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THE MAGAZINE FOR AEROSPACE PROFESSIONALS IN THE MIDDLE EAST, NORTH AFRICA AND TURKEY

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THE GRAND VISION

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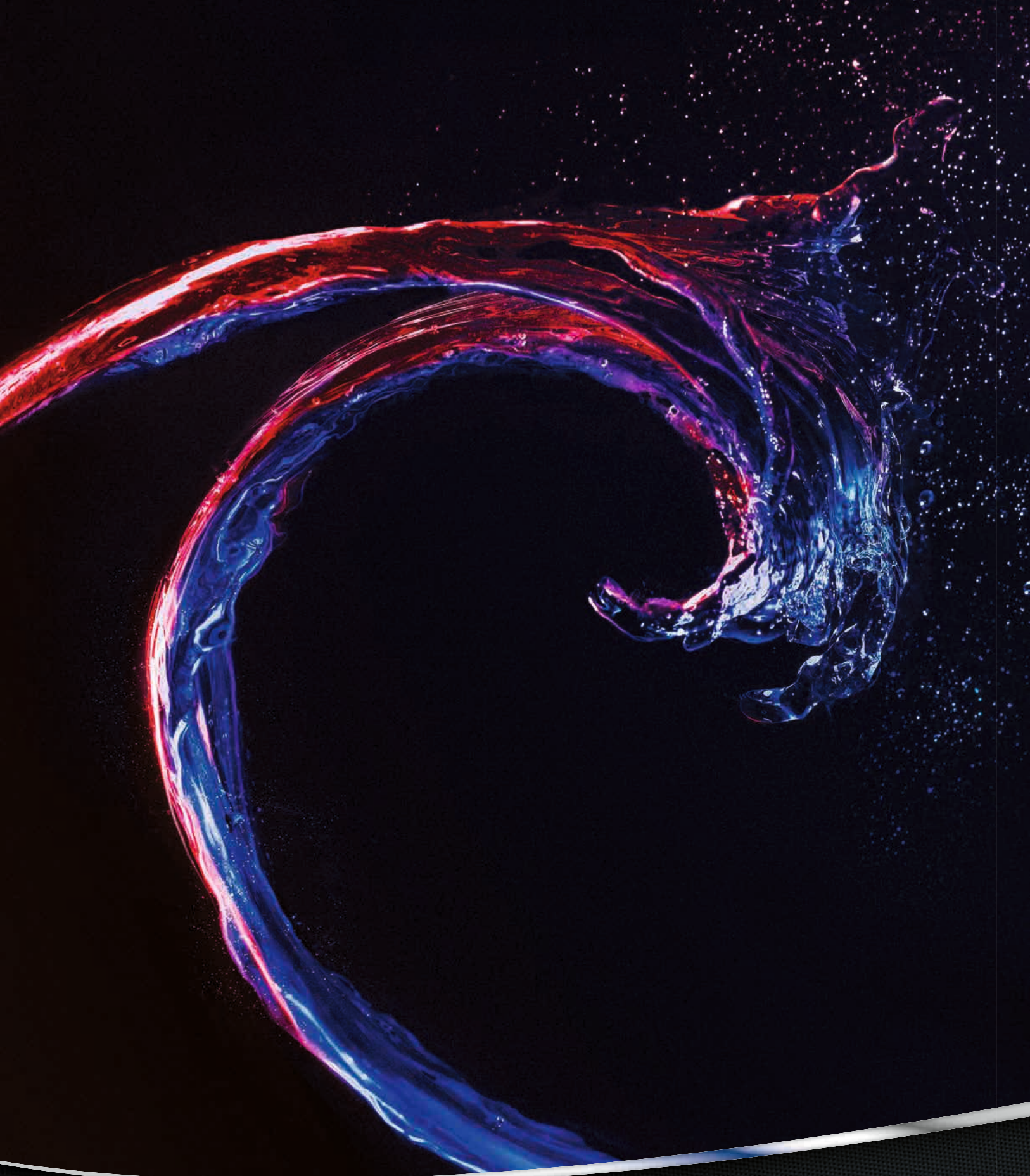


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Surprise
deals win
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SUSTAINABILITY A CLEAR AMBITION

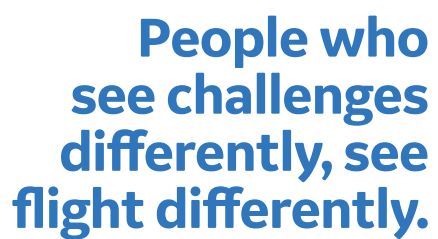


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It's time to get the show back on the road

I was speaking to a marketing communications specialist at one of the major American original equipment manufacturers and asked if the company would have much of a presence at the Dubai Airshow.

"We have literally dozens of senior personnel coming," he said. "It has been nearly two years since they travelled and they are all desperate to get back to face-to-face meeting."

That is not just good news for the Dubai show, but for the industry as a whole. There is a palpable sense of relief that there really are signs of recovery.

One key market looking to new horizons is Saudi Arabia. As our cover story reveals, although some of its vision 2030 plans may have been put on hold for two pandemic-filled years, Saudi Arabian Airlines (Saudia) has a clear pathway ahead.

Already rated as the 'most improved' airline by Skytrax, having moved up the rankings to 26th place, the Jeddah-headquartered carrier has funding in place, a growing tourism and religious tourism market, and a leadership intent on truly achieving its potential.

There's tough competition out there with the other Gulf carriers all vying to beat the world.

Despite having recorded a painful record \$4 billion loss attributed to the pandemic, Qatar Airways received global recognition for its resilience during the Covid crisis – at one point it became the biggest international airline in the world.

At the Skytrax awards it was named best airline in



Reporting the industry: Dubai Airshow will see us on paper, online, and on TV.

PICTURE: TOM PEAFORD

the world, along with a raft of other wins, particularly for its premium services. Its home base airport, Hamad International in Doha, was also named the world's best airport.

With the Arab Air Carriers Organisation (AACO) annual general assembly happening this month, it will also be interesting to hear the discussions from other airlines across the region.

Events like the delayed EXPO 2020, which opened in Dubai at the end of October, are already playing their part in the recovery. Abu Dhabi's Royal Jet has made a small move in terms of distance, but a giant step in support, by opening a base in Dubai to encourage the VVIP market to enjoy the wonders of EXPO.

For those who follow us away from the regular publication cycle, look out for our new digital home

on timesaerospace.aero, which will bring the latest from across the emerging markets of Arabia, Africa and south Asia, and where you can find digital copies of our magazines, newsletters and show dailies.

Our TV programmes, with regular news shows, a defence monthly, insight interviews with the leadership of our most respected companies, and short films about products and companies with a special interest in our region, are all there too.

Like the American OEM we, too, will have a large contingent at the Dubai show, bringing news through our online portal, show dailies and daily TV shows. Why not stop by to see us?

Safe landings,
Alan Peaford, editor-in-chief

COVER: His Excellency, Eng Ibrahim Al-Omar, director general of Saudi Arabian Airlines Corporation, celebrates his first year in the job. PICTURE: SAUDI ARABIAN AIRLINES CORPORATION

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PICTURE: BOMBARDIER



Challenger's new voice

Bombardier introduced its latest mid-size business jet in September, the new sustainably designed Challenger 3500 aircraft. It is an evolution of the Challenger 350 aircraft, introducing a redesigned interior with sustainably minded cabin features crafted to combine comfort with function.

The new business jet will provide a reduced cabin altitude of 4,850ft at 41,000ft, representing a 31% improvement compared to its predecessor.

The Challenger 3500 also introduces several technological features, such as the industry's first voice-controlled cabin to manage lighting, temperature and entertainment systems; the first wireless chargers throughout the cabin; and the only 24-inch, 4K display in its class.

The new business jet is expected to enter service in the second half of 2022.

Qatar signs up for African safari

Qatar Airways and RwandAir have forged a new partnership. The agreement will give customers access to the networks of both airlines.

Akbar Al-Baker, Qatar Airways chief executive, said: "This partnership cements our commitment to giving travellers the widest choice of destinations, while providing a seamless, high-quality travel experience, which is the goal of both Qatar Airways and RwandAir."

"Africa is a hugely important market for us and this latest partnership will help support the recovery of international air travel and offer unrivalled connectivity to and from a number of new African destinations."

Animated discussion

Turkish Airlines has signed a flight data animation partnership with CEFA Aviation. CEFA animations provide flight investigators with realistic visual and auditory elements to go

beyond a purely mathematical analysis. Reproducing the dynamics of time to each sequence of events and leads to a better understanding of performances.

Its ease of use allows flight data analysts to have an excellent resource for communication and risk awareness among crews.

Qatar joins coalition

Qatar Airways has become the first airline in the Middle East to join the International Civil Aviation Organization (ICAO) global coalition for sustainable aviation.

The coalition promotes sustainable international aviation, acting as a forum through which stakeholders can develop new ideas and accelerate innovative solutions that reduce greenhouse gas emissions at the source. It also aims to provide input into the development and implementation of a basket of measures and the exploration of a long-term environmental objective related to international aviation.



Etihad signs multi-year deal with Amadeus

Etihad Airways is set to embark on a major digital transformation following the signing of a landmark multi-year deal with global aviation software specialist, Amadeus.

As part of the deal, Etihad Airways will implement the full Amadeus Altea PSS suite, including web booking, revenue management and merchandising, data management and passenger servicing solutions.

The technology products will be customised for Etihad and will improve the experience of guests, staff, travel agents, and corporate customers.

Pictured signing the deal are Maher Koubaa, Amadeus Airlines EVP EMEA (left) and Mohammad Al Bulooki, COO Etihad. They are supported by Decius Valmorbida, Amadeus travel president, and Etihad chief digital officer, Frank Meyer.

PICTURE: ETIHAD AIRWAYS

Green milestone

Global aviation IT company, SITA, has achieved carbon neutral company certification after using the UN-recognised planet+ programme.

SITA reduced its overall emissions of greenhouse gases by 48% between 2019 and 2020. The milestone was achieved using initiatives designed to create sustainable and energy-efficient workplaces and reduce internal business travel.

AOC Bermuda

RoyalJet Bermuda, the wholly owned subsidiary of the Abu Dhabi-owned and operated RoyalJet Group, has been granted an air operator's certificate (AOC) by the Bermuda Civil Aviation Authority (BCAA).

The granting of this certificate – the first AOC to be issued to the group outside of the UAE – allows RoyalJet Bermuda to conduct commercial operations on Bermuda-registered aircraft managed by the company.

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Job for the boys (and girls)

Global aviation IT company, SITA, and the Crown Prince Foundation (CPF) have signed a memorandum of understanding (MoU) to help improve the career opportunities for students and young professionals in Jordan.

Apprenticeships, internships, and graduate programmes form part of the three-year agreement.

With nearly 70% of the population aged less than 30, the MoU will help young Jordanians develop new skills and grow career opportunities in the information technology sector, one identified as a priority area for the local economy.

That's the ticket!

Etihad Airways is giving all of its guests travelling into or via Abu Dhabi a complimentary ticket to Expo 2020 Dubai, the biggest cultural gathering in the world, taking place between October 1 2021 and March 31 2022.

Emirates gets a pass mark

Emirates is the first airline to implement the International Air Transport Association (IATA) travel pass solution on six continents as it rolls out the digital health pass to customers.

The roll-out across more than 120 Emirates destinations was expected to be completed as *Arabian Aerospace* was going to press.

COO, Adel Al Redha, said: "Emirates continues to invest in technology and solutions, like the IATA travel pass, so that we can deliver smooth journeys and contactless experiences for our customers, while enabling our airport teams



PICTURE: JAZEERA AIRWAYS

Jazeera Airways carries cargo record

Kuwait-based low-cost-carrier, Jazeera Airways, set a record by successfully carrying one million kilograms of freight in July 2021, its highest total since the launch of cargo operations in April 2020.

The airline has transported fresh meats and fish, fruits and vegetables, medical supplies, pharmaceutical equipment, flowers, and garments.

Jazeera Airways chief executive officer, Rohit Ramachandran, said: "Our team did a phenomenal job at securing the necessary certifications from the Kuwait Directorate General of Civil Aviation and from Airbus, and at operating the cargo flights. We would also like to compliment our cargo partner, World Cargo Solutions, for their great cooperation and support."



Fibreglass first for Saudi Arabia

Saudi Aramco has inaugurated the first fiberglass rebar facility in Saudi Arabia, IKK Mateenbar. The facility was established under a memorandum of understanding (MoU) signed in 2019 by New Zealand's Pultron Composites, and its partner, Isam Khairy Kabbani Group (IKK), with Saudi Aramco.

The launch comes as part of the kingdom's

efforts to attract and localise the rebar industry. This is also in line with efforts to achieve the objectives of the Saudi vision 2030, in terms of diversifying the national economy, promoting innovation in the kingdom, and strengthening Saudi Arabia's international relations.

PICTURE: SAUDI ARAMCO

to handle document checks efficiently and in compliance with regulatory requirements."

Done deal

Flyadeal, the low-cost Jeddah-based airline owned by Saudi Arabian Airlines,

has signed a long-term flight hour services (FHS) agreement to support its A320 fleet.

The agreement includes the 1,000th aircraft supported by Airbus flight hour services.

The carrier will benefit from integrated material

services, including spare pool access, on-site-stock at the main base, and components engineering and repairs.

Airbus will guarantee spare parts availability, contributing to securing aircraft technical performance.

Qatar Airways scoops prizes

Qatar Airways has been named 'airline of the year' by the international air transport rating organisation, Skytrax.

It also won five other awards – world's best business class, world's best business class airline lounge, world's best business class airline seat, world's best business class on-board catering, and best airline in the Middle East.

Well connected

Virgin Atlantic has signed a unilateral codeshare agreement with Middle East Airlines-Air Liban (MEA) offering connections between the US and Beirut via London Heathrow.

Customers booking through Virgin are now able to travel between airports such as Boston, New York JFK, Los Angeles and Beirut, connecting between the two airlines at London Heathrow Terminal 3 with a single booking reference and check in.



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A vertical photograph of a night sky. The Milky Way galaxy is visible as a bright, cloudy band of stars stretching diagonally across the upper half of the frame. The sky is a deep purple and blue, filled with numerous stars. Below the sky, a dark, silhouetted forest line runs horizontally across the middle of the image. In the foreground, a calm body of water reflects the colors of the sky and the dark silhouette of the trees.

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AIRBUS

Cargo logistics partnership

Saudi Logistics Services (SAL) has signed an agreement with Gulf Air to provide ground-handling solutions to its fleet at all the Kingdom of Saudi Arabia's main airports.

The Saudi company said that this seven-year agreement is another step towards enhancing the expansion plans and strategic relations with diverse airlines, which have high cargo operational capacity.

SAL CEO, Hesham Alhussayen said the agreement represents years of mutual cooperation in both passenger and cargo flights with Gulf Air; and that the leading Bahraini airline would benefit from his company's wide range of logistics services and offerings.

Meal deal

Etihad Airways and Talabat, the region's food delivery and e-grocery platform, have signed a region-wide MoU.

The agreement will see the two organisations collaborate on a range of initiatives that will benefit both Etihad Airways and Talabat customers and employees.

Etihad guest members can now earn and spend Etihad guest miles when ordering food, groceries and other essentials on the Talabat platform.

Members who have downloaded the Etihad guest

Falcon swoops into Angola's helicopter market



Angola's Turaco Aviation and the UAE's Falcon Aviation Services (FAS) have announced a strategic partnership to provide helicopter services to Angola, offering the latest models of aircraft as well as in-country maintenance capabilities for the southern African markets.

It will be primarily targeting the oil and gas sector, as well as the VIP market through charter operations.

Turaco is a locally registered company and Falcon has operating experience in the UAE, Kuwait, Saudi Arabia, Kazakhstan, Senegal and Ghana from its Abu Dhabi home base.

"We intend for this to be a long-lasting and sustainable partnership, which adds value to the existing offers in the market by offering a service of excellence that is highly focused on safety and compliance," said Albano da Costa, Turaco's general manager.

PICTURE: FAS

mobile app can earn one mile for every AED 3 spent on the Talabat platform using the linked card.

The app will also prompt members to choose if they wish to earn miles or redeem miles on the transaction.

Bangladesh route

EgyptAir plans to operate non-stop flights between Cairo and Dhaka in Bangladesh. The airline was planning to operate the new route, using an Airbus A330-300, as *Arabian Aerospace* was going to press. The agreement was signed by Mohamed Wael Al-Demerdash, EgyptAir VP commercial sector, and Sami Said Ali, ALO Dhaka Aviation CEO.

Connecting Mexico

Emirates and Aeromar have entered into an interline partnership that will provide seamless connectivity for customers between destinations in Mexico and the United States, via Mexico City, to Emirates' global network.

A deal out of Finnair

Turkish Airlines has entered into a codeshare agreement with Finnair.

From September 29, the Finnair AY code was added to Turkish Airlines' routes between Helsinki and Istanbul, and from Istanbul to Athens, Sofia, Thessaloniki, Amman, Sharm El Sheikh, Hurghada, Luxor, Antalya and Gazipasa.

Respectively, the Turkish Airlines TK code was added to the following routes from Finnair's Helsinki hub: Kuopio, Vaasa, Oulu, Rovaniemi, Reykjavik, Tallinn, Tartu, Riga, Vilnius, Antalya and Gazipasa.

Recruitment drive

Emirates has begun a worldwide campaign to recruit 3,000 cabin crew and 500 airport services employees to join its Dubai hub over the next six months.

Emirates has gradually restored its network operations in line with the easing of travel restrictions around the world.

Over the past months, it has been recalling pilots, cabin crew and other

operational employees, who were stood down when the pandemic forced a drastic reduction in flights.

Helicopter tragedy

Two people died after helicopters belonging to the Libyan National Army (LNA) collided 130 kilometres (80 miles) southeast of the country's second city, Benghazi.

Both Mil-MI8 helicopters were badly damaged but the occupants of the second helicopter survived the accident.

"The direct impact between two helicopters caused the death of a general and a technician, General Miloud al-Zouay told *Agence France-Presse*.

DHL Express service centre opens in RAK

DHL Express has opened a new service centre in Ras Al Khaimah. The new 600sqm facility, located between Al-Hamra and RAK city, was inaugurated by HH Sheikh Abdullah Bin Mohammed Al Qassimi, chief executive officer of Master Investment Group.

Mike Barrett, DHL Express UAE vice president of operations, said: "Our new facility stands testament to the company's ongoing efforts to continue strengthening its local presence by offering our customers the best level of service, efficiency and logistical support.

"We see RAK as a very exciting and growing part of the UAE, and look forward to being closer to our customers as we support the growth of the emirate."



PICTURE: DHL EXPRESS

Join this UAE club for the up-to-date market info



An aviation marketplace called TheAirlineClub has been set up in the UAE by a team of aviation executives and entrepreneurs. The new digital platform aims to provide decision-makers with real-time, accurate, reliable and privileged aviation market information.

Two founders – Philippe Bohn (pictured) and Jerome Maillet – are well-known in the aviation sector.

Bohn spent 15 years at EADS/Airbus Group, where he was senior vice-president business development. He was also CEO of Air Senegal for two years before being nominated to the airline's board.

