres around defending access to travel, which is

immeasurably gratifying,” she says. “I’ve never lost my sense of awe about it.”

This defence of regional travel is one that is needed if rural communities are to stay connected. And while Malarkey Black is excited about the future opportunities that present themselves to airlines – from sustainable aviation fuel to new propulsion systems – she is soberly focused on the present challenging headwinds.

“The pandemic was very hard on regional airlines,” she says, recalling how at the start of COVID larger airlines brokered early exit packages for thousands of pilots to help them survive.

But now, with demand returning suddenly, just as many pilots from regional airlines have been drawn in as a result to fill the gap – contributing to the overall shortage.

For Malarkey Black, this puts the future of regional airlines in a precarious position.

More than 400 regional jets are parked, with utilisation down nearly 40%. What’s more, some 342 US communities saw an average loss of 30% to flights, with new cuts announced every month.

The result has led to remaining services concentrating on larger planes, departing less to fewer places, and the RAA’s President and CEO is aware of the cost for passengers.

“For the still elusive business traveller, this is a non-starter,” she says. “I fully expect

major carriers will continue to invest in regional airline partners. If they don’t, they will lose business travellers to the competitor that invested differently.”

FEWER CHOICES

While regional aviation is vital to connect people and grow communities, the reduction of airport services and flights is something that Malarkey Black only sees continuing throughout 2023, despite pilot qualification picking up in 2022.

“There’s a constraint within a constraint,” she says, referring to the slowdown in hiring pilots because of an even more acute shortage of captains.

As fewer captains fly on fewer routes, this means first officers will also lack the hours needed to move into the left-hand seat.

Route cuts, even those that are deemed to be profitable because of this pilot shortage, naturally feed into this constrained cycle.

Combined with increasing costs in living, this bubbling pressure has spilled over the most into the regional market – and as passenger numbers decrease and frequency of flights drop or are cancelled entirely, more and more communities are finding themselves cut off at the knees.

Malarkey Black says: “I do expect some communities won’t be there on the





A shortage of captains has led to a slowdown in the hiring of pilots, despite qualification rates picking up in 2022.

other side, but the faster we fix the pilot shortage the more effective communities will be in shoring up their air service.”

Indeed, there is one major quality that defines the regional sector: tenacity.

“There is tremendous grit and ingenuity in the regional airline ranks and the industry will survive, but the environment will remain harsh for some time and unfortunately this means passengers will continue to have fewer choices,” she says.

THREE FIXES

As far as fixing the ongoing pilot shortage goes, the RAA President and CEO outlines the top three things that need to be done to overcome it.

One long-term solution she identifies is addressing the skills loss gap that occurs between graduation and hire.

In the decade since the FAA changed the new pilot qualification rules that saw a fivefold increase in the number of flight hours required to fly, in Malarkey Black’s opinion little has been done to smooth this process for newly graduated pilots.

“Political pressure has created a charged

environment in which regulators face great difficulty making changes, even when the data clearly supports doing so,” she says.

“The FAA has not approved new training pathways. Airlines do not take a training programme from 2010 and assume it remains relevant in 2023, and the FAA should not either.”

This leads on to Malarkey Black’s second recommendation for fixing this shortage: career access.

In a workforce that is predominantly white and male, inequity has only worsened.

The amount of money it takes to become a pilot has risen – estimates run up to at least US\$150,000 – significantly reducing its accessibility as a chosen career.

And while airlines have stepped in with wage increases and subsidised tuition, without appropriate federal policy the challenges still posed to career access, Malarkey Black admits, are insurmountable.

“This keeps the career out of reach for most Americans,” she says.

Here she identifies Congress as a crucial component to fixing the problem. “They should raise the caps on student loans for

flight education students, while adjusting forbearance to account for postgraduate years where pilots must accumulate flying time before career entry,” she says.

But while these two longer term solutions take shape, what is Malarkey Black’s third measure that could act as a short-term buffer to fill this gap?

“Raising the pilot retirement age by a few years will stabilise the workforce by modestly slowing the churn of attrition,” she says.

“While some fear this will slow progress for the next generation, the opposite is true. Extending the age will help alleviate the captain shortage, allowing new first officers, who cannot fly without pilots, to progress.

“Half the pilot workforce must retire within the next 15 years. That’s a lot of experience, expertise, and mentorship slated to leave at a time when they are needed most.”

The RAA supported legislation that would adjust the retirement age, and Malarkey Black will keep on encouraging the introduction and passage of it this year.

“It’s the right thing to do, and it will help small communities keep their air service,” she asserts.

PAYING IT FORWARD

Despite the intense focus on the pilot shortage and other troubles facing the US regional sector, green shoots are cropping up among what could be deemed an otherwise barren outlook.

The RAA’s small but successfully growing scholarship foundation is one of them.

As the association’s head, Malarkey Black is optimistic.

“The youth are at the gates! And this is a great thing. Each year we talk with students who say if not for the modest award, they would have had to stop their education, so they are determined to pay it forward. This renews our own sense of purpose and commitment to the mission.”

The influx of this new generation brings with it a heady sense of change, in opposition to those who would deny the pilot shortage

in its entirety. “They’re speaking up and challenging these notions. Communities are speaking up too. They understand the reality of the shortage all too well.”