Maillet has been advising shareholders, investors, finance companies and airline senior executives for 20 years.

Victoire Bohn and Johnny Rahajarison complete the team as chief marketing officer and chief technology officer.

Based in Dubai, the TheAirlineClub is a secure platform that allows airlines to have real-time access to the global market without any intermediary (purchase, sales, aircraft rental and services).

According to Bohn: "It will enable companies to reduce costs, exchange confidentiality and find new spaces to grow."

PICTURE: AIR SENEGAL

Turkish fans

Turkish Aerospace has been awarded a contract by Boeing for manufacturing and supplying fan cowl for the Boeing 737 single-aisle aircraft family. Turkish Aerospace will be responsible for 50% of the monthly 737 fan cowl requirements starting in 2025.

Seat of power

Recaro Aircraft Seating is to equip Qatar Airways with its brand-new CL3810 economy-class seat.

Starting at the end of next year, 20 shipsets of the CL3810 will be installed on the new A321neo fleet.

"Partnering with Qatar Airways is always energising because they expect nothing less than excellence in all

aspects of their business," said Recaro CEO Dr Mark Hiller.

"We anticipated the CL3810 being a game-changer for the economy-class seat segment, which has been confirmed now that Qatar Airways, a five-star airline, has selected it."

Wise move

Emirates SkyCargo is launching a new technical solution for its customers that will enhance user experience and the efficiency of the booking process for cargo shipments.

Working with WiseTech Global, a leading provider of software solutions to the logistics industry, Emirates SkyCargo will be providing direct access to its flights and inventory for cargo

customers through the CargoWise platform.

Customers will now be able to make cargo bookings direct on the platform for a majority of their cargo requirements after completing a short registration process.

Transit pact

Silk Way West Airlines has signed an interline agreement with Kenya's Astral Aviation, meaning that the UAE's Al Maktoum International Airport will function as the key transit point.

The interline agreement is to provide cross-selling benefits for both sides by using the wide network of flights to and from Africa.

Falcon boost

Saudi Arabia's General Authority of Civil Aviation (GACA) has certified ExecuJet MRO Services Middle East to carry out maintenance on Dassault Falcon 900B aircraft.

The company is already certified by GACA to do line and heavy maintenance on aircraft manufactured by other original equipment manufacturers (OEMs), such as Bombardier, Embraer and Hawker.

The approval means the company is permitted to carry out maintenance checks up to and including 12 months or 800 flight hours inspections for Falcon 900B aircraft on Saudi Arabia's aircraft registry.

Defence support

Saudi Arabian Military Industries (SAMI), has signed a logistics services agreement with Bahri, the national shipping carrier of Saudi Arabia. Bahri will provide wide-ranging internal and external logistics services, including sea, air, and land transport, as well as freight services to SAMI's various business units and affiliated companies.

Expanded link

Emirates and Airlink have expanded their existing partnership into a unilateral codeshare agreement, giving travellers to and from South Africa access to more than 40 domestic and regional destinations across 12 African countries. The move comes as Emirates resumes its flights to South Africa and provides customers with enhanced connectivity via its gateways in Johannesburg, Cape Town, and Durban.

Iraqi flights

Abu Dhabi International Airport has welcomed two new weekly flights between the emirate and Iraqi capital, Baghdad.

Francois Bourienne, chief commercial officer at Abu Dhabi Airports said: "The introduction of these new flights will support the Iraqi community in the UAE, facilitating a smoother travel experience for them."

SalamAir receives first A321NX

US-based aviation lessor and financier, GECAS, has delivered the first of two A321NX aircraft to Oman low-cost carrier, SalamAir.

Based at Muscat International Airport, SalamAir is now among the first to operate the A321neo in the Middle East.

"GECAS is pleased to deliver our first aircraft with SalamAir, one of the fastest growing low-cost carriers in the Middle East. These CFM LEAP-powered aircraft will assist in their expansion into locations in Asia and Europe," said Michael O'Mahony, GECAS' SVP & region manager.



PICTURE: GECAS



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A year into his post of director general of Saudi Arabian Airlines Corporation, His Excellency, Eng Ibrahim Al-Omar, speaks exclusively to Mark Pilling about how his group will play a strong role in helping to deliver the grand vision and transform the kingdom's fortunes.

SAUDIA'S GRAND MASTER

If Saudi Arabia is to convert its hugely ambitious 'vision 2030' strategy from thousands of well-crafted words into jobs, wealth, a healthy society, and a leading global economy, a strong, home-grown air transport industry will be essential.

The kingdom's leaders only need to look a few hundred miles east of capital Riyadh to role-models in Dubai, Abu Dhabi, and Qatar to see how powerfully airlines contribute to this mission.

A key target in this strategy, kicked off with the kingdom opening its borders to the world in September 2019, is to welcome 100 million international visitors by 2030.

The pandemic, and subsequent closure of borders to overseas travel, has stalled this drive but, make no mistake, Saudi Arabia is determined to make up for lost time.

The man charged with leading the country's flag-carrier – Saudi Arabian Airlines – to transport millions of these travellers, is His Excellency Eng Ibrahim Al-Omar, who was appointed director general of the corporation on October 23 2020.

A year on from his appointment, Al-Omar spoke of his mission exclusively to *Arabian Aerospace* in early October, where he was attending his first International Air Transport Association (IATA) annual general meeting.

As an airline boss and a member of IATA's elite governing board, he was rubbing

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Aviation is a connector of industries, people, logistics and supply chains. Virtually everything we do, touch, exchange, purchase and interact with is, in some way, enabled by aviation.

HIS EXCELLENCY ENG IBRAHIM AL-OMAR



PICTURE: SAUDI ARABIAN AIRLINES

CONTINUED FROM PAGE 21

shoulders at the Boston gathering with fellow CEOs, who were all wearing the bruises of spectacular revenue falls, weighty new debt burdens, a highly uncertain recovery path, and an agenda that has sustainability right at the top.

Unsurprisingly, this seasoned business executive, who was most recently the governor of the Saudi Arabian General Investment Authority and, before that, chief executive of Bahri, the national shipping company of Saudi Arabia, is unfazed by the challenge.

"I am not sure that this was the best time to join the airline industry," he joked. "But, as you know, in every crisis there is opportunity. So, this is how we look at it and I think, after Covid-19, it is a good opportunity for airlines to rebuild their market share again.

"You know, aviation is a connector of industries, people, logistics and supply chains. Virtually everything we do, touch, exchange, purchase and interact with is, in some way, enabled by aviation."

The airline he inherited a year ago has been on its own significant transformation journey over the past several years, and this large state-owned carrier has an inherent advantage not enjoyed by any of its Middle East rivals – a strong and growing domestic market – as well as operating in a country investing heavily in diversifying the economy away from a reliance on oil.

These factors create the opportunities Al-Omar sees ahead.

Firstly, Riyadh's expanded, and modernised, King Khalid International Airport enables Saudi Arabian Airlines to establish a "real hub".

Golden opportunity

"I think that's a golden opportunity for us, especially with the new infrastructure, the new airport, the new regulation [which requires firms wanting to do business in the country to have a regional base by 2024]," he said, pointing to the fact that many other airlines had been forced to cut back hard. "We have a very strong domestic market that gives us a competitive advantage compared to some of our rivals."

Secondly, the MRO sector is seen as another big opportunity. "I think we are expecting a high demand for maintenance. We are building the largest MRO village in the Middle East region. We have planned to localise a lot of services in Saudi," said Al-Omar.

On the cards is a deal with some of the large original equipment manufacturers (OEMs) to be an authorised service provider, targeting business across the whole region, he added.

Last, but certainly not least, is the kingdom's 2030 plan. "The vision, actually, is also creating a huge opportunity for Saudi Arabian Airlines. As you know, there is the 100 million target for visitors in the tourism sector and they're talking about 30 million Umrah visitors," said Al-Omar.

Saudi Arabian has, until now, left the big Gulf three [Emirates Airline, Etihad Airways and Qatar Airways] alone to develop as hub carriers.



That seems set to change, according to Al-Omar.

"Saudi's roadmap spans four continents covering more than 95 destinations. We do have a target to even increase our destinations to meet the tourism plan and the Haj and Umrah [pilgrimage] plans. We have a long-standing presence in global markets around the world.

"What's different now, however, is that previously the majority of the business was point-to-point traffic. Now we will go after even the transit traffic, which means more destinations, more frequencies that we will add to our network.

"Also, the business environment has changed significantly in Saudi Arabia. We have diverse enterprises emerging, with global investment moving into Saudi Arabia having a very strong presence."

International traffic

The return of international traffic will take time, with Al-Omar expecting 88% recovery to pre-Covid levels in 2022 and full recovery by 2024. But the home market has bolstered Saudi Arabian during the pandemic. "We have very strong domestic traffic in Saudi Arabia, and this has accelerated the need to be present in more markets, and also to optimise the network, increase frequencies and deploy aircraft charters, because the plan is to charter aircraft for the Haj and Umrah segments as it's seasonal traffic," he explained.

The Saudi Arabian group's home success has been boosted by Jeddah-based Flyadeal, which began operating domestically in 2017, and is starting to take new Airbus A320neos to add to its fleet of 15 A320ceos.

"Flyadeal is a game-changing initiative that has become the first successful Saudi low-cost airline," said Al-Omar. "It is also currently the fastest growing airline in the Middle East. And the airline accomplished a unique feat by launching exclusively on digital and social channels – 99% of our business is digital.

"In July, Flyadeal began international operations between Riyadh and Dubai, and has carried more than 11 million passengers overall in less than four years of operations."

More international services will be announced this year. "With Flyadeal, you will see a big expansion coming. We will triple our fleet in the coming three years," said Al-Omar. Although the Saudi Arabian Airline Group does not reveal detailed financial results, Flyadeal is profitable at the operational and net level, he said.

However, the kingdom's ambitions do not necessarily stop at Flyadeal, or the existing flag-carrier, when it comes to airline development to support vision 2030.

In July, Crown Prince Mohammed bin Salman Al-Saud announced the planned creation of a new national carrier.

Al-Omar couldn't comment very much about the fledgling plan, with his focus being on Saudi



Flying the flag: Saudi Arabian Airlines and the kingdom's royal air force aerobatics team help celebrate the 91st Saudi National Day.
Left: Going up in the world: Saudi Arabian Airlines was ranked the world's most improved airline in 2021 by Skytrax.

PICTURES: SAUDI ARABIAN AIRLINES

Arabian. However, as he noted: "The market is big with the numbers we are talking about – the 100 million tourists. It's really big numbers and also a very ambitious target."

"I think this will complement actually and not compete... because, ultimately, the owner will be one. And I think it's good for everyone and Saudi Arabia will not do it if it doesn't make sense, both for Saudi Arabian Airlines and for the new airline. So, let's see what's going to happen; there is still not much information about this new airline."

House in order

While watchers will observe this development carefully, Al-Omar is focused on ensuring that Saudi Arabian keeps its house in order. He will not discuss how much, or whether, the carrier has received state money during the pandemic, but stressed how domestic business has thrived, helping to keep the cash coming in.

"I think Saudi domestic traffic helped us big time; it's a tough time for all airline companies. We managed, through many initiatives, to go through this crisis. We learned a lot and we'll keep learning."

In recent years, the carrier has been updating its fleet, and it now operates some 144 Airbus and Boeing aircraft. "It has been an area of focus, and it's part of our transformation," said Al-Omar.

"We will have 38 aircraft [planned for

delivery] from today till 2026. Just last March we raised about SAR11.2 billion (\$3 billion) with six local banks. This was for the partial financing of 73 aircraft, which will cover us up to 2024."

"The financing was the largest of its kind and it will be sourced entirely from within Saudi Arabia, supporting the national flag-carrier and its aviation recovery. To be able to raise that amount of money also shows the trust from the banks for Saudi Airlines during this Covid-19 pandemic. Actually, it was oversubscribed, and that shows the confidence of the banks for the airline."

Investing in a young fleet, and the fuel efficiency gains that brings, is a core component of the carbon emissions reduction story at Saudi Arabian.

IATA's Boston meeting had a huge focus on sustainability, and Al-Omar said that Saudi Arabian takes its responsibility very seriously and supports IATA's initiative to reach net zero emissions by 2050. He added: "We recently appointed a VP – a new position within Saudi Arabian – for environment and sustainability. And we do have already about 50 sustainability initiatives targeted for 2022."

"I think, by the way, nobody knows how we will achieve that target," he said of net zero by 2050. "But it's a target where we are all aligned. It's not just the airline. This is the manufacturer, the airline, the government, everybody needs to contribute to that target. And everyone needs to invest from their side, because airline companies cannot take the load on their shoulders 100%."

Does he see the OEMs stepping up in this respect? "Big time. When you look at Rolls-Royce, and when you talk to GE, when it comes to the engine you will see that they are investing a lot. If you see their research and development budget, I think that tells you where the money is going."

One year into the job, Al-Omar takes pleasure in the carrier being crowned the world's most improved airline of 2021. It rose from 51st position to 26th in the Skytrax ranking of global airlines.

But how does he compare aviation to the other industries in which he has worked?

One of the most regulated industries

"I think it's very interesting and is one of the most regulated industries. It is still behind when I compare it, for example, to the information and communications technology (ICT) industry, when it comes to digitisation, artificial intelligence (AI), and big data," said Al-Omar.

"I think there is big room for improvement for the aviation industry. Going forward, I think you will see a lot of investment in that to be more efficient and smarter in our operation. We will move from preventive to predictive maintenance operations."

"In a year's time, we will talk a lot about what Saudi Airlines has done on the big data concept and initiatives for digitising our operation and customer experience. That is one of our main areas of focus," he concluded. ■

A question-mark hangs over the future of Saudia after Saudi Arabia's crown prince announced that the country plans to establish a new flag-carrier. Alan Dron reports.

Tail of the unexpected

Two years ago, at the first Saudi Airshow held at Thumamah Airfield outside Riyadh, I was quietly buttonholed by a senior executive from the country's national airline, Saudia.

Traditionally, Saudia had enjoyed an extremely low profile outside the Middle East. That meant it was not normally considered by westerners travelling to the Middle East unless their destination was Saudi Arabia itself.

That low profile was about to change, the executive said. It was going to be a case of 'No more Mr Quiet Guy'. The airline was coming out of its shell and was preparing to talk about its virtues much more loudly than in the past.

A few months later, Saudia Group made a splash at that summer's Paris Air Show, increasing an existing order for Airbus

aircraft to 100 machines (65 firm and 35 options), to be split between the mainline carrier and its low-cost offshoot, Flyadeal.

So far so good, but relatively little was heard from the airline in the intervening months between the Le Bourget show and the onset of the pandemic.

Understandably, few announcements were made while the world's airline sector was largely dormant.

In July, however, the Saudi Arabian airline sector was shaken by a speech from the country's Crown Prince, Mohammed bin Salman Al-Saud, who announced the planned creation of a new national carrier.

While he gave few details, it seemed that the new flagship would be the kingdom's premier airline, with Saudia relegated to becoming the country's second carrier,

handling areas such as religious tourism.

Despite this, however, Saudi Arabian Transport Minister, Saleh bin Nasser Al-Jasser – a former director-general of the Saudia Group – noted that Saudia would continue to grow.

So, what does the future hold for the airline scene in Saudi Arabia? As is often the case with the kingdom, the decision-making process is opaque to outsiders.

Two underlying factors are clear: the country is determined to diversify its economy away from the oil and gas industries and developing the aviation sector is seen as one way of doing this. Aviation jobs are generally skilled and well-paid and can be developed into an eco-system of complementary companies, as is the case in Dubai and, increasingly, in Abu Dhabi.

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Up in the air: The future for Saudia is uncertain after the country's crown prince announced plans for a new flag-carrier.

PICTURE: ALAN DRON.



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CONTINUED FROM PAGE 24

Allied to this, Saudi Arabia is making major efforts to market itself as a tourist destination. A string of huge holiday resorts is being developed on the country's Red Sea coast and the tourism authorities aim to showcase its history, landscape, and ecological attractions. Religious tourism, meanwhile, is also slated to increase in the coming years. According to the *Al Jazeera* news agency, pilgrim numbers are scheduled to jump from 17 million in 2019 to 30 million in 2025.

To give some idea of the scale of Saudi Arabia's ambitions in this sector, officials talk of increasing tourism revenues from 3% of the country's gross domestic product (GDP) to 10% by 2030. The target is to attract 100 million tourists a year by the end of this decade – a huge challenge but one that Saudi Arabia, with its financial clout, may well be able to meet.

One step in this process was the introduction of much less expensive tourist visas in 2019.

Indeed, given the scale of the new resorts and the pace at which they are being constructed, this figure does not seem far-fetched. There is already a significant increase in the amount of domestic tourism, with Saudis increasingly travelling to other parts of their nation for leisure breaks.

As part of this new beginning, a new airline may be seen as an attractive method of flying visitors to the country.

Saudia, while a perfectly sound airline, has poor consumer recognition in Europe and the US. The thinking in Riyadh may be that the launch of a new carrier, backed by a large public relations campaign, is the ideal way to attract foreign visitors and generate 'buzz' in the international travel market.

According to Robert Mogielnicki, senior residential scholar at The Arab Gulf States Institute in Washington DC, there is a preference in the Gulf for creating new entities, rather than trying to revamp or improve existing organisations.

A new airline is one way of establishing the new image of Saudi Arabia that the crown prince wants to create in the international arena.

Details, both of the new flag-carrier and how it will affect Saudia, are as yet unclear, although it seems that Saudia's future role will consist of a combination of domestic flights (Saudi Arabia is one of the few Arab nations with a sizeable

The impression I'm getting is that the idea behind the new airline is to create a new entity that would be more amenable to international tourists and global businesspeople.

ROBERT MOGIELNICKI



Lacking profile: Saudia's business-class is well up to regional standards, but the airline does not have the same recognition in markets such as Europe and the US as other Gulf carriers. PICTURE: SAUDIA

internal route network) and carrying religious tourists from throughout the Islamic world to Saudi Arabia for the Haj and Umrah pilgrimages.

Mogielnicki does not believe that Riyadh will cease supporting Saudia, although competition for financial resources could see it operating in the shadow of a new rival – assuming the latter gets off the ground.

"The impression I'm getting is that the idea behind the new airline is to create a new entity that would be more amenable to international tourists and global businesspeople," he said.

Clearly, Saudi Arabia has noted the beneficial impact that aviation has had to neighbouring Dubai, where an astonishing 30% or so of GDP is now generated by the emirate's aerospace ecosystem.

Saudia, said Mogielnicki, enjoyed "not necessarily a bad reputation, but it's not considered on a par with some of the other regional airlines, such as Emirates at Qatar Airways.

"There's certainly a calculation going on in

Riyadh as to 'Do we try to revamp and refurbish [Saudia] and try to catch up, or create a new airline that will cater to a different clientele and keep the existing one for domestic passengers, who are comfortable with it, and for the Haj, where many of those travellers are not concerned with business-class and luxuries.'"

The crown prince wanted to send out this new vision of Saudi Arabia around the world and a new airline was one way of doing this.

"If you send out fleets of Saudia aircraft, people are going to think 'This is more of the same.' If you send out a shiny new fleet, this may have more of a global impact."

UK-based analyst, John Strickland, director of

JLS Consulting, confesses to being puzzled by plans for a new airline. "The logic is not clear to me," he said.

Saudia was already being developed as a hub carrier.

Part of that process involved the order with Airbus for up to 100 aircraft for Saudia and its low-cost subsidiary, Flyadeal. Having made that investment he said he was uncertain why the Saudi Government should then apparently decide to create a new flag-carrier.

He understood Saudi Arabia's wider objective of moving away from being an oil-based economy and to develop tourism but "that doesn't

answer the question of why it would wish to set up a separate airline".

He added: "If this was one of the smaller carriers in the region and had old-generation aircraft and a poor product, it might be understandable but this is not the case with Saudia."

Saj Ahmad, chief analyst at StrategicAero Research, who specialises in Middle East airlines, is sceptical over the plan for a new airline.

"What's the point of having a new flag-carrier when, arguably, they haven't done anything with Saudia to bolster its appeal as an international platform? Unless you're going to Saudi Arabia for pilgrimage or a business-related visit," he added, "it wouldn't be your first port of call."

Ahmad argues that onward connectivity from Saudi Arabia "is pretty poor". Although Saudia is a member of the SkyTeam alliance, none of its airline partners has expanded there. "I think the biggest challenge would be...that Saudi Arabia has never really been a connection gateway to anywhere else," he concluded.



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Julie Dickerson
Chief Executive Officer

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From crisis mode to innovative growth

The coronavirus was and still is affecting the whole world. The years 2020 and 2021 have shown quite dramatically that things can quickly turn out rather different than predicted. But air traffic connects people, nations and cultures. The indispensable hinge function of air traffic for society and the economy has continued to be evident throughout the coronavirus pandemic – with repatriation flights, the transport of medical protective equipment, the distribution of vaccines and the maintenance of value chains.

2020 and 2021 have shown that physical distance sometimes can be vital but also that the 'stronger together' idea is essential in our world. This is not a new concept, but our awareness of it typically becomes more present in crisis situations. As a result, this situation has led us from crisis mode to innovative growth in air traffic management and some state-of-the-art sustainable developments have been established and extended further in recent months.



Andreas Pötzsch, Managing Director DAS

“ DFS Aviation Services is your full-service partner for Air Traffic Control and beyond. From ATM experts. For ATM experts. ”

Green flying for a sustainable future: The sky is not the limit.

The topic of environmental protection is not new but is increasingly shifting into the focus of public interest. Air transport, as a global industry, should have the view and the strategic vision to take responsibility. The need for environmental protection is not in question – it is on us to drive the required changes in our complex world.

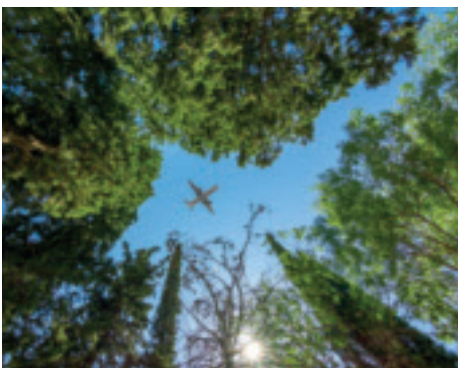
An Air Navigation Service Provider is the key stakeholder in managing its airspace as a resource. In addition to safety, order and efficiency,

a fourth dimension is coming into play – sustainability. New solutions and methods are required to balance these four factors in air traffic management. New technologies have changed aviation dramatically over the past decades. There are many individual solutions available which can support the change towards a greener airspace but there will be no generic solution applicable to all. No single technology on its own will solve your environmental protection targets – it is the people behind the technology who will solve the puzzle to correctly combine technologies and methodologies into a strategy.

DFS Aviation Services has a solid experience in all air traffic management domains required for this change. This includes the implementation of Continuous Descent Operation procedures including an option for procedural separation, the optimisation of flight planning

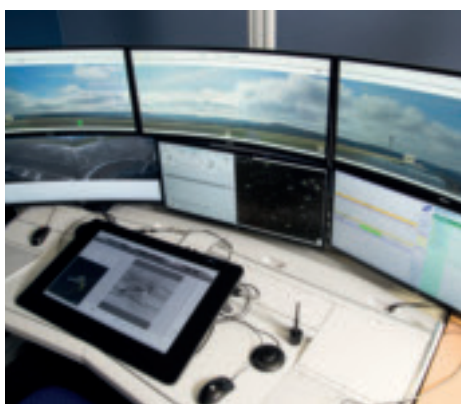
regulations, the use of all PBN procedure options, a redesign of sector geometries and inter-sector agreements as well as the introduction of new air traffic management concepts such as Green Flying (Best Equipped Best Served).

The focus at operational level was on three specific initiatives, which can also be implemented: the Low Demand Concept, Required Navigation Performance (RNP) and High Transition Operations (HTO). These three concepts were developed and implemented within the framework of the joint initiative “Optimised Flying”, which was founded by DFS Group and major German airlines.



Remote Tower ambitions of DFS Group: The next step.

Since December 2018, DFS Group has run its first German Remote Tower Control Centre located in Leipzig (LEJ). After nearly 3 years of uninterrupted operations, DFS Group looks back to more than 22,000 flights with more than 450,00 passengers to and from Saarbrücken International Airport, that have been controlled safely over a distance of more than 450 km from the RTC Centre. Now with the transfer of ATC for Erfurt and the preparation of remote control



for Dresden, the DFS RTC Project is coming into its final phase.

Looking to our joint venture Frequentis DFS AEROSENSE, Naviar, the Danish Air Navigation Service Provider (ANSP), selected the integrated tower and approach solution from AEROSENSE in early 2020 to manage increasing airspace demand and support the workload of Air Traffic Control Operators (ATCOs). The initial remote tower centre at Billund airport will house the system, which is a combination of a remote digital tower and an approach automation solution. This will be the first time that both digital tower and approach services have been combined as one integrated system.

Naviar has successfully completed proof of concept testing for its integrated digital tower and approach solution. The concept testing took place at Frequentis premises in Austria and allowed Naviar to see



several remote tower components on the integration platform MosaiX for the first time. The testing also allowed Naviar to request customisation based on their requirements, proving the flexibility of the solution.

Expand and invest: Services for additional regions such as LATAM & Africa.

Being successful in Europe, the Middle East and other strategic focus regions was key for expansion decisions during the pandemic. Strong partners and clients from both Europe and the Middle East encouraged this strategy.

DFS Aviation Services is therefore intensifying its partnerships and activities in Spain and Latin America. By strengthening these activities, DAS is adding to its international network to provide all customers with fast and personal local availability around the globe. Following on from our subsidiaries, branches and offices in Bahrain, Beijing, Singapore, London and Vienna, the

partner office in Madrid is the perfect addition. The Spanish and Latin American air traffic control market is an important element for every globally active company in the ATM industry. Many development prospects, opportunities, and a wealth of experience come together here. Both sides will benefit from the intensified cooperation and we look forward to contributing to the further development of the Spanish and Latin American market with the expertise of the DFS Group.

In addition, the whole continent of Africa was added to the global network of DFS Aviation Services just recently. This decision was made

as it is not only Northern African countries that require products and services designed, manufactured and factory accepted in Germany but the whole continent. Therefore, investments during the pandemic were made in all directions: growth & expansion, new product development as well as product evolutions. The future is just ahead of us and all stakeholders, partners and clients expect preparation and support for this change. This is what drives us to go the extra mile each and every day globally.

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As Middle East airlines' senior executives gather in Doha for the Arab Air Carriers Organization (AACO) annual meeting, they face a uniquely difficult set of circumstances. Alan Dron reports.

Abdul Wahab Teffaha:
"Unfortunately, for many governments, aviation and tourism don't come high on their priorities."

PICTURE: BILLYPIX.



Let us carry on flying

Instead of global guidelines, many governments are resorting to decisions that are taken on the basis of fear of blame whenever anything spikes. They resort to closing things down.

ABDUL WAHAB TEFFAHA

The problems caused by Covid-19 will, obviously, overshadow much of the conversation at the AACO summit.

"We're still very much in the tunnel," said AACO secretary general Abdul Wahab Teffaha. "One of the reasons for that is how governments are handling the issue. Instead of global guidelines, many governments are resorting to decisions that are taken on the basis of fear of blame whenever anything spikes. They resort to closing things down."

The problem is that governments tend to look at the total picture and need to provide a safety net for the whole population, irrespective of business needs, he added.

"Unfortunately, for many governments, aviation and tourism don't come high on their priorities and the level of support [in the Middle East] is nowhere near the level that US and European airlines have enjoyed. US airlines received almost 45% in terms of revenue losses and Europe, 37%. In Arab nations it was no more than 15%.

"We're saying to governments, 'Fine, you can't support us, but let us carry on with our business. Let us at least provide people with the ability to fly without having to undergo all of these complications requiring quarantines and so on.'"

"Quarantining is about social behaviour. How much did it add value to anybody who applied it? We looked at countries that applied quarantine over restrictions and the number of Covid cases went through the roof.

"Not only us, but the International Civil Aviation Organization (ICAO), all the international organisations are saying to governments: 'You do a PCR test and you can do an antigen test on arrival, then you don't need quarantine. Let us do what we do best.'"

Last year's AACO annual meeting was a virtual affair; this year's event in Doha, from November 13-15, although returning to the 'live' format, "will be very different from usual", Teffaha admitted, with the full range of anti-Covid procedures in place, including social distancing.

On the plus side: "The Qatari Government has an open door to vaccinated people and we're talking to them to see how we can allow people who can prove that they are free of Covid to enter."

One airline likely to be the subject of conversation at the meeting is Air Arabia, which has not only set up a new low-cost carrier (LCC) with Etihad in Abu Dhabi, but which is also engaged in joint ventures to set up new airlines in Armenia and Pakistan.

Are joint ventures the way forward for Middle East airlines who want to expand but find themselves hemmed in by national regulations?

"Without talking specifically about Air Arabia's plans," said Teffaha, "from the point of principle, we know that one of the few global industries that is still restricted is cross-border operations of aviation because of the legacy of tying airlines with the identity of the country as a flag-carrier."

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"In the last 15-20 years we've always advocated for a liberal approach towards the removal of ownership and control restrictions, but in the absence of ownership and freedom of control, airlines will resort to cross-border partnership and what Air Arabia is doing is, I believe, trying to expand its footprint through partnerships.

"This is not something new for the industry. We all know what Air Asia did, as did International Airlines Group, LATAM and Lufthansa, where they have ownership of a number of airlines.

"As long as ownership and control rules remain in place, airlines will have to find ways to maximise and create synergies among themselves through joint ventures and cross-shareholdings. It's the only way for airlines to expand horizontally, rather than vertically, because they're not allowed to do that."

The past year has seen the continued growth of LCCs in the region, notably in Abu Dhabi, where the joint venture between Etihad and Air Arabia is competing with Hungary-based Wizz Air's local incarnation, Wizz Air Abu Dhabi, which is a joint venture with state-owned ADQ (formerly the Abu Dhabi Developmental Holding Company).

In addition, Saudi Arabia's Flyadeal and Flynas are in the midst of major fleet expansions and others, such as Jazeera Airways and SalamAir, are also growing.

Does the growth of LCCs threaten to bring over-capacity to the region?

"The market balances itself out," Teffaha said. "We always say competition is healthy and that it is good for the customer as well as for the airlines because that keeps them energised and offering the best possible service and the best possible prices.

"I'm not going to judge whether it's over-capacity or not. Evidence has shown that the presence of new entrants in the market actually energises it and stimulates demand, provided the regulatory regime allows that stimulation to happen."

Last year's AACO annual meeting should have taken place in Beirut. However, Lebanon's recent economic and social difficulties, made worse by the massive warehouse explosion in summer 2020 that killed hundreds and destroyed or badly damaged tens of thousands of homes and offices, meant that it was not an option simply to push the venue one year forward.

Hotels are operating, said Teffaha, but AACO was concerned that the country's turmoil would

lead to many airline executives failing to turn up. However, the Lebanese capital has now been pencilled in for the 2023 event.

The location of 2022's annual meeting will, as usual, be announced during this November's event: "We have a number of invitations from countries," Teffaha said.

How well have AACO's members survived the pandemic?

"Some are struggling," admitted the secretary-general. "The level of recovery [in the region] is still below the global average." Traffic levels are still around 82% below their 2019 levels, effectively returning the region's airline sector to levels last seen in the 1970s.

The region has seen the continuing normalisation of relations between several Arab states and Israel. Services have started between Gulf cities and Tel Aviv, with both Arab and Israeli carriers operating the sectors.

AACO does not get involved in the politics of such decisions. In general, however, the civil aviation industry thrives in peace, said Teffaha. "We hope peace will prevail, because that would be good for the population, for travellers and all businesses – including airlines.

"If we're allowed to carry more people, we will be happy."



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CHALLENGE.
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*Before the pandemic, there were plans for Air Algérie to spend \$2 billion on new aircraft. Now, as **Vincent Chappard** reports, the carrier is struggling for its very survival.*

AFRICA-EUROPE ROUTES CAN PLAY KEY ROLE FOR AIR ALGÉRIE

Air Algérie increased its flights from nine to 32 per week in September. It was one small step that might mean there's light at the end of the tunnel.

Even so, the national carrier is currently operating just 7% of its network compared to the pre-Covid-19 period.

In March 2020, at the start of the pandemic, the Algerian authorities took the decision to nail the airline's aircraft to the ground.

The carrier did manage to carry out repatriation flights for Algerians stranded around the world and even operated destinations it had never flown before, including India, Malaysia and the US.

Borders reopened partially in June, enabling Air Algérie to resume its international operations with nine weekly flights to Tunisia, France, Spain and Germany. Since then, the airline's spokesperson, Amine Andaloussi, said: "We strengthened our flight programme on September 1 with 32 flights per week operated with A330s."

The programme, which is established in collaboration with Algeria's ministry of health and public authorities, depends very much on the health situation locally, as well as in the countries being served.

According to Andaloussi, despite financial difficulties, Air Algérie was on an upward curve before the Covid-19 crisis. It carried more than 6.5 million passengers in 2018 and registered growth in 2019.

"We had a very ambitious programme for 2020 with a \$2 billion project to acquire 30 aircraft," he said.

Air Algérie had also regained market share, particularly between Algeria and France when Aigle Azur (which held



Amine Andaloussi:
"The Covid-19 crisis has strongly disrupted our vision of the market and gives little visibility."

PICTURE: AIR ALGÉRIE

28% market share) went out of business. France remains a strategic market due to a large Algerian diaspora established in the country.

Andaloussi said that the main challenge today is to preserve the national company and help it regain a good financial health. "The Covid-19 crisis has strongly disrupted our vision of the market and gives little visibility. No company today is able to make reliable forecasts," he said.

"Many parameters are disrupting our studies and projections, including restrictions in countries in Europe and North America, and the recognition of vaccines."

He added that it was very hard to manage this "stop and go" situation.

Air Algérie needs state support to deal with operational emergencies. With its cash flow in the red, it recorded a \$290 million (80 billion dinars) debt during the first year of the Covid-19 crisis.

According to several sources, the new Algerian Minister for Transport, Aissa Bekay, and acting Air Algérie director-general, Amine Mesraoua, commissioned a study from specialist consultant, Mahmoud Mahali, for a recovery plan. It recommended, among other things, increasing its services; improving its distribution model by integrating electronic tickets and online sales; improving its competitiveness; better management; and even lowering ticket prices, which act as a hindrance to the Algerian diaspora seeking to travel.

While Algeria seems to be prepared to gradually open its skies to private companies, Air Algérie has a crucial role to

Back in the sky: Air Algérie is gradually increasing its flight numbers.

PICTURE: AIR ALGÉRIE



play. It must seize the opportunities offered by this new chapter in air transport development between Africa and Europe, in particular.

There is a need to balance the power relationship between African and European airlines on this market.

Many Algerian and non-Algerian actors are positioning themselves on the Algeria market. Fly Westaf (see page 35), for example, recently announced that it will soon operate to France from Tamanrasset. The 100% Algerian low-cost airline wants to support the tourism sector through cheap flights.

Even if the European or Middle Eastern companies already present in north Africa are in the process of rethinking or rebuilding their regional network, they are, nevertheless, keeping a close eye on the Algerian market. ■

Workhorse: FlyWestaf is proposing to launch domestic passenger services with a fleet of De Havilland Dash 8 Q400s.

PICTURE: FLYWESTAF



FLYWESTAF EYES UP ALGERIAN LCC MARKET

New airline, FlyWestaf, is hoping to bring much-needed competition to the domestic Algerian market.

Martin Rivers
reports.



Chakib Ziani Cherif: "It is a first in Algeria – a large market that is opening."

PICTURE: FLYWESTAF

FlyWestaf moved a step closer to becoming Algeria's first low-cost carrier on August 18, when its application for an air operator's certificate (AOC) was formally received by the country's civil aviation authority.

The start-up is headed by co-founders, Chakib Ziani Cherif and Richard Powell, who are proposing to launch domestic passenger services with a fleet of De Havilland Dash 8 Q400s.

Capital city, Algiers, will be the airline's main operating base, with a secondary hub also being established in Tamanrasset, an oasis city in the far south of Algeria.

Longer-term, the business plan envisages subsidiaries or franchises being set up across west Africa – initially focusing on Gambia, the former British colony that has been without a domestic airline since 2014.

Algerian president, Abdelmadjid Tebboune, has repeatedly called for more competition in the civil aviation sector since taking office two years ago.

The Algerian market is currently dominated by two state-owned airlines: flag-carrier Air Algérie, which has a poor reputation with customers owing to its low service standards and frequent delays; and Tassili Airlines, which began life as a charter carrier for oil workers and has struggled to diversify beyond this niche.

Privately owned domestic airline

Former transport minister, Lazhar Hani, announced plans for a new, privately owned domestic airline in October 2020. Although he was fired by the president three months later over a procurement scandal, the ministry remains committed to the project.

Talks were held between government officials and "a dozen potential investors" in July, according to local media. FlyWestaf is the only company to have subsequently disclosed an AOC application.

However, despite being the front-runner in the liberalisation of Algeria's skies, things haven't gone smoothly for the start-up.

Management originally planned to launch operations in May 2021 in Gambia, having won the apparent backing of that country's president, Adama Barrow.

An initial route network of eight destinations was announced for the Banjul base: Abidjan (Ivory Coast);

Bamako (Mali); Bissau (Guinea-Bissau); Conakry (Guinea); Dakar (Senegal); Freetown (Sierra Leone); Monrovia (Liberia); and Praia (Cape Verde).

Chartering larger aircraft for flights to western Europe was also on the agenda. Gambia's tourism sector has been heavily dependent on European leisure carrier TUI since the collapse of Gambia Bird, the former flag-carrier, in 2014.

As well as deferring its Gambian project, FlyWestaf has significantly altered its plans for the upcoming Algerian unit. The company originally intended to use the coastal city of Oran as a secondary hub, deploying aircraft to five domestic and four international markets. The overseas routes were expected to be Alicante and Barcelona in Spain; and Toulouse and Montpellier in France.

Tamanrasset has now replaced Oran as the planned satellite hub – likely due to the government's decision to initially grant only domestic flying rights.