As part of the coalition Rally for Air Service, formed to communicate the harm this shortage is causing for airports across the country, the RAA is also working hard to champion this cause.

“We have a lot of work to do, but we’re doing it with far more allies today than we had before,” says Malarkey Black.

Reflecting on the regional market and the RAA’s place within it as an advocate for such vital connections, what is Malarkey Black most concerned about? “The erosion of facts and data in public policy,” she says.

“We need to restore conversations [around pilots and pilot training] back to a fact- and science-based discussion.”

This is a concern particularly of note if there are any FAA regulatory changes to be had in the coming years, while Malarkey Black also acknowledges the entrenched US political divide that provides an inescapable backdrop to any policy surrounding aviation – particularly when it comes to regulations around evolving pilot training.

“Political divide has led to stasis,” she says. “From a safety standpoint, stasis is unacceptable.”

However, Malarkey Black notes that the Republican and Democratic leaders of transportation committees in the US House

and Senate look to be serious about working together to pass effective FAA reauthorisation legislation.

According to the National Air Transport Association, there are hopes to have the first draft of the bill done by early July.

The House and the Senate will then have until 30 September to work on the FAA bill, before the current authorisation expires. And in that timeline, there is hope.

Malarkey Black says: “Whether you are a new professional travelling abroad for the first time, or a small business owner bringing clients into your new facility, or just someone flying home, air service is essential to the rich fabric of human existence – and it is worth protecting.” ■

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... Cecil Teets, President and CEO at ASAP

Founded to provide aircraft operators with efficient aircraft performance engineering services, ASAP's CEO spoke to LARA about how its EFB product, ASAP STAR, is helping airlines become more sustainable, and what benefits it provides to regional airlines.



What makes your EFB different from your competitors, and how is ASAP STAR helping airlines become more sustainable?

We strive to provide great service at an affordable price and give our customers the best premium service available when time is of the essence.

Other companies provide Runway Analysis, Weight and Balance and customer support services as an "add-on" to their main business, but we are completely devoted to these services as our primary business. Our system is integrated throughout and completely dynamic to fit everyone's needs.

ASAP STAR is dynamic in nature. As the aviation industry itself evolves into creating more sustainable options for aircraft, ASAP STAR can handle these changes and the complications that may arise with them.

We also integrate with flight planning companies. This ensures that companies using both ASAP STAR and flight planning vendors can enjoy limited human error by proper communication. Dispatchers and pilots therefore do not have to enter this information in multiple locations. This is the same case with interconnectivity between the web and iPad versions of ASAP STAR.

Can you explain the benefits your ASAP STAR product provides to regional airlines?

We currently have 20 regional airlines that use ASAP STAR. They're based in the Middle East, Caribbean, Africa, Europe, South American and North American regions.

Regional airlines can greatly enhance their operations when using ASAP STAR because we make effective communication

easy between the cockpit and the dispatch office, ground operations, gate agents and baggage carriers, to name a few.

ASAP STAR is also embedded with many other features such as reduced power take-offs, various and optimum flap settings, integration with flight planning vendors and one engine operative departure procedures that ensure cost savings and improved safety for regional airlines.

How extensive is your airport coverage, and which aircraft types is ASAP STAR most used on?

Our airport coverage is worldwide. We include most airports, including those in remote locations. We aim to have airports with runways at least 900 metres (3,000 ft) or longer. If there happens to be any airport or runway we do not currently have, we are always able to add them to our system.

Our most-used aircraft is the Beechcraft 1900 (B1900D). We actually provide service to the largest B1900D fleet in the world. Of course, this does not mean that we are limited to smaller jets. We also have many customers using ASAP STAR for their B737 fleets. Other providers stick to a certain aircraft type or class, but we are able to provide services to all aircraft.

What are the main factors you must consider with runway analysis?

We greatly consider the performance limits of the aircraft as stated by the aircraft flight manual (AFM), the airport characteristics, weather and runway conditions.

Every aircraft is intricately designed with specific features that set the performance

limit. The AFM serves as the basis for all performance calculations, including runway analysis. These factors include the engine type, the size of the aircraft and take-off weight, to name a few. These, in combination with other aircraft settings, all play a fundamental role in runway analysis.

Airport characteristics are essential to perform runway analyses. They include information about runway length, airport elevation above sea level, operating weight limitations for each runway, runway surface conditions and runway gradient. Another important factor to be considered is the surrounding terrain of the airport. This determines the obstacle avoidance procedure for the aircraft.

As for how we take weather into account, temperature, pressure, wind velocity and wind direction are extremely important factors that determine the performance of the aircraft on any specific day.

What are the major challenges you're facing as an EFB provider and how is ASAP working to overcome them?

Technology is constantly evolving and becoming more modern to fit the needs and trends of professionals around the globe. Because of this, older systems are becoming defunct. We are learning to adapt and evolve alongside this new technology and become more modern in everything we do. Instead of thinking about or looking at systems from the past, or even in the present, we need to look into the future to tackle arising issues for airlines and continue to prove we can offer the best service to airlines. ■





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