"We are on the verge of having a provisional authorisation for [our] AOC after our meeting with the Algerian minister of transport," Cherif said. "It is a first in Algeria – a large market that is opening [up to competition]. Of course, our strategy in west Africa is not forgotten. Precisely, it's a unique opportunity to link the two markets ... from Tamanrasset in a second phase."

Launching operations in the midst of the airline industry's worst ever downturn might seem like an extraordinary gamble. But management appear confident that times of crises offer the greatest opportunities. Cherif points to historically low leasing rates for aircraft amid an ongoing supply glut, as well tentative signs of a recovery in global travel this summer.

He also believes that the economic hardships created by the Covid-19 pandemic will motivate African governments to push forward with long-overdue reforms to their civil aviation sectors – specifically, by replacing wasteful legacy flag-carriers with more cost-effective budget airlines.

That is likely to strike a chord with President Tebboune, who has vowed to rid Algeria of its reputation for public-sector bureaucracy and inefficiency.

What is not clear is whether FlyWestaf has secured the necessary funding to make good on its promises. Management have been seeking investment of \$9.2 million to get off the ground – about one-third of which they expect to come from Algeria's state-run National Investment Fund.

CONVERTED FREIGHTERS BROADEN HORIZONS OUTLOOK

Saudi Arabian group, Aviation Horizons, has broadened its interests by launching a new cargo airline.
Alan Dron reports.

Jeddah-based Aviation Horizons has acquired a Boeing 737-400SF converted freighter and plans to bring two more examples into its fleet.

Until now, the company has operated a variety of services including executive jet charter, aircraft sales and financing, and crew training.

UK-based Air One Aviation, with which Aviation Horizons has signed a global cargo general sales agency contract, says the aircraft will be used for regional cargo services. The 737-400SF has capacity for up to 18.5 tonnes of freight in 11 ULD container positions.

The aircraft will be based in Sharjah and be available for both long-term contracts and ad hoc cargo charters.

"The strong demand for freighter aircraft during the pandemic has created new market opportunities and further accelerated already-strong potential for a mid-size aircraft like the Boeing 737-400SF, which is well-suited to regional cargo operations," said Air One Aviation's chairman, Guneet Mirchandani.

The initial 737-400SF entered service in June. The



Busy: Aviation Horizons' initial Boeing 737-400SF has already operated to several countries in and around the Middle East.

PICTURE: VIA AIR ONE.

planned arrival of two more aircraft will ensure that Aviation Horizons has a back-up aircraft necessary to support high-frequency e-commerce flights.

"As well as ad hoc charters, it also offers availability for long-term contracts in the Far East and south Asia markets, and we are seeing growing interest from companies looking for short, medium and long-term capacity solutions," said Mirchandani.

"Continued uncertainties in the scheduled airline cargo market mean many companies are looking to take control of their own capacity requirements and, on a regional basis, the 737-400SF fits this requirement perfectly."

Mirchandani accepted that the global freighter market is competitive but said that the combination of the 737-400SF's capabilities and Air One Aviation's experience and customer database meant the aircraft had quickly attracted bookings for full charters on routes both within Saudi Arabia and to the UAE, Iraq, Afghanistan, India and Somalia.

"As expected, we're seeing demand for regional ecommerce flights to benefit from the Sharjah-based 737 freighter's capabilities and range, and the perishables market has also been served. We are confident there is sufficient growth potential for Aviation Horizons' cargo business."



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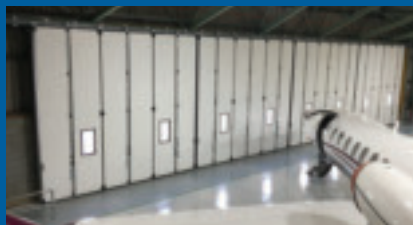
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Air Arabia is helping Armenia's aviation ambitions get off the ground with the creation of a new joint venture airline. Alan Dron reports.

Air Arabia signs up for Armenian adventure

Sharjah-based low-cost carrier (LCC) Air Arabia and the Armenian National Interests Fund (ANIF), the small Caucasus nation's nascent sovereign wealth fund, are cooperating to create the new company.

To be known as Fly Arna – an abbreviation for Armenian National Airline – the two sides hope to see the new company take off in early 2022.

The initial idea for an airline started almost three years ago during a meeting of the heads of state of Armenia and Sharjah, at which areas of possible economic cooperation and investment were discussed.

The idea for transportation cooperation was handed over to the two states' officials to make progress. Covid delayed matters, but more detailed negotiations then took place on bringing the idea of a new airline to reality.

Armenia has had a chequered recent history with national airlines. Armenian Airlines, which emerged in 1992 as a successor to the local division of Aeroflot following the USSR's collapse, failed in 2003, while its successor, Armavia, closed its doors in 2013.

The new airline "will contribute significant value to the economy and energise our travel and tourism sector", according to ANIF CEO, David Papazian.

"Air Arabia has a well-established track-record in launching and operating successful LCCs, and its know-how will be a differentiating strength of the new airline," he added.

ANIF manages a portfolio of strategically important assets in Armenia, together with investment activities, including the co-financing of major projects at an early stage in their development.

The Sharjah airline has a record of joint ventures, most notably recently with Etihad as Air Arabia Abu Dhabi, while in September it announced it was setting up a new

Pakistan LCC, Fly Jinnah, in tandem with local conglomerate, Lakson Group.

"Air Arabia will bring quite a lot to the table," Papazian said. "Firstly, the management of the airline on a day-to-day basis is their responsibility; we're financial investors, as we don't have the background or internal capacity to do that."

However, he added: "They invested a significant amount of capital as well, which is an important point. Here is a company that is voting with its pocket-book."

Air Arabia's expertise also allows the new airline to get into the air faster than normal. "If we were creating an airline from zero with people with experience, that would be fine, but we're benefitting from the very significant footprint Air Arabia has in areas such as negotiating contracts," explained Papazian.

Crowded marketplace

The ANIF CEO admitted that, two years ago, he would not have considered involvement in the airline sector, given a crowded marketplace and the presence of well-funded state carriers, for whom profitability was not a priority.

Armenia was looking to Air Arabia to make Fly Arna profitable: "This is not going to be a cost centre for a state airline. It has to make money," said Papazian.

Noting that Air Arabia recorded a net profit in the first half of 2021, when most airlines were still knee-deep in red ink, he added: "The numbers speak for themselves."

The new carrier will be based at Zvartnots International Airport in Yerevan, Armenia's capital.

It is designed to serve Armenia's fast-growing travel and tourism sector, which accounted for nearly 12% of the nation's gross domestic product (GDP) in 2019 and 12.5% of employment in the mountainous, landlocked country.

"We see tremendous potential for Armenia in building its airline sector, which will add sustained value to the economy through job creation and the development of the travel and tourism sector," said Air Arabia Group CEO, Adel Ali.

Fly Arna plans to operate between two and four aircraft in its first year of operation. The type has not been decided, but they will be leased and may come from the Air Arabia Group, although this has not been decided.

Initial routes had not been announced at the time of writing but will cover popular destinations in a two to three-hour radius of Yerevan, biased towards the west, north and south. ■

Doing the deal: (from left) David Papazian; Tigran Avinyan, deputy prime minister of Armenia; Sheikh Abdullah Bin Mohammed Al Thani, chairman of Air Arabia; and Adel Ali.

PICTURE: AIR ARABIA



Middle Eastern air forces are increasingly fielding a new class of very-long-range stand-off missile, despite the strictures of the multilateral Missile Technology Control Regime (MTCR) and the fact that the US is determined to limit the range and payload of any such weapons systems supplied to its regional allies. Jon Lake analyses the situation.

Hitting on missiles



Pressure on Arab air forces to acquire long-range stand-off attack capabilities has grown inexorably as they have increasingly embraced a wider spectrum of roles and capabilities.

Their ambition to become 'full-spectrum air forces' has been encouraged and furthered by the US.

America's increasing pivot to Asia has led to a gradual drawdown of US forces deploying to the region, and to an expectation that local nations would shoulder a growing share of the burden of their own defence.

With increasingly lethal defences, and a more heavily contested air environment, any air force that might need to take part in a peer-on-peer (or near-peer) campaign will inevitably need a suite of new capabilities.

As a bare minimum, this will include stand-off precision-guided munitions (PGMs). These must be capable of delivering a meaningful payload over sufficient range to avoid the launch aircraft having to penetrate too many layers of an enemy's defences, and must have sufficient accuracy to be able to knock out targets, while minimising collateral damage.

This need for stand-off weapons was required in order to avoid unnecessary losses to enemy air defences, but has been made more difficult as a result of the Missile Technology Control Regime (MTCR) agreement.

MTCR is not a formal treaty, but is rather an informal political understanding – originally

among the G7 group of nations, but now involving some 35 member states.

The agreement's purpose is to limit the proliferation of weapons of mass destruction (WMD) and it does this by controlling the export of potential delivery systems – other than manned aircraft.

MTCR places particular emphasis on those missiles and unmanned aerial vehicles that are capable of delivering a payload of at least 500kg (1,100lb) to a range of at least 300km (190 miles), and it effectively prohibits the export of weapons systems in this class by (or to) MTCR signatories.

Classes of weapons

For many years, the US deliberately kept certain classes of weapons from its Middle Eastern allies. This was, in part, in an effort to avoid proliferation, in the same way that AIM-120 AMRAAM air-to-air missile sales to the region were initially denied.

But it was also to avoid giving Arab air forces weapons that could erode the Congressionally mandated Israeli 'qualitative military edge' – or that could even provide a possible tool for striking Israel.

Such a fear was unrealistic – for the past 30 years, Israel has never been attacked by an Arab state allied to the US – or not with anything more potent than rhetoric or robust condemnation for its treatment of the Palestinians!

Keeping local allied air forces weak in this way

made some sense, as long as their purpose was to be adding local 'flavour' and colour (and therefore legitimacy) to a US-led coalition.

It made sense while the primary role of the local air forces was air defence, freeing up US platforms to go and strike the enemy.

It continued to make sense even when those local air forces started to make a more meaningful offensive contribution, as that contribution was, initially at least, one that saw them adding mass to a force, bulking up the numbers of bomb-carrying F-16s, and leaving 'higher-end' roles to US, British and French units.

Some stand-off capabilities were deemed relatively 'harmless' – and there was never any real attempt to limit the export of battlefield weapons like the AGM-65 Maverick, nor of glide bombs like the GBU-31 joint direct attack munition (JDAM).

But, as the operational environment became more contested, and the use for simple 'bomb-droppers' declined, the need to provide more powerful armament became ever more pressing.

The US has allowed a 'top tier' of MENA allies – usually Saudi Arabia, the UAE, sometimes Morocco, and, until recently, Turkey – to take delivery of more advanced weapons systems. These include the 60-mile range AGM-88 high-speed anti-radiation missile (HARM) and the AGM-154 joint stand-off weapon (JSOW), a glide bomb with a range of 22km (12nm) following a low-altitude release, and 130km (70nm) when dropped from high altitude.

Formidable:
The USA's
main export
long-range
ASM offering is
the AGM-84H/K
SLAM-ER –
seen here on a
Turkish F-16.

PICTURE: THK.



From left: An Emirati Mirage 2000-9 dropping an Al Hakim boosted glide bomb. PICTURE: UAE AF&AD. An F-16 drops an AGM-154 JSOW. PICTURE: US AIR FORCE. The Roketsan SOM-J is an indigenous Turkish cruise missile, originally intended for use by the F-35. PICTURE: ROKETSAN. The Black Shaheen export version of Storm Shadow. PICTURE: GEC. An Emirati Mirage 2000-9 carrying a Black Shaheen cruise missile. PICTURE: DASSAULT. An Egyptian Rafale armed with Safran's AASM modular glide bombs. PICTURE: EGYPTIAN MoD.

The JSOW has been exported to Morocco, Saudi Arabia, Turkey and the UAE, while HARM was sold to these four nations, and also to Egypt.

More controversial from a US point of view is the AGM-84H/K stand-off land attack missile - expanded response (SLAM-ER), a derivative of the Harpoon anti-ship missile, which carries a 360kg (800lb) warhead, out to a range of 270 kilometres (170 miles).

The SLAM-ER is an extremely formidable weapon, packing a lethal punch and with great accuracy. In 2009, it achieved the best circular error probable (CEP) of any missile used by the US Navy, thanks to its global positioning system (GPS) and infrared imaging.

The missile incorporates a General Electric automatic target recognition unit (ATRU) that processes pre-launch and post-launch targeting data, allowing the weapon to use high-speed video comparison, and enabling it to be used in a true 'fire-and-forget' role, though the missile also includes a 'man-in-the-loop' mode, allowing the pilot or weapons system officer to designate the precise point of impact, even if the target has no distinguishing infrared signature.

The AGM-84H SLAM-ER can strike both moving and stationary targets and carries a 360kg (800lb) warhead, to an MTCR-bothering range of 270km (170 miles). In the MENA

region, it has been exported to Saudi Arabia, Turkey and the United Arab Emirates.

Other nations were quicker off the mark, and the Anglo-French SCALP-EG and Storm Shadow have been exported to Rafale, Mirage 2000, Tornado and Typhoon operators in the region.

Virtually identical

SCALP EG is a low-observable air-launched cruise missile, developed by Matra and British Aerospace from 1994, and now manufactured and marketed by MBDA. Storm Shadow is the British name for the weapon. The weapons are virtually identical in all ways, excepting software and aircraft interface components. Some sources credit the basic Storm Shadow with a range of more than 300nm (560km; 350 miles) when following a lo-lo profile.

In 1996, a modified variant of the SCALP EG/Storm Shadow called the Black Shaheen was developed for the UAE, which ordered 600 missiles in 1997.

Modifications to the Black Shaheen missile included a decreased range (of 290km) and a certified sub-500kg payload to meet MTCR restrictions.

Despite this, Black Shaheen provoked a major controversy, with France and the UK claiming that the sale was in compliance with the MTCR,

as the missile's range was less than 300km – when calculated at sea level. The US, however, argued that the sale was a violation of MTCR, calculating that the missile's range at altitude was more than 400km. MTCR guidelines were updated in 2002 to standardize how the range of cruise missiles was calculated.

The UAE Black Shaheen missiles were delivered in 2003 and were operational by 2007. Since then, Storm Shadow has been delivered to the Royal Saudi Air Force (possibly in a reduced range form), while, by February this year, Egypt had examples of the SCALP-EG for its Rafale fighters.

More recently, Storm Shadow and SCALP have been sold to Qatar, to equip the Rafales and Typhoons now being acquired.

Some nations, though, have opted to develop their own indigenous weapons. In Turkey, the SOM cruise missile has been developed by TÜBİTAK SAGE with ROKETSAN being given the role of manufacturing the missile and marketing it for export.

The SOM-B1 weighs in at 620kg (1,367lb) and has a range of more than 250km (130nm), while the latest SOM-J, which was designed specifically for internal carriage by the F-35 Lightning II, has folding control surfaces and a rocket booster, giving a modest increase in range.



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THOROUGHLY MODERN MILLI...

Turkish Aerospace Industries formally exhibited the country's new National Combat Aircraft or Milli Mubarip Uçak (MMU) at the 15th International Defence Industry Fair (IDEF) in Istanbul. Jon Lake reports.

The MMU was previously known as the TF-X and is an indigenous fifth-generation fighter developed by prime contractor TUSA /Turkish Aerospace with technological assistance from BAE Systems.

Some 250 of these stealthy tactical fighter aircraft are due to be procured between 2029-2040, and the programme is now designated as a 'national survival project'.

The Turkish Ministry of Defence is having to chart a new course following the country's unceremonious ejection from the US-led F-35 Joint Strike Fighter programme. This was a result of the sanctions imposed by the US after Ankara took delivery of the Russian S-400 air defence missile system.

The Turkish Air Force had planned to base its future force structure around a high:low mix of types. Some 25% of the fast-jet force were to be high-end, low-observable (or stealthy) fighters, with the remainder consisting of 4.5-generation aircraft.

Though it has some of the hallmarks of a fifth-generation fighter, Turkey's new MMU was actually originally intended to be the cheaper, less capable element in this planned high:low mix, replacing the air force's F-16 fighter jets.

About 100 F-35s were to have provided the 'high-end' element. With the termination of Turkey's involvement in the F-35 programme, this plan is now in doubt.

Instead, in the short term, the service life of Turkish F-16s is likely to be extended, leaving the MMU as the high-end element.

Extending the life of the F-16 to operate alongside the MMU in this way could meet Turkish air defence requirements in the short-to-medium term. A second iteration of the MMU



might now eventually fill the high-end platform requirement.

Turkish Aerospace president and CEO, Professor Temel Kotil, said that the company plans to roll out the first MMU prototype (which is due to fly in 2026) on March 18 2023.

This is a significant date for Turks, as 2023 marks the centenary of independence and of the foundation of the Republic of Turkey as a modern and secular nation state. Also, March 18 is the anniversary of what many know as the Gallipoli campaign, but which Turkey remembers as the famous naval victory of Çanakkale, the prelude to the Turkish war of independence.

Design and development

Kotil was keen to emphasise the involvement of Turkish companies in the design and development of the MMU, ensuring the operational sovereignty of the aircraft. He said: "We have Aselsan for avionics and computer hardware, Havelsan for software, and TAI also has its software team." He added that even the air conditioning requirements would be met by a domestic supplier.

The MMU programme will be divided into three phases.

■ Phase one, stage one will include the preliminary design review, while stage two will include more detailed design and qualification.

■ Phase two will begin in late 2028 and will include the delivery of 10 'block one' aircraft.

■ Phase Three will begin in 2034, with follow-on blocks being delivered that year and into the future.

A system requirements review (SRR) later this year will see the air force's operational requirements transformed into objective,

measurable plans. A system functional review (SFR) will also take place by the end of the year, breaking down the requirements at a system level, while also setting the key user requirements (KURs).

Late 2022 will see the preliminary design review and the finalising of the aircraft's shape, sensors and sub-systems.

A prototype will be rolled out in early 2023 with a critical design review to follow in mid 2024.

There will be three 'block 0' development aircraft and a first flight is predicted for late 2026.

The MMU will be built on big data, artificial intelligence (AI) and sensor fusion, and is likely to incorporate laser-directed energy and electromagnetic pulse weapons.

Its beyond-visual-range (BVR) air-to-air missiles will include Meteor, AMRAAM, MICA and the indigenous Gökdoğan missile, while short-range weapons will include AIM-9X, ASRAAM, and the Turkish Bozdoğan missile.

The fighter will have a reconnaissance pod and a range of air-to-ground weapon options, including the indigenous SOM cruise missile. It only has a 1,000lb internal weapon load but, when not in low-observable configuration, will have six available hardpoints to be able to carry much more.

Turkish Aerospace is also planning to conduct the first flights of both the Hürjet 2 advanced jet trainer and the TAI T929 ATAK combat helicopter on March 18 2023.

The Hürjet is a single-engined, two-seat, supersonic armed trainer aircraft developed by Turkish Aerospace Industries (TAI) and intended to replace the Turkish Air Force's ageing fleet of Northrop T-38 trainers.



Back-up: MIUS will be used as a loyal wingman for the MMU.
Left: The mock-up of Turkey's new MMU fighter, surrounded by some of the weapons it will carry in service.
Below: With the cancellation of the F-35B, the MIUS will serve aboard Turkey's new carrier.

PICTURES: TAI



TAI funded the initial development phase of the Hürjet as a private venture, displaying a mock-up at the Farnborough International Airshow in 2017. The following year, the Turkish Air Force signed a deal with TAI confirming the official status of the project and giving it the go-ahead to move forwards.

The aircraft will be used primarily for training Turkish Aeronautical Association (THK) pilots but will also have a secondary close air support capability. The Hürjet flies at a maximum altitude of 13,716m (45,000ft), a top speed of Mach 1.4, and with a maximum payload of 3,000kg.

The T929 ATAK 2 is a twin-engined, multi-role, heavy attack helicopter under development by TAI. It will incorporate some subsystems from the T129 currently in service, and also from the T629 unmanned electric attack helicopter

currently undergoing testing at the hands of TAI engineers.

The T929 helicopter is designed for close air support, air-to-ground combat, air-to-air combat, armed observation and reconnaissance, and attack missions. It can operate in all-weather environments by day or night, and has a crashworthy and ballistic tolerant design.

Also highlighted at IDEF, the Muharip İnsansız Uçak Sistemi (MIUS) unmanned combat aircraft system (UCAV), which was first unveiled on July 20, is due to fly in 2023.

This low-observable drone will be used as a 'loyal wingman' to support the MMU, and as a light-attack aircraft on board the new Turkish amphibious assault landing ship *TCG Anadolu*.

MIUS will fill the gap left by the cancellation of the Turkish F-35, since the vertical take-off and

landing (VTOL) F-35B had been expected to form the backbone of the Anadolu's air wing.

MIUS will launch from the ship without the help of a catapult, and using conventional arrestor gear on landing. The Anadolu will also embark TB-3 armed unmanned air vehicles (UAVs).

The new UAV will feature an aggressive AI-based autonomous manoeuvring capability to give it a real and robust air-to-air capability, and will initially be powered by a Ukrainian MotorSich AI-25 twin-shaft turbofan engine. This promises to give MIUS a top speed of 0.8 Mach.

Supersonic speed

Later prototypes will have a new indigenous TF-6000 power plant and will fly at supersonic speed – if Turkish Aerospace Industries can complete the required engine qualification tests in time.

The aircraft will enable satellite communications for control via satellite, though it will also have autonomous capabilities.

Manufacturer, Baykar, says that the MIUS will also perform strategic attack, missile attack, and close air support missions, as well as the suppression of enemy air defences, and is expected to have an endurance of up to five hours.

The aircraft has an internal weapons bay, but on missions where low-observability is not critical, it will carry missiles and other weapons underwing.

This UAV is the result of a decade-long development programme, funded privately by Baykar. According to Selcuk Bayraktar, the company's chief technology officer, MIUS will enter service in 2023, after a 36-month process from conceptual design to completion. ■

Blazing ahead

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Blazing a trail:
Viking's CL-415 is a
leader in the fight
against wildfires.

PICTURE: VIKING AIR.

Viking still hot in the firing line

The Viking CL-415 has played a vital role in combatting recent north African wildfires.

Vincent Chappard looks at why it continues to perform so well and at a new, possible, successor.

The recent wave of fires that spread over Morocco, Tunisia, Algeria, Libya, and up through Turkey to Europe, which were fuelled by a combination of high temperatures, strong winds and dry weather, once again showcased the operational efficiency of the CL-415.

Wildfires destroyed hundreds of hectares of forest, killing several people and, in some cases, forcing populations to evacuate.

Over the past 50 years, Canadair (now Viking Air) has proven to be a key player in fighting forest fires globally.

Longview Aviation Capital (LAC) acquired the type certificates for the Canadair amphibious aircraft programme from Bombardier in 2016, which includes type certificates for the CL-215 and CL-415, and after-market services.

Viking's participation in the Marrakesh Air Show for the first time in 2018, with flight demonstrations of its CL-415, was part of its development strategy. According to Christian Bergeron, director sales at LAC, the company wanted to enhance the visibility of this aircraft in the African and MENA markets.

"Many countries are strengthening their capacity to fight against wildfires. We are seeing a growing interest among our current and prospective customers," said Bergeron.

There are many mutual aid programmes between countries in the fight against fires. In Europe, Canadair aircraft are often deployed to help neighbouring countries. Algeria received help from France, whereas Croatia and Spain sent aircraft to Turkey.

The CL-415 is specifically designed for tight

manoeuvring at low altitudes and airspeeds over difficult mountainous terrain. However, the aircraft can do much more than combat fires, including maritime surveillance, and search-and-rescue missions.

Since 2019, Viking has produced the enhanced aerial firefighter (CL-415 EAF). Deliveries have started and are scheduled to carry on until 2024.

Bergeron believes the CL-415 is the only aircraft currently on the market that has been specifically designed for firefighting.

The CL-415 EAF is a converted CL-215 (piston engine) that notably incorporates a new engine, a new navigation system, and a new avionics suite. It also has a water tank capacity of more than five tonnes.

Now a new CL-515 is under development. It is a technically advanced multi-mission aerial firefighting aircraft – the next generation of the Canadair CL-415.

Enhanced firefighting capabilities

With enhanced firefighting capabilities, and the flexibility to support a wide range of critical mission operations, the CL-515 is poised to be an important strategic asset.

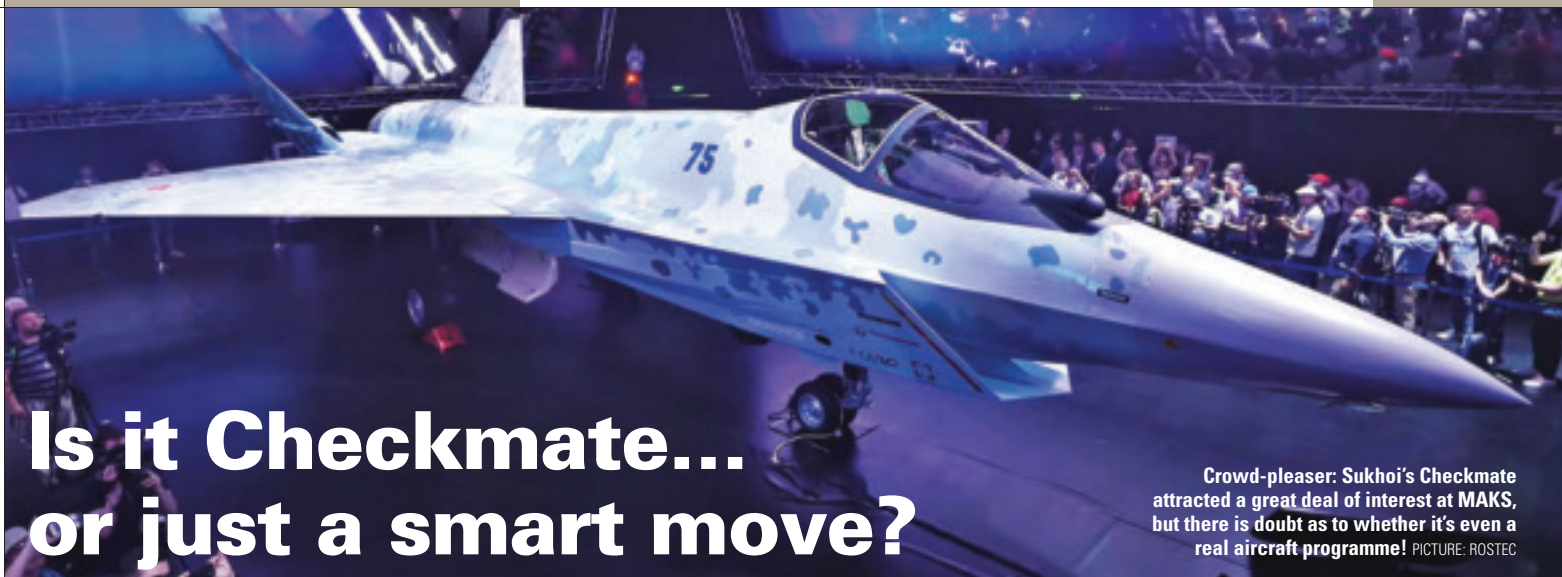
The first responder multi-role amphibious aircraft will offer up to 15% better aerial firefighting productivity, including increased tank capacity and the ability to refill in 14 seconds.

As truly amphibious aircraft, the Canadair CL-415 EAF and the CL-515 can refill with water while flying. The aircraft do not need to go back to the airport to reload and can make more frequent waterbombing missions, particularly in remote or difficult-to-access areas.

The CL-515 is the only aerial firefighter and multi-mission amphibious aircraft built and supported by an original equipment manufacturer (OEM), with complete full-factory warranty, established product support network, new avionics, 15% lower maintenance cost, and factory-endorsed full-motion level D flight simulator.

It is believed it will become the most technically advanced multi-mission aerial firefighting aircraft available on the market.

"We are now in the pre-launch phase and very satisfied with the demand," said Bergeron. "Today, we have seven customers engaged on this aircraft. The next milestone is to have a firm order for 20 aircraft to start production for a delivery by 2025."



Is it Checkmate... or just a smart move?

Crowd-pleaser: Sukhoi's Checkmate attracted a great deal of interest at MAKS, but there is doubt as to whether it's even a real aircraft programme! PICTURE: ROSTEC

Speculation has begun that the UAE has, once again, revived its interest in acquiring a combat aircraft of Russian origin.

Jon Lake
reports.

Russia's United Aircraft Corporation (UAC) and the Sukhoi Aircraft Company revealed a new single-engine stealth fighter at the MAKS international air show near Moscow earlier this year.

The aircraft, named the Checkmate, was unveiled in a high-profile ceremony and was even presented to Russian president Vladimir Putin.

However, it was the posing for photographs by uniformed UAE Air Force officers as they examined the new fighter that sparked fevered speculation.

The UAE has previously shown interest in Russian fighters and reportedly came close to acquiring the SU-35 in 2017. There were suggestions at the time that the order would be for "more than 10" aircraft – probably for use as dedicated aggressor squadrons.

In that same year, at the International Defence Exhibition and Conference (IDEX) exhibition in Abu Dhabi, the UAE signed a wide-ranging agreement with Russia signalling increased defence cooperation. This was also said to include co-development of a light fighter.

In reality, this probably meant a small investment on the UAE's part in return for technology transfer from Russia's light multi-function frontal aircraft (LMFS) lightweight fighter project.

Direct cooperation

Some more recent reports have suggested that there has been direct cooperation between the UAE and Russia on the development of a new lightweight fighter, particularly in the light of the emirates' difficulties in securing the delivery of F-35s from the US.

Military Watch Magazine even suggested that the Checkmate had been developed to meet the UAE's specific requirements and that Russia already had an order for the fighter. This was, however, contradicted by UAC CEO, Yuri Slyusar, who said only that partners from the Middle East, southeast Asia and Latin America were interested in the new fighter [Checkmate]. No firm orders for the aircraft were announced or claimed.

There are many reasons that a UAE order for the Checkmate seems unlikely. The aircraft is a relatively low-end fighter aimed at the cheaper section of the export market. Slyusar described it as a "single-engined fifth-generation fighter offered at reasonable prices that most countries could afford".

This description does not fit the UAE, which has a

serious, full-spectrum air force that procures only top-of-the-line aircraft and equipment.

The UAE is keen to procure the F-35 and was in negotiations with the US even before it normalised relations with Israel last year.

Though the incoming Biden administration approved the sale of 50 F-35s to the UAE in April, there are still some obstacles to be overcome before that sale is finalised. There have been setbacks due to US domestic political opposition, Israeli hostility to the proposed deal, and even to the UAE's growing links with China and, particularly, Huawei's involvement in its telecommunications networks.

The purchase of equipment from Russia could be a deal breaker.

Dual-track procurement strategy

The UAE is all too aware of what happened when Turkey tried to pursue a dual-track procurement strategy, buying the S-400 Russian-made air defence system alongside the F-35. The US repossessed the handful of aircraft that had been delivered for training in America and removed Turkey from the F-35 programme. The Turkish Air Force lost the centrepiece of its future plans, while the country's industry saw production work on the aircraft axed.

The F-35 is a mature, proven, platform that has already won a reputation as the most effective fast-jet combat aircraft in service, with capabilities unmatched by any other competitor. It is already in production and the global fleet has amassed more than 250,000 flying hours.

It is also interoperable with the aircraft and equipment already used by the UAE Air Force and its allies, whereas the 'Checkmate' is an unproven and altogether more modest platform that is much less desirable.

It therefore seems likely that any interest shown in Russian fighters by the UAE is little more than a negotiating tactic aimed at wringing better pricing and other concessions from the US.

Finally, there is the vexed question of whether the Checkmate is a real programme, rather than just a marketing tactic and an attempt to grab attention.

When the aircraft was revealed at MAKS 2021, it was immediately apparent that the one on display was no more than a mock-up incorporating some parts from a crashed T50 prototype – a piece of theatre that is a long way from production hardware in terms of both timescale and investment. ■



THE FUTURE IN BATTLEFIELD LIES ON INTEROPERABILITY

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Stealthy: The F-35A (right) looks set to replace the F-16E/F in Emirati service.

PICTURE: US AIR FORCE.

Emirati F-35 deal likely to go ahead despite US go-slow

The UAE is making steady progress in its plan to procure the Lockheed Martin F-35 Joint Strike Fighter, despite some continuing US Congressional opposition. Jon Lake has been following the twists and turns.

The UAE has long wanted to acquire a stealthy, fifth-generation fighter like the F-35. However, the US rebuffed its attempts until the UAE recognised the Jewish state as part of the US-brokered Abraham Accords on September 15 2020.

The UAE became the first GCC nation to establish formal relations with Israel, closely followed by Bahrain.

Morocco and Sudan also subsequently established formal relations, while Egypt and Jordan had previously normalised relations with Israel in 1979 and 1994 respectively.

The proposed Emirati F-35 deal was introduced in the final days of President Donald Trump's administration and, in addition to a fleet of 50 F-35As (costing \$10.4 billion), also included 18 MQ-9B Reaper unmanned air vehicles (\$2.97 billion) and a \$10 billion package of support, sustainment, and both air-to-air and air-to-ground munitions. The whole package was estimated at \$23.37 billion.

The US Defense Security Cooperation Agency delivered the required certification notifying Congress that the State Department had approved the possible foreign military sale (FMS) of F-35s and MQ-9Bs to the Government of the United Arab Emirates on November 10 2020.

Sale opposed

The sale was opposed by supporters of Israel, by some who disapproved of what they regarded as the UAE's "destabilising activities, aggressive foreign policy and internal repression", and by some who saw the sale as fuelling an arms race that would lead to a fresh wave of regional instability. Others feared that it could lead to the aircraft's secrets being compromised.

When Trump left office on January 20 this year, the incoming Democrat administration of Joe Biden paused the deal to allow for a review. Since then, it has slow-walked the UAE F35 deal, expressing concern about Emirati links with China, as well as fear that F-35 technology could be leaked to Beijing.

It does seem likely that the sale will go ahead, but will come with some very stringent terms and conditions attached.

In addition to standard end-user agreements prohibiting any transfer of aircraft or components to any third-party without explicit US permission, Washington may also impose conditions as to what non-US equipment the UAE can buy and operate.

The US cancelled Turkish orders for up to 100 F-35s for its air force after warning that Turkey could not operate both the F-35 and the Russian S-400 SAM, fearing that having both systems in service in Turkey could have allowed Russia to obtain sensitive information on the F-35's capabilities.

Russian equipment

US allies who try to procure Russian equipment are likely to find themselves subject to the 2017 Countering America's Adversaries Through Sanctions Act (CAATSA) – and to having aircraft like the F-35 withheld.

Abu Dhabi has already bought Russian Pantsir-S1 air defence systems and the US might insist on their disposal, or prohibit the purchase of additional systems in the future under CAATSA, as a non-negotiable precondition for receiving the F-35.

The US may be even more concerned by the UAE's growing military and economic ties with China, which is now the biggest buyer of crude oil from the Gulf.

China has proved itself willing to sell equipment to Gulf states that the US will not, and without political conditions. This has already seen Saudi Arabia and the UAE buying armed drones from China.

In April 2021, the Biden administration told lawmakers it was proceeding with the F-35 sale, while pressing the UAE to remove Huawei technologies from its telecommunications network and to distance itself from China.

At much the same time, Democratic senators also introduced a new 'Secure F-35 Exports Act of 2021', calling for greater Congressional oversight of F-35 sales to non-NATO countries, expressing concerns over the security of F-35 technology, and requiring that any sale would not reduce Israel's qualitative military edge. ■



On target: Talios combines targeting and tactical recon capabilities in a single pod.

PICTURE: DASSAULT

POD CAST

THALES ADDS A NEW NAME TO ITS LIST OF STARS

Thales claims to be the 'European leader in airborne optronics'.

Jon Lake travelled to France to check out some of the company's products.

Thales is energetically promoting its latest Talios targeting pod, taking aim at a number of MENA air forces, though the company is coy about identifying its customers and sales prospects.

Thales and its predecessor companies (the most recent of which was Thomson-CSF, established in 1968) have produced a succession of targeting pods, including the automatic tracking and laser integration system (ATLIS) used on the Jaguar, Mirage F1 and Mirage 2000, and on some Pakistani F-16 aircraft.

ATLIS was a daylight/clear-weather system, and was replaced by the pod de désignation laser caméra thermique (PDLCT) or thermal camera laser designation pod used on the Mirage 2000D, and eventually by the Damocles pod, which introduced a forward-looking infrared (FLIR) sensor.

Thales co-developed the Damocles pod for the UAE Air Force's Mirage 2000-9, under the name Shehab. The UAE had been asking France to fund the co-development of an upgraded targeting pod and used the threat of buying the Lockheed Martin Sniper as an incentive!

Damocles featured a long-range laser designator, an integrated navigation FLIR and had a high-resolution reconnaissance capability, transmitting imagery to ground stations in real time. It compared relatively poorly with the contemporary Rafael/Northrop Grumman Litening 3, but scored some export successes with air forces who felt unable to procure the Israeli-designed Litening.

Supplied to the UAE

The pod was supplied to the UAE, for carriage by the Mirage 2000-9; Malaysia, for use on the Sukhoi Su-30MKM; Morocco for the Mirage F1CM/EM-VI; and Saudi Arabia, for the Tornado and Typhoon.

After comparative trials between Damocles and the Ural Optical and Mechanical Plant (UOMZ)-produced Sapsan and Solux targeting pods, Russia decided that it would license-produce the Thales Damocles reconnaissance and target designation pod for the Sukhoi Su-24M2, Su-34, Su-27SM and Su-27SM2 attack aircraft.

Thales announced the development of a new Damocles XF variant in 2009, with a refined infrared sensor and a

Continued
on Page 52

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Photographic record made during the unpaved runway test campaign.



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CONTINUED FROM PAGE 50

new daylight charge-coupled device (CCD) camera. But development of the XF was subsequently dropped in 2013, in favour of a new pod de désignation laser nouvelle génération (PDL NG) or new generation laser designation pod.

This had a much larger infrared sensor, a TV channel for daylight operation and small target identification, and improved geolocalization using GPS and the aircraft's internal navigation system.

The PDL NG subsequently became the targeting long-range identification optronic system (Talios).

The pod was flight-tested for the first time on April 28 2016, and Talios was qualified by the French DGA defence procurement agency in 2018 for use on the Dassault Rafale and Mirage 2000D.

The pod entered service on the Aeronavale Rafale M at the beginning of 2020.

The new pod was declared operational on the Rafale F3-Rs of the Armée de l'Air on October 29 2020, and was combat-proven in the Middle East in November 2020.

Thales said that two pods at a 'forward operating location' have each amassed 1,000 flying hours, without requiring any maintenance.

Some 20 pods were ordered initially, of a requirement for 45, but these numbers have increased, and 60 pods are now on order, with 30 having been delivered.

Potential operators

Thales said that it has four customers for Talios, though not all of these have taken delivery yet. Apart from the French forces, the pod is known to be in service with Egypt, but other potential operators have selected the Lockheed Sniper, including Qatar and the UAE.

Talios combines targeting and tactical recce capabilities in a single pod. It delivers unmatched image quality, including colour imagery, and uses disruptive capabilities to provide reliable situational awareness in real time.

The pod incorporates a new multi-criteria tracker and has powerful non-traditional information, surveillance and reconnaissance (NTISR) capabilities.

The embedded TrUE AI artificial intelligence system uses a database of some two million reference images to ensure rapid target identification, and is claimed to be 300 times faster at target detection and recognition than a human operator.

A roadmap is already in place for development of Talios, with expanded reconnaissance capabilities, Permanent Vision™ and improved colour pending.

Talios promises to provide greater situational awareness on the connected battlefield, just as operating terrain gets more complex, missions become more diverse, and the quantity of information gathered increases. ■

All-seeing: Spy'Ranger provides a capability jump compared to the existing generation of mini-drones.

PICTURE: JON LAKE.



SPY'RANGER AIMS TO PROVIDE A SMARTER EYE IN THE SKY

Thales believes that optronics will play a crucial role in the new age of collaborative combat, using advanced digital technologies to empower modern warfighters in the most complex conflict situations.

They keep the human at the centre of the decision-making process, and use high-quality imagery and raw data to provide vital support.

Thales' offerings include an optronic soldier suite, vehicle-mounted sensors, and smart airborne sensors, all of which combine to allow what the company's Middle East sales director, Nicolas Goubatian, called the 'augmented soldier' to see further and fight smarter, playing a decisive role in gaining and maintaining tactical superiority on tomorrow's battlefields.

He highlighted the company's 'digital-ready' surveillance unmanned air vehicles (UAVs), including the Spy'Ranger family of mini UAV systems.

These are equipped with the company's Spy'Ball – a top-of-the-line gyro-stabilised high-definition day/night sensor payload – and are able to stream high-definition electro-optical and infrared video and still pictures via Thales' latest secure high-rate datalink, the pTMA.

□ □ □ □ □

These small UAVs can bring front-line units an organic, autonomous intelligence-gathering and offensive reconnaissance capability, providing a more agile, faster-reacting tool than would be possible using large tactical UAVs.

The Spy'Ranger air vehicle was designed to Thales specifications by Aviation Design in France, using all-composite high epoxy carbon materials for low weight and high strength.

The Spy'Ranger 330 has a 3.9m wingspan, a maximum take-off weight of 15kg, and a 1.2kg payload. It boasts an endurance of up to three hours and a beyond-line-of-sight operating range of 16.2nm (30km). It is powered by a high-performance DC brushless electric motor for low noise and minimal maintenance.

Some 70 complete Spy'Ranger 330 systems (with up to 210 air vehicles) have been ordered for the French Army to meet the mini reconnaissance drone system (SMDR) requirement, and the first of these were delivered in early 2020.

These made their operational debut in late 2020,

and have been used to support French forces in Mali, contributing to mission success every day and night in what was described as "the toughest environment in Mali".

French Army feedback was that the Spy'Ranger provided a capability jump compared to the existing generation of mini-drones.

After the French Army received its first 12 Spy'Ranger 330 systems, Thales separately began producing a larger 25kg, 5.2m span Spy'Ranger 550 model for an undisclosed customer. This uses two batteries, and has a 50km range and a five-hour endurance.

The Spy'Ranger is very easy to operate, and a pair of 550s can provide a unique persistent surveillance capability – maintaining 24/7 area or point surveillance.

□ □ □ □ □

The first UAV films the area of interest for several hours until it is nearing the end of its endurance. A second UAV then seamlessly takes over, while the first lands to have its batteries changed, and is made ready to be launched again.

Up to two air vehicles can communicate with a single Spy'C ground station simultaneously. The vehicle uses its secure high-speed encrypted tactical datalink to transmit high-definition imagery and video to the ground control station in real time at distances of up to 30km.

This ground control system consists of a ruggedised laptop computer, which stores sensor data and also displays the UAV's flight information on 3D maps in real time. The ground control station can be connected to a command, control, computers, communications and intelligence (C4I) system.

Navigational waypoints are entered via the Spy'C portable ground station, and the aircraft will then fly itself. If the link with the ground is lost, the UAV will automatically return to a pre-programmed location and will land without further human intervention.

The Spy'Ball sensor suite carried is sufficiently accurate to allow location data to be used to target artillery systems.

The Spy'Ranger can perform repeated take-off and landings in confined areas and in difficult terrain using a lightweight carbon fibre ramp for launch, and landing on a replaceable foam skid. ■

*The Egypt Defence Expo (EDEX) takes place in Cairo from November 29 to December 2. Ahead of the event, **Jon Lake** looks at the ongoing modernisation of the Egyptian Air Force.*



Egypt's growing force to be reckoned with

All-round improvement: Modernisation is as much about training as it is about equipment, and Egypt has embarked on a wide-ranging programme of exercises with foreign air forces.

PICTURE: EGYPTIAN MOD.

EDEX 2021 is the only tri-service defence and security exhibition in north Africa and its organiser, Clarion Events, predicts that this second edition will provide a “perfect platform” for regional and international defence forces and exhibitors to showcase the latest technology, equipment and systems across land, sea, and air.

The event will be held at the Egypt International Exhibition Centre, a brand new venue in Cairo.

More than 400 exhibitors and in excess of 30,000 industry visitors are expected and there will be a fully-hosted international military VIP delegation programme.

The exhibition is fully supported by the Egyptian armed forces, which are currently enjoying a significant modernisation.

Air power is often accorded a high priority in nations where the head-of-state has been a fighter pilot. Hosni Mubarak, Egypt's president from 1981 to 2011, was a former air force commander who started his career flying Spitfires, before converting to the Russian Ilyushin IL-28 jet bomber, and then to the Tupolev Tu-16.

Plans for a major modernisation of the Egyptian Air Force (EAF) were laid during Mubarak's presidency. At the time it consisted of a mix of largely obsolete Russian and Chinese fighter types, augmented by a handful of US aircraft, many of which were decidedly long in the tooth – like the F-4E Phantoms. However, it did have a growing fleet of F-16s.

But, while the F-16 should have represented a leap



Centrepiece: The Dassault Rafale lies at the heart of the Egyptian Air Force's ongoing modernisation. Egypt is eventually set to operate a fleet of 54 of these French strike fighters. PICTURE: DASSAULT AVIATION – V ALMANSA.



All accounted for: Egypt signed a contract for 46 MiG-29M/M2s in April 2015; all have now been delivered. PICTURE: EGYPTIAN MOD.

in capability, Egypt's examples were handicapped by relying on AIM-7 Sparrow semi-active radar-guided missiles, by their lack of stand-off air-to-ground capability, and by their obsolete electronic warfare and countermeasures equipment.

Modernising Egypt's military – among the largest in the region – requires massive investment. The Egyptian domestic defence

budget is estimated at about \$4 billion, which makes it very difficult for Cairo to achieve its goals without outside input.

Among the first priorities was updating Egypt's network of ground-based air defences through the acquisition of the Russian S-300V4 SAM from 2013, together with the complementary BuK-M2 and Tor-M2 medium and short-ranged systems. These systems revolutionised the country's capabilities, giving robust anti-missile protection and a much expanded engagement range.

Early attempts to rebuild Egypt's fighter force stuttered. Deals with a number of Ukrainian companies to modernise the MiG-21 fleet failed, and discussions with Pakistan, aimed at co-production of the CAC/PAC JF-17 Thunder, also came to nothing.

Things started to happen in 2015 when Egypt signed a €5.3 billion (\$5.9 billion) contract for 24 Dassault Rafales. The aircraft was of particular importance because its mix of datalinks allowed it to operate with western fighters and with those of Russian origin, knitting together Egyptian assets in an integrated operational environment.

The following year, Egypt placed a \$2 billion order for 50 Mikoyan MiG-29M/M2 fighters for delivery from 2017, with the whole batch due to be delivered by 2020.

The MiG-29M became Egypt's first fighter to employ active radar-guided air-to-air missiles, with the

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deal including 300 R-77 munitions, as well as the supply of 300 R-73 short-range infra-red homing missiles.

Helmet-mounted sights also gave Egyptian fighters a high-off-boresight (HOBS) capability, which enabled the pilot to simply look left, right, up or down to engage a target, fire, and watch the missile lock on for the kill.

The aircraft's MSP-418K active jammer pod also provided the first modern electronic warfare system on an Egyptian fighter, while the T220/e targeting pod gave a precision air-to-ground capability. Finally, the Kh-35 cruise missile provided a long-range stand-off option.

Egypt tried to acquire the Lockheed Martin F-35 in 2019, but was rebuffed, and turned again to Russia with an order for 24 Sukhoi Su-35 heavy air superiority fighters.

In early May 2021, Egypt signed a €3.75 billion (\$4.5 billion) contract for 50 more Rafales. A fleet of 54 Rafales will make the EAF the second largest operator of the type in the world, after France itself, and should allow the retirement of the remaining Mirage 5s, and probably the Mirage 2000s.

French newspaper, *La Tribune*, has also reported that Airbus will supply a reconnaissance satellite and two A330MRTT tankers.

Expansion and modernisation continues apace, and a new arms deal with Italy could see Egypt taking delivery of 24 Eurofighter Typhoon fighter aircraft, as well as four additional FREMM frigates, 20 offshore patrol vessels, 20 M-346 jet training aircraft, and an observation satellite.

The EAF will soon include a frontline element consisting of 11 tactical fighter wings with 13 squadrons of F-16s, two squadrons of Su-35s, two of MiG-29Ms, two of Rafales, two of Alpha Jets and two of Mirages. There are also seven helicopter wings or brigades, two intelligence, surveillance, and reconnaissance (ISR) units, and two transport wings/brigades.

Modernisation of the fighter fleet was accompanied by a massive expansion of the helicopter force. Egypt received the first of 46 Kamov Ka-52K attack helicopters in 2017, while delivery of Mi-24 Hind multi-role combat helicopters began the next year. Since then, the EAF has started to receive Leonardo AW149s.

This wide-ranging modernisation of the frontline fleet has led to an urgent requirement for new training aircraft to replace the current Grob G 115 primary trainers, Embraer EMB-312 Tucano basic trainers, and Karakoram K-8E (Hongdu JL-8) and Alpha Jet advanced and lead-in fighter trainers.

Possible candidates include the Grob G 120TP, and the Embraer/Sierra Nevada Corporation (SNC) A-29 Super Tucano, as well as advanced jet trainers like the Leonardo M-346, the Korea Aerospace Industries/Lockheed Martin T-50 Golden Eagle, the Irkut/Rosoboronexport Yak-130, and the Aero Vodochody L-39NG.

Probably more important than aircraft platforms are systems to allow improved connectivity between Egypt's disparate frontline types. A new, highly automated radar integration and surveillance command centre (RISC2) was introduced during 2018, and this allowed the secure dynamic exchange of integrated data across all domains, dramatically improving the effectiveness of the EAF's aircraft and missile systems.

EAF commander, Lieutenant General Mohamed Abbas Helmy, recently highlighted the force's active participation in the ongoing efforts to eliminate terrorist elements in north and central Sinai, and in combating the infiltration of fighters across the borders with neighbouring countries.

"Egypt will have air forces capable of reaching the farthest ranges to confront what threatens our national security," he promised.

More details will no doubt emerge during EDEX.



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New home: Pakistan has taken on all 10 surviving Qatari Westland Commandos to augment its existing fleet of nine Sea Kings.

PICTURE: PAKISTAN AIR FORCE.



Pakistan snaps up Qatar navy's Sea King fleet

Jon Lake takes a quick look at the latest defence news from the MENA region.

The Qatari Emiri Navy has sold its 10 surviving Westland Commando/Sea King helicopters to Pakistan.

Qatar originally took delivery of its three different models of the Sea King between 1975 and 1982 – three transport-configured Commando Mk 2As (Sea King Mk 92s), one VIP transport-configured Commando Mk 2C, and eight maritime Commando Mk 3s (Sea King Mk 74s).

The Mk 3s were equipped for anti-submarine/anti-surface warfare, with the ability to carry two Exocet anti-ship missiles.

One of the Qatari aircraft was sold to Sierra Leone in 2004 and another was lost in service.

Pakistan has purchased the 10 surviving helicopters and began taking delivery in July this year.

It has not yet been clarified if all the aircraft will be refurbished for service in Pakistan or used for spare parts, as five ageing Westland Sea King Mk 45 helicopters, originally delivered to Pakistan's navy in 1975, are still operational with No 111 squadron.

As the Qatari aircraft are newer and are likely to be in better condition, it seems likely that they will see further service.

The Pakistan Navy also has plans to expand its

fleet of maritime helicopters and intends to procure several new aircraft to serve on warships currently under construction, as well as for the land-based squadrons of the Naval Air Arm. The AW101 Merlin and AW159 Wildcat are the two leading contenders.

Meanwhile, the first two BAE Systems Hawk Mk 167 jet trainers for the Qatar Emiri Air Force (QEAF) flew into the UK's RAF Leeming on September 1.

The gloss black aircraft, equivalent to the UK RAF T.Mk 2s, carried RAF serials on the nose and the top of the fin along with Qatari national insignia.

The aircraft will form part of the new joint RAF/QEAF Hawk training squadron at Leeming, which will instruct both RAF and QEAF pilots.

The programme, starting with a group of Qatari student pilots, will be supported by BAE Systems, which has been awarded a six-year contract to provide qualified flying instructors, delivering both live and synthetic training.

The formation of this second UK-Qatar joint squadron will mean access to world-class flying training for Qatari pilots, extra flying hours for RAF personnel, and long-term UK and

Continued
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CONTINUED FROM PAGE 55

international investment in infrastructure at RAF Leeming. This will allow current facilities to be refurbished and the acquisition of a new Hawk training simulator.

Group Captain Blythe Crawford, RAF Leeming station commander said: "I am delighted to welcome our Qatari friends and to work in partnership with BAE Systems in support of both the QEAF and the RAF.

"This presents an exciting opportunity to share our expertise, and the arrival of the joint Hawk training squadron will be a terrific boost to Leeming, as well as the local community."

In another development involving Qatar, Boeing formally rolled out its first F-15QA Advanced Eagle combat aircraft at a ceremony at the company's production facility in St Louis, USA, on August 25.

The Qatari Minister of State for Defence, Khalid bin Mohamed Al Attiyah, was in attendance, in addition to high-level personnel from Boeing and the United States Air Force (USAF).

The presentation also included the announcement of the official name of the aircraft – Ababil – which refers to a 'flock of birds' and has special meaning in the Koran.

Qatar signed agreements to buy the Dassault Rafale, the F-15QA, and the Eurofighter Typhoon in 2017, following a major diplomatic crisis with several GCC partners. Indeed, Qatar signed the \$12 billion deal for the supply of F-15s to the QEAF while being targeted by a Saudi-led embargo.

The first F-15QA on show at the ceremony, serial QA500, was armed with the Raytheon AIM-120 advanced medium-range air-to-air missile (AMRAAM), the Raytheon AIM-9X Sidewinder short-range air-to-air-missile, Boeing GBU-31 joint direct attack munition (JDAM) precision-guided bombs, and Boeing AGM-84A Harpoon anti-shiping missiles.

It was also fitted with an integrated AN/AAS-42 Tiger Eyes infrared search-and-track (IRST) system, in addition to both the AN/AAQ-28(V) Litening and the AN/AAQ-33 Sniper advanced targeting pods (ATPs).

The first 15 pilots to be trained on the F-15QA were present at the ceremony and the initial batch of fighters will be delivered to Qatar after the conclusion of pre-delivery pilot training.

Boeing has been providing logistics and maintenance support prior to the delivery and, post delivery, will establish and operate a training centre at Al Udeid Air Base in Qatar.

Morocco's Air Force, meanwhile, has begun a modernisation programme for its air power capabilities. The use of unmanned systems will form a central element of this plan.

Morocco used a UAV for the first time during its April 2021 airstrike in the Polisario Front-controlled desert area of the Western Sahara. The armed political organisation aims to wrest control of the desert region from Morocco.

In December last year, immediately after the normalisation of relations between Morocco and

sanctions on Turkey, which halted all American defence export licences to that country following its purchase of the Russian S-400 missile system, delayed the progress of the deal.

The T129 helicopter is Turkish-made, but it used US-designed and supplied LHTEC T800 engines. This caused the suspension of negotiations for the sale of the T129 to Morocco.

Ankara has continued its S-400 programme despite the difficulties that continues to create in negotiations with the US. However, Turkey seems confident that the deal between Ankara and Rabat will go ahead.

Morocco has already completed several other defence contracts with Turkey, including the purchase of 12 TB2 UAVs and related support services.

Elsewhere, American company, Vertex Aerospace, has been awarded a \$9.9 million modification contract to supply maintenance and logistical support for the **Kuwait Air Force's** (KAF's) three Lockheed KC-130J Hercules tanker aircraft at Abdullah Al-Mubarak Air Base.

The US Department of Defense confirmed that the contract included the installation of automatic dependent surveillance – broadcast (ADS-B) out equipment, which allows suitably equipped aircraft to broadcast their identity, precise location, and other information to air traffic control through a modified ADS-B mode S transponder.

The contract exercises an option for organisational and intermediate depot maintenance and logistics and supply support for three

KC-130J aircraft for the Government of Kuwait under the foreign military sales (FMS) programme.

The three KC-130J aircraft were delivered in early 2014 as part of a \$569.6 million deal, which also included a training facility, one weapons system trainer, sustainment and support.

The aircraft has a 57,500 fuel offload capability, using only wing and external tanks, and can refuel both fixed-wing and rotary-wing aircraft.

The KC-130J retains the same airlift capabilities as non-tanker variants (including airdrop and paradrop), augmenting the KAF fleet of three Lockheed Martin L-100s. ■



Landing the Eagle: Boeing rolled out the first F-15QA Advanced Eagle at the company's production facility in St Louis. PICTURE: BOEING



High hopes: Morocco hopes to acquire SeaGuardian UAVs from the US.

PICTURE: GENERAL ATOMICS ASI

Israel, Morocco and the US signed a \$1 billion (approx) military and security cooperation agreement for the 2020-2030 period. This reportedly includes the acquisition of four General Atomics MQ-9B SeaGuardian UAVs.

The US and Turkey are working together to boost Morocco's capabilities and 12 Bayraktar TB2 drones will soon arrive in the north African country.

Morocco is also in the final stages of negotiations with Turkey for the acquisition of 22 TAI T129 ATAK helicopters.

The proposed deal for the T129s includes avionics and missiles, and is worth around \$1.3 billion.

Negotiations began in 2018, but the US



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Going the extra mile: Gulfstream's new G800 will have the longest range of any business aircraft. Right: Mark Burns unveils the G400.

PICTURES: GULFSTREAM



DOUBLE TOP

The high end of the private aviation market has received a boost with new models from Gulfstream.

Alan Peaford reports.

It's not only London buses that you wait for and then two come at the same time – Gulfstream has done the same with a glorious new jet double.

In an event at its US Savannah headquarters, the General Dynamics company unveiled the G400 and the G800 business jets and, in the words of Gulfstream president Mark Burns, “raised our own bar”.

The double launch surprised many in the industry.

Two years ago at the National Business Aviation Association (NBAA) event, the manufacturer introduced the G700 as its flagship, while Bombardier's Global 7500 was pushing the barriers of range, and Dassault Aviation launched the spacious Falcon 10X during lockdown.

This new G800 was unexpected and, with an 8,000 mile range at Mach 0.9, recaptures the longest-range title in the ultra-long-range class.

Less surprising was the launch of the G400 to go head-to-head against the Bombardier Challenger 650 in a segment that has been quiet for some while.

“It's a sweet spot in the customer base,” Burns said. He identified a strong demand for an aircraft with a large, stand-up cabin that will cover more than 4,000nm and cost about \$35 million.

Burns said the G400 addresses a “void in innovation” in the large-cabin market.

“Our customers asked Gulfstream to re-envision a category of airplane that the rest of the industry has left a bit dull and dormant.”

Gulfstream will start building the first of the aircraft at the

“Our customers asked Gulfstream to re-envision a category of airplane that the rest of the industry has left a bit dull and dormant.”
MARK BURNS

beginning of next year. The company predicts it will be in service in 2025.

It takes over from the G450, which Gulfstream stopped producing in 2017 to launch the G500. “That large-cabin, entry-level point has long been kind of abandoned by most of the marketplace,” Burns said. “We believed we could build an airplane to fit in that market.”

The Gulfstream hallmarks of cabin comfort have been met with both new aircraft; cabin pressurisation in particular.

The cabin altitude on the G400 at 41,000ft will feel like 3,255ft above sea level, according to the company, while the G800 will feel like 2,916ft at 41,000ft. “Cabin air will not be recirculated, it will be 100% fresh air,” Burns said.

Although the G800 is 10ft shorter than its G700 sibling, the two aircraft share many features and had been designed simultaneously. Burns said the \$71 million G800 had benefited from the investment in design and manufacturing for the G700. “Parts are already being built for the test fleet,” he said. “The initial example is already undergoing instrumentation and calibration, which is clearing the way to begin flying”.

Enter service

Burns said the aircraft could enter service as early as 2023.

The two aircraft share a wing, winglets, tail and fuselage cross-section. Both are powered by the same Rolls-Royce Pearl 700 engine, which produces 18,250lbs of thrust per engine, can operate on sustainable aviation fuel, and meets stage five noise limits.

Up front, the G800 features the touch-screen Symmetry flight deck, developed as part of the Honeywell Primus Epic range and featuring a combined vision system – integrating synthetic vision (SVS) and enhanced vision (EVS), with dual heads-up displays – and Gulfstream's predictive landing performance system (PLPS) along with a BAE Systems active sidestick control.

Steep approach capability means more airports will be accessible to both the G700 and G800, and the larger aircraft will still meet a take-off distance of 6,000ft at its maximum take-off weight. Maximum cruise altitude tops out at FL 510.

“We designed the ultra-long-range G800 to extend our customers' reach to more people and places around the world,” said Burns. “The G800 redefines what it means to go farther faster in a Gulfstream and offers even more time-savings with its impressive range at high speed.”

It is designed to seat up to 19 passengers and will offer up to four living areas, or three living areas with crew compartment.

Reassuringly for customers, it has whisper-quiet noise levels and 16 Gulfstream panoramic oval windows – the largest on any aircraft.

Las Vegas welcomed the return of the National Business Aviation Association 2021 Business Aviation Convention & Exhibition (NBAA-BACE) in October with new pavilions, new aircraft and new experiences. Jill Stockbridge reports.

Innovation, inspiration – and the community spirit



No more boring bus rides. For the first time, Blade Urban Air Mobility provided by-the-seat helicopter flights between the Las Vegas Convention Centre and the static display at Henderson Executive Airport.

It offered visitors a glimpse at the future of on-demand advanced air mobility (AAM), as well as spectacular views of the Las Vegas strip and the surrounding landscape.

New at the show was the owner/single-pilot operator pavilion at Henderson, where the owner-pilot community could meet face-to-face and share best practices.

There was also a new maintenance pavilion, which featured some of the biggest names in the sector, plus a large display of electric vertical take-off and landing (eVTOL) aircraft and AAM exhibitors.

"Innovation and inspiration were everywhere, reflecting just how exciting business aviation is right now," said NBAA president and CEO, Ed Bolen. "Spirits were high throughout the week, with so many people reconnecting to learn together, get business done, and chart a course for the industry's promising future."

Bright future

And the future does look bright. Business aviation is booming, as the Honeywell forecast, released on the eve of the show, confirmed.

The report states that business jet flight hours in 2021 are expected to be almost 50% higher than a year ago, and above pre-pandemic levels. It projects 7,400 new business jet deliveries over the next decade, valued at \$238 billion, along

with a sharp increase in used aircraft purchase plans among business jet operators.

Data released by business aviation specialist market research company, AMSTAT, at the same time, supports that report, showing that resale retail transactions for the first eight months of 2021 were up 57% over the same period in 2020 and up 47% versus the same period in 2019.

It said that the inventory of available pre-owned jets and turboprops had shrunk by 42%. No wonder then, that original equipment manufacturers (OEMs) used this event to showcase new aircraft in a number of categories.

Honda Aircraft led the charge, lifting the black curtains that shrouded the stand to surprise the industry with the concept of its next aircraft – a larger light jet, with trans-continental capability.

BIG DRIVE ON SUSTAINABILITY AS LEADERS PLEDGE TO GO GREEN

Sustainability was a theme that ran throughout the show, with a number of conferences and seminars dedicated to a greener future for the industry.

The NBAA carbon offset the entire event with 4AIR and arranged book-and-claim sustainable aviation fuel for anyone flying in, making it one of the world's largest carbon-neutral events.

During the show, business aviation leaders, including the heads of the General Aviation Manufacturers Association (GAMA), International Business Aviation Council (IBAC), as well as the NBAA, pledged to achieve net-zero CO2 emissions by 2050, and nearly 100 exhibitors signed a 'green pledge' to limit their environmental footprint for the convention.

Conference attendees were also able to vote on the CO2-reducing projects that will be supported through the carbon credits, choosing from wind energy produced in Oklahoma, a forest management project in Massachusetts, and greenhouse gas emissions reduced in Florida during the production of materials



Talking point: SAF and initiatives like carbon-offsets will continue to be a key piece of the puzzle in carbon-emissions reduction. PICTURE: NBAA

used in automotive and aircraft manufacturing.

IBAC director general, Kurt Edwards, pointed to the other main focus of the updated business aviation commitment on climate change: increased production, availability and use of sustainable

aviation fuel (SAF), and adoption of new market-based initiatives.

"SAF and initiatives like carbon-offsets will continue to be a key piece of the puzzle in carbon-emissions reduction," he said. ■



The all-new long-range HondaJet 2600 Concept is designed to fly a range of 2,625nm with up to 10 passengers and one crew, which will make it the longest-range single-pilot business aircraft in the world.

It features a high-speed cruise of 450 knots and a class-leading ceiling of 47,000 feet, but is designed to be 20% more fuel-efficient than comparable light jets and more than 40% more efficient than other midsize competitors.

The configuration of the HondaJet 2600 is similar to the original HondaJet HA-420, with the company's patented over-the-wing-engine-mount design. This allows for additional space in the cabin and lowers vibration and noise for passengers.

Market interest

The HondaJet 2600 is being developed in a similar fashion as the first HondaJet. That means presenting it first as a concept for market research and then later making a decision on commercialisation, based on market interest.

Honda Aircraft Company president and CEO, Michimasa Fujino, said: "Over the past five years we introduced the HondaJet Elite, then the Elite S, to further enhance the original HondaJet design. Now, we are validating market demand as we unveil a new aircraft concept in a different segment from the original HondaJet.

"With the HondaJet 2600 Concept, which enables efficient transcontinental flight, offers a new level of cabin comfort and capacity, and dramatically reduces CO2 emissions, we are introducing a new generation of business jets."

Over at the static display, Textron Aviation unveiled mock-ups of its next generation Cessna Citation M2 Gen2 and Cessna Citation XLS Gen2 entry-level light and midsize business jets.

Christi Tannahill, senior vice president, customer experience, said: "Shaped by extensive customer feedback, the upgrades to these aircraft embody the latest in technology and design. These new models represent a significant commitment from Textron Aviation as we continue to bring best-in-class performance and features to our customers."

The company is taking orders for both new models, with deliveries expected to begin by the end of first quarter 2022 for the Citation M2 Gen2 and second quarter 2022 for the Citation XLS Gen2.

Visitors also got their first look at the full-scale cabin mock-up of Dassault's massive new ultra-long-range 10X.

The jet offers a cabin cross-section of more than 9ft wide and a height of 6ft 8inch, giving a vast space for luxurious interior designs. It has a range of 7,500nm (13,890km) at 0.85 Mach.

Andrew Ponzoni, senior manager, communications, said: "The 10X will represent the highest, the longest ride, and the fastest speed that's been built in aviation. It can connect LA to Australia, or Moscow. It can connect almost any of the two main city pairs in the world in penthouse comfort."

Bombardier had the mock-up of its new super mid-size Challenger 3500, the upgrade to the popular Challenger 350, on display. The team was also celebrating signing up their launch customer, Les Goldberg, chairman and CEO of Entertainment Technology Partners.

The latest addition to Bombardier's portfolio is off to a strong start, with a firm order for 20 Challenger 3500 business jets already on the books. The company also had its flagship Global 7500 and the Global 6500 aircraft available on the static.

Main picture: Blade Urban Air Mobility provided by-the-seat helicopter flights between the Las Vegas Convention Centre and the static display at Henderson Executive Airport.

Far left: The all-new long-range HondaJet 2600 Concept. **Left:** The BBJ was a big draw out on the static park.

PICTURES: NBAA

NEW PRODUCTS TO THE FORE

Alongside the new aircraft, there were other product releases, new flight planning software, winglets and concepts for hydrogen and electric aircraft being unveiled.

Tamarack Aerospace announced its current demonstration and validation tests for the King Air Tamarack Performance Smartwing, with new military and civilian versions of the patented sustainability-supporting active winglet load-alleviation technology.

Partnered by Dynamic Aviation, the modification process is under review by US military and defence organisations that are interested in improved mission capabilities, such as enhanced high/hot take-off performance, extended loiter time, increased payload, and support for sustainable flight, including noise reduction.

The Tamarack Performance Smartwing modification is expected to replace current King Air passive winglets, providing substantially more capabilities and significant fuel cost savings.

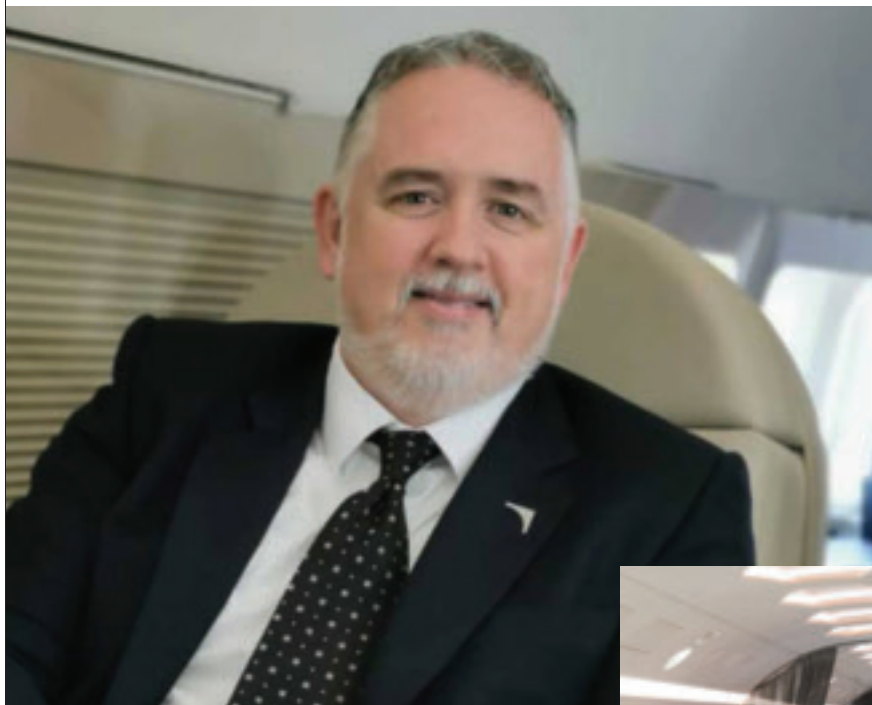
Honeywell used the event to introduce Honeywell Anthem, the aviation industry's first cloud-connected cockpit system.

Mike Madsen, president and CEO, Honeywell Aerospace, said: "In the same way we moved from flip phones to smartphones, Honeywell Anthem will transform the pilot experience with customisable controls operated quickly and easily with a few swipes of the finger."

The new technology aims to improve flight efficiency, operations, safety and comfort.

As Dubai's postponed EXPO opened its doors to the world last month, UAE firms prepared for a tourism revival – and for the top end of aviation it was no different. Alan Peaford reports.

World Central joins Royal family



Royal Jet has long been synonymous with luxury. The world's largest operator of Boeing Business Jets has ferried heads-of-state and royal families, film stars and sporting giants, around the world from its two Abu Dhabi bases – the international airport and Al Bateen, the exclusive business aircraft centre.

Regularly basing aircraft in Saudi Arabia, Africa and Russia to meet demand, Royal Jet works hard at having aircraft at the right place at the right time.

Now it has a new base – just 50km down the road at Dubai World Central.

"The reason why is obvious," said Royal Jet CEO Rob DiCastri. "The traffic coming in and out of Dubai – and the UAE in general – is going to rise dramatically.

Capacity need in Dubai

"You know there's a capacity need in Dubai. Of course, the airlines will be bringing most of the traffic in, but the VIP sector, as well, needs capacity. So we just saw a need. And then we also wanted to support the UAE Government.

"As a UAE Government entity, we need its support in making this [the EXPO] as much of a success as possible.

"You know the country is doing amazing things; the event is going to be incredible. So the more VIPs we can bring in the better; the more visitors the more exposure, that type of thing. It just makes sense," he said.

DiCastri said that the idea of basing an aircraft in Dubai was not new. "We have considered doing it before. But EXPO really ticks all the boxes to say we have to do it now," he explained.

Royal Jet is emerging from the challenges of the

pandemic, where restrictions on travel had affected even the top end of the travel market. While the US saw a rise in domestic private aviation movements, the Middle East remained constrained by travel restrictions.

"It has taken a little bit longer but I have to say that, in recent months, demand is returning," DiCastri said.

"I predicted a little while ago that, by the end of the year, we would get back to maybe about 80% of pre-pandemic levels. We actually achieved that earlier than we expected.

"We've had an excellent summer and, really, it's driven by those cross-border issues. Now there's more countries people can go to and not have to quarantine, especially if they're fully vaccinated.

"So, the ability for our customers to travel has just increased and increased. And, consequently, they have come back."

Returning Royal Jet customers are finding things a bit different. During the downturn and lockdown the company has been through a new branding and transformation

programme.

"Our fixed-based operation (FBO) was basically shut down so we did a complete refurb," DiCastri said.

"It's completely different; the flow is different; the style is different; it's a whole new feeling in there. Visitors will get a better feel for Abu Dhabi and the culture here."

The aircraft interiors have also had an upgrade and two of the fleet have been equipped with Ka-band



Rob DiCastri: "The ability for our customers to travel has just increased and increased. And, consequently, they have come back."

Above: Royal Jet has the largest BBJ fleet in the world and boasts the latest in-flight connectivity.

PICTURES: ROYAL JET

WiFi – the fastest internet access in the air. Six aircraft now have that capability.

While Dubai's EXPO may be the current driver of growth, there are other events also capturing Royal Jet's attention.

The Abu Dhabi Formula One Grand Prix next month, for example, is a big draw for teams, sponsors and celebrity fans.

"With an aircraft that can fly 52 people from a VIP terminal to a VIP terminal, it's quite an attractive proposition. We have the closest FBO to the formula one circuit here. And, with EXPO going on at the same time just down the road, I think it'll just be a much higher level of activity, and very popular and very successful," said DiCastri.

With other grand prix events now slated for Saudi Arabia, Bahrain, and Qatar, and the Qatar-based FIFA World Cup in 2022, there is little doubt that the premium private aviation company is very firmly back in business. ■



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LUXE GOOD FOR GROWTH

Jet Luxe, a new aircraft management, charter, luxury travel, and concierge service company, has launched in the Middle East, Asia and North America. Jill Stockbridge reports.

Headquartered in Dubai, Jet Luxe has offices in Hong Kong and Mexico, with active plans to open in London and New York shortly.

Its fleet is currently a single Global 6000 operated under Hyperion, a Maltese air operator's certificate (AOC) holder, but the company has plans to triple that number before the end of the year.

Mahmoud Al Kilani, global sales director, Jet Luxe, said: "We opened four new entities in the last quarter that facilitate coverage of all the continents. Our major business focus is on aircraft management and luxury charter, including luxury travel experiences.

"Currently under the company's management is the Global 6000. We plan to expand our world-wide fleet in the short term to include additional heavy and ultra-long-range aircraft."

In addition to the charter and luxury travel service, Jet Luxe has launched the brand AMS Luxe, a full-fledged aircraft management service handled by its in-house team.

Al Kilani explained: "It is traditional aircraft management, but with a modern transparent approach to client reporting that sets AMS Luxe apart. Our technology brings new efficiency and clearer reporting to aircraft management.

"This is made possible because we have fully integrated with multiple business aviation platforms, including a partnership with Portside that is a game-changer in the industry in terms of transparent reporting for our clients."

Portside provides an integrated software solution for aviation management companies, aircraft owners, corporate flight departments, and fractional operators globally. It offers a purpose-built cloud software platform designed to connect all participants in the global business aviation industry. Whereas, traditionally, the operator adapted to the tech, Portside offers tech that is crafted around the operator.

Jet Luxe believes that the system, built specifically for it and customised to support the way its customers need to see and use data, will give it a competitive edge; something it will need as it enters a Dubai market that has seen huge growth over the last year, but is also well-served by established aviation organisations.

Al Kilani said: "We are founded by a team of aviation professionals with decades of experience. From luxury charter through medevac to cargo – even the most challenging scenarios in the most unusual locations, we can make happen. At our core is a commitment to a few simple principles. These values form our blueprint and direct Jet Luxe's practices and evolution.

"What makes us different is our obsession with creating unparalleled, high-quality experiences, whether that is the trip



Mahmoud Al Kilani: "We plan to expand our world-wide fleet in the short term to include additional heavy and ultra-long-range aircraft."
Above: The company is aiming to create unparalleled, high-quality experiences. PICTURES: JET LUXE

of a lifetime, seamless business travel, or an essential medical trip. We offer customer-centric services that set a new standard for our industry. Built into our corporate DNA is a set of principles that encourages innovation, mastery, and the willingness to go the extra mile.

"We know that, in this new world, sustainability and leading from values matters. As such, we have achieved a silver rating with 4Air [the rating system focused on comprehensive sustainability in private aviation] and we offset all flights at 300%. Our commitment to a greener future for business aviation ensures that every Jet Luxe flight is more than 'emission neutral'.

"Whether taking an ad-hoc charter flight, cargo, or medical evacuation, we go beyond 'emission neutral' and offer a guaranteed 300% offset in emissions.

"We believe in giving back to the communities in which we operate. Through emission-reducing projects, greenhouse gas-reducing projects, and community projects via our partnership with 4Air, we are working towards a more sustainable, responsible future.

"We will continue to expand globally. Our short-term target is to triple the size of our fleet by the end of 2021. We will also shortly be launching our signature product; the JLX Invictus jet card," he concluded.





RoyalJet Expands Operations to Dubai

RoyalJet, the award winning Abu Dhabi owned and operated leader in premium private aviation, has added an additional base to its operations at Dubai's Al Maktoum International Airport.

The move coincides with the launch of Expo 2020 Dubai. The mega event has attracted VVIPs from all over the world, including Government leaders and dignitaries, Heads of State, Royalty, large family groups and other high net worth individuals, increasing the demand for private jet travel in and out of the city.

The company's nine Boeing Business Jet VVIP Airliners and two Bombardier Global 5000 corporate jets are now available for charter by business and leisure travellers directly into and out of Dubai. Passengers can choose a 12 seat Global or take their pick from the world's largest fleet of BBJs, with configurations ranging from a 19 seater with stateroom and shower all the way up to a 52 seat corporate shuttle.

RoyalJet's CEO, Rob DiCasteri, said "Hosting Expo 2020 is an incredible achievement for the UAE. The UAE is our home and we are honoured to support our country's leadership in any way we can, helping to ensure this unique celebration of global unity is a huge success. We are ready to facilitate VVIP travel to and from this event, which is conveniently located very near Al Maktoum International Airport."

RoyalJet also operates out of two other bases in the UAE - both in Abu Dhabi - at Abu Dhabi International Airport and Al Bateen Executive Airport.

The premium private aviation company recently entered a new era in its long history by launching a transformation of its customer experience. This transformation focuses on revamping every moment of the passenger journey to ensure that the brand and experience reflect the values and identity of Abu Dhabi and the UAE.

This project has so far included a full redesign and refurbishment of their VIP lounge at the Abu Dhabi International Airport along with the refurbishment and upgrading of one of its industry leading BBJ aircraft. The refurbished FBO reflects the company's new direction, with a refined but elegant interior complete with artwork created by local artists. The refurbished aircraft, with an all new interior and upgraded lighting, entertainment and communications (including the industry leading Ka Band WiFi, which allows for streaming of high definition content in flight) demonstrates the company's commitment to its customers.

DiCasteri said: "Our aim is to consistently deliver an exceptional experience every time a guest flies with us. The entire passenger journey is being redesigned to provide moments of delight at all stages of the flight, from arrival at the FBO, through to disembarking at the destination."

"As RoyalJet enters the post-COVID era by welcoming new and returning passengers in new locations such as Dubai, the company is embracing the opportunity to be part of the history of the UAE at a pinnacle moment, but with a fresh, new approach to premium private aviation."

RoyalJet

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Hassan El-Houry: "Our collaboration in purchasing and deploying the Abbott systems is aimed at continuing efforts to help restore passenger confidence to aid the further recovery of international travel." PICTURE: NAS

NAS tests out new rapid Covid service

National Aviation Services (NAS) has signed a partnership agreement with global healthcare company, Abbott, to drive the implementation of Covid-19 rapid testing solutions at major airports and trans-border lounges across the Middle East and Africa. Anuradha Deenapanray Chappard reports.

The leading airport services provider is using its global network, local relationships, and industry expertise, to work with local authorities to deploy Abbott's Panbio Covid-19 ag rapid test device and the ID NOW molecular point-of-care test system.

Both these solutions offer quick testing for Covid-19, thus encouraging and facilitating safer cross-border travel and supporting the global aviation industry to recover safely and sustainably.

These solutions can help fuel economies as more people resume international business, commerce and travel.

Abbott's Panbio Covid-19 ag rapid test device is a highly reliable, portable, and affordable rapid antigen test, which has received the European health, safety, and environmental protection standard CE Mark, and the World Health Organization (WHO) use listing procedure (EUL) go-ahead.

It has been deployed in dozens of countries across the world and delivers results in 15-20 minutes with no instrumentation, providing a scalable and cost-effective solution for governments and private industry.

"Our collaboration in purchasing and deploying the Abbott systems is aimed at continuing efforts to help restore passenger confidence to aid further recovery of international travel," explained NAS Group CEO, Hassan El-Houry.

Since the outbreak of the pandemic, NAS, which is present in more than 50 airports, collectively managing in excess of 100 airlines and 50 airport lounges in the Middle East, Africa and South Asia, has been driving efforts to implement digital solutions to help restart travel globally by collecting and verifying health data and ensuring authenticity of PCR test certificates of travellers.

In order to enhance safe international air travel, it also partnered with the World Economic Forum last April by using its KuwaitMosafer platform to share Kuwait's vaccine records with countries and airlines across the globe.

NAS also introduced the medical utility network accreditor (MUNA), a patented blockchain technology that connects PCR testing labs in different countries and cities to verify and authenticate certificates for cross-border travel.

Online platform

KuwaitMosafer and BelSalamah, another online platform developed by NAS for safe passage of travellers from high-risk countries to Kuwait, are both linked to the MUNA network.

El-Houry said that the MUNA data in Kuwait is showing promising results. "We discovered that the number of positive cases entering the country were three times higher before MUNA was introduced. This suggests a significant reduction in infected cases entering the country with forged certificates or fake results."

Meanwhile, the Mohammed bin Rashid Aerospace Hub in Dubai South has announced that movements of private jets continued their impressive growth in 2021, with a 336% increase recorded during the first quarter.

Ali Al Naqbi, founding and executive chairman of the Middle East and North Africa Business Aviation Association (MEBAA) said: "Business aviation has always been a safe means of transportation as social distancing is already applicable in the whole process of the trip, and that was proven during the Covid-19 situation. A large number of people have migrated to the use of business aviation instead of commercial aviation."

He added: "The pandemic has changed several aspects of our daily life and it altered our priorities too. We have seen a drastic change in passenger behaviour with people more oriented towards health concerns rather than cost."

"We have also seen a new segment of people flying in private jets because business aviation has always eliminated all safety concerns by the maintenance of social distancing and the small group of people flying on board."

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Spectacular: The show's air displays are always incredible to watch. PICTURE: TARSUS GROUP

AT LAST – IT'S BACK TO SHOW BUSINESS

As 2021 draws to a close, the aviation industry is gearing up to attend the first-of-its-kind live event of the year – the Dubai Airshow. It will be the most critical point of convergence since the start of the pandemic.

Marcelle Nethersole, Jon Lake, and Jill Stockbridge find out what's in store.

The aviation industry took a direct hit from the Covid-19 pandemic with devastating consequences. However, the second half of 2021 is already seeing improvements. Aggressive cost-cutting is expected to combine with increased travel demands for the rest of the year as borders are reopened, with testing and/or widespread availability of a vaccine.

It could mean that the industry turns cash-positive in the fourth quarter of the year.

News that the Dubai Airshow 2021 has the green light to go ahead is a sure sign that the industry is seeing recovery and growth.

The event will be held from November 14-18 at Dubai World Central (DWC), with the support of the Dubai Civil Aviation Authority, Dubai Airports, the UAE Ministry of Defence and Dubai Aviation Engineering Projects. It is organised by Tarsus F&E Middle East.

"The entire aerospace and defence industry is extremely excited to get back to face-to-face events," said Tim Hawes, managing director of Tarsus Group Middle East. "This will be the first large-scale aerospace event globally since Dubai Airshow 2019 and the onset of the pandemic."

Major General staff pilot Ishaq Saleh Al Baloushi, military advisor to the state minister of defence and executive director of the military committee for the show added: "For many years we have been collaborating and working closely with different defence delegations from across the world for the Dubai Airshow. This engagement has continued virtually throughout the pandemic, and we are now planning on having in-person meetings and sessions at the show itself.

"With the positive sentiment within the industry and the appetite for business continuity, we believe the event will provide the ideal platform for strategic development and the creation of new partnerships."

Already confirmed are more than 20 country pavilions featuring innovative products and technologies. There will also be senior military and civil delegations from around 100 countries, and 160 of the most advanced commercial, private and military aircraft will be on display.

New country pavilions have been announced from Israel, the Czech

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Republic, Australia, and Belgium, with Hawes saying: “Others are looking promising as well.”

New companies attending include; Rafael, Elbit, Kelley Aerospace, Accenture, Eurosam, NAFFCO, G42, and IGG.

Global key exhibitors, who have been part of previous shows, will again be taking part this year. These include Boeing, Airbus, Lockheed Martin, Raytheon, Dassault, and Embraer.

Mubadala is also “excited” to return to the show.

Badr Al Olama, executive director of Mubadala Aerospace at Mubadala Investment Company said: “The Dubai Airshow is set to be one of the most anticipated points of convergence for aerospace professionals across all areas of the industry to facilitate successful global trade and analyse the future of the industry.”

Digital transformation

“The impact of digital transformation and the fourth industrial revolution on the sector has been profound, and we expect these elements to be key parts of the industry’s future recovery.”

The event boasts innovative features including Tech Xplore, on the new conference stage, which will explore cyber security strategies alongside emerging technologies that are helping to reboot the aviation industry, including AI, 5G, cyber security, automation, and blockchain.

According to multinational consultancy PricewaterhouseCoopers (PWC), blockchain could increase aviation industry revenue by \$40 billion a year.

Nine new thought-leadership tracks, with sessions covering the full spectrum of aviation, technology, and space, will also take place.

The conferences will cover an array of themes, including the role of new technologies in revolutionising air travel, major changes happening in the cargo sector, global advancements in sustainability and autonomous transportation, in addition to new space services, and satellite connectivity.

Global industry leaders taking part in the conferences include Dr Mohammed Al Kuwaiti, head of cyber security for the UAE Government; Javed Malik, group chief operations officer at AirAsia; Stacy Malphur, vice president of environmental sustainability and supply chain at Southwest Airlines; Brian Cobb, chief innovation officer at CVG Airport; Ashish Vikram, chief technology and innovation officer at SpiceJet; and Brian Yutko, chief engineer of sustainability and future mobility at Boeing.

On the hub stage, the aerospace 2050 forum will feature a series of discussions dedicated to key growth areas in aerospace, including advanced aerial mobility, sustainability and space.

One of the key sessions in the Tech Xplore arena will be touchless travel – leveraging mobile technology to overcome the challenges posed by the pandemic. This aims to show how leading airlines are using advanced mobile technology to make travel safe.

Global air traffic management and cargo connect will once again return – this year to the hub stage. It will explore how these critical services supported the industry during the pandemic.

Major entities in the fields of technology, aviation, and cargo, will participate in the conferences, including Boeing, Accenture, Air BP, Intelsat, FedEx, Kuehne + Nagel, SmartKargo, NAVPASS and Lillium.

As part of the Aerospace 2050 Forum, a panel for the session:

Crowd-pleaser: The Dassault Falcon 8X is likely to be on display at the show.

PICTURE DASSAULT.

‘investing in the future of sustainable autonomous flight’ will shed light on Dubai’s mission to ensure that a quarter of all journeys in the emirate are taken on autonomous transport by 2030, as part of its plan to achieve sustainable aviation.

Chris Raymond, chief sustainability officer at Boeing, said: “It’s apparent that the UAE is committed to creating a more sustainable future and we have collaborated with them on multiple initiatives, such as founding the sustainable bioenergy research consortium (SBRC) to develop sustainable aviation fuels.

Innovative technologies

“We are also grateful for our partnership with Etihad Airways on the Greenliner programme and the ecoDemonstrator 2020 programme, ultimately collaborating to accelerate innovative technologies that further enhance the safety and sustainability of flying for current and future generations.”

Talal Al Kaissi, vice president of special projects and space programme, Group42, added: “At Group42, we believe that artificial intelligence is the next super utility with a huge potential for positive progress across various industries, globally. Aviation and aerospace is certainly no exception. We look forward to participating at this year’s Tech Xplore to discuss ways in which AI can be leveraged in the sector to increase speed, efficiency, safety and drive the post-pandemic recovery.”

This year’s event will also put a major focus on supporting start-ups.

“There will be a new east-west start-up hub, called VISTA, which will give new companies access to mentorship programmes and a

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CONTINUED FROM PAGE 70

chance to meet with vital decision-makers and globally ranked investors to launch, grow, and scale their start-ups,” explained Hawes.

“Major local and global aerospace entities, including Etihad Airways, the Mohammed Bin Rashid Space Centre (MBRSC), Amazon Web Services (AWS) and Boeing Applied Innovation are already involved.”

The VISTA pitch competitions will run across three categories covering areas that are key for the continued growth of the industry – sustainability, space, and innovation. Start-ups will be offered the opportunity to present their solutions to the aerospace ecosystem, tech leaders, and investors, across two days of live pitches, in a bid to work with the industry’s leaders.

In 2019 alone, investment in aerospace start-ups reached nearly \$1 billion.

“The sustainability challenge, held in conjunction with Etihad Airways, targets start-ups who can provide solutions that can lead to the reduction of indirect emissions, which occur throughout the entire supply chain of Etihad Airways’ ground and air operations, including cargo,” said Hawes.

Space challenge

The space challenge, held in conjunction with MBRSC and AWS, invites start-ups to develop an end-to-end deep learning or machine learning model to automatically detect all the palm trees from standard colour aerial imagery.

Ayal Somech, director at Boeing’s applied innovation team, the strategic sponsor for VISTA, said: As a sponsor of VISTA, we look forward to meeting with and mentoring start-up teams that represent the future of our industry; the innovative work they do is vital to the future of aerospace.”

The air show, in close coordination with the UAE-based Defense Services Marketing Council (DSMC), is also launching a new advisory board, which will not only serve the event but the regional industry in general.

“The advisory board will be focused on a range of topics, including instilling confidence in aviation post-pandemic, development of talent and skills, as well as supporting the next generation of women in aerospace,” said Hawes.

EDGE, the UAE’s advanced technology group for defence and beyond, is this year’s defence technology partner.

Defence is leading the post-Covid recovery with regional defence budgets still on the rise.

GCC air forces are still heavily



committed to the global coalition fighting the remnants of Daesh, and several are still involved in the Saudi-led operations in Yemen, while more of the burden of local defence is falling on local air forces as the US, in particular, concentrates its attention further east.

Dubai has frequently provided the backdrop for orders by the UAE Air Force and Air Defence, though these have seldom been predicted far in advance!

It remains to be seen whether there will be any announcements about the UAE’s efforts to acquire the Lockheed Martin F-35 Joint Strike Fighter – the procurement has been approved in the US but there are still a number of obstacles to be overcome.

And, once that deal is finalised, the UAE is expected to be looking for another combat aircraft (probably from Europe) to augment the F-35, and to provide the capabilities that the US may be unwilling to countenance – just as the F-16E was augmented by Mirage 2000s, which were integrated with long-range stand-off missiles.

Other possible Emirati procurement programmes could include a new advanced pilot trainer, a maritime patrol aircraft, and new transport aircraft.

But it is, perhaps, old fashioned to think only about platform procurement, when the show will be facilitating conversations and contracts in sectors

Big focus: The F-35 is certain to be the centre of attention at Dubai, as the UAE procurement progresses.

PICTURE: US AIR FORCE.

such as weapons, research and development, cyber, IT (including AI and machine learning), data management, and infrastructure, communications, and connectivity.

The show, itself, will be preceded by the 10th edition of the Dubai International Air Chiefs Conference (DIACC).

This has become the largest and most important platform for air force leaders and their industry counterparts to come together to discuss and debate the latest emerging developments in operations, technology, strategy, and tactics.

The theme of this year’s event is ‘beyond joint: the evolving role of air, space and cyberspace in multi-domain operations’, and the conference will cover future transformation challenges and opportunities for air forces.

DIACC 2019 attracted more than 500 senior air force officers from 45 countries and the organisers expect to have the same numbers this year.

Meanwhile, Canadian company, CarteNav, which develops intelligence, surveillance, and reconnaissance (ISR) mission software for security, safety, economic, and environmental operations, will be at the Dubai Airshow offering a new innovative and interactive advanced information management system (AIMS) demonstration.

“Our team has built a reputation of embracing challenges others may avoid – integrating with complex sensors that



extend the operators' capabilities far beyond the status quo," said COO, Carl Daniels.

"As a company, we are excited to be attending the show and showcasing the future of ISR mission software with a new innovative and interactive AIMS demonstration at the event."

As ever, there will be a strong presence from business aviation companies.

The sector is currently enjoying growth in the region with Dubai's Mohammed bin Rashid Aerospace Hub alone recording a growth in private jet movements in Dubai South of 336% in the first quarter of 2021.

There were 4,904 movements in the first quarter of this year compared to 1,460 in the equivalent 2020 period and 1,676 in 2019.

Fixed-base operators (FBOs) and charter companies in the UAE hope that EXPO, which launched on October 1, will only add to the momentum.

The sector is represented by a range of local and international MRO, finance and insurance, tech advisory, completions, charter, and communications companies at the show, including Abu Dhabi Aviation, Click Aviation Network, Gogo Business Aviation, Citadel Completions, Comlux, Empire Aviation Group, Hadid International, Honeywell Aerospace, Jetex, JSSI, Joramco, Lufthansa Technik, PAL Aerospace and SR Technics.

VistaJet, which has its Vista Global Holdings headquarters in Dubai, will have both a stand and an aircraft on display.

The region has been a stronghold for the company, with a 100% year-on-year increase in the number of new VistaJet program members between January and June 2021 in the Middle East, compared to the first half of 2020.

Combined flights into Dubai's two international airports saw the emirate become the group's number one destination.

With Honeywell's global business aviation outlook predicting new business jet deliveries from 2021 to 2030 to be worth \$235 billion, and deliveries in 2021 expected to be 13% up from 2020, the original equipment manufacturers (OEMs) have plenty to celebrate.

Most of the major players will be entertaining clients and potential clients in static-side chalets and on board aircraft, including Airbus, Boeing, Bombardier, Dassault Aviation, Embraer Business Jets, Pilatus and Textron Aviation.

Jetex, the official FBO and handler of the Dubai Airshow 2021, will bring HondaJet to the event – first to the show and later to the VIP terminal next door.

The Dubai Airshow will also feature the world's most advanced air display – with details still to be announced as *Arabian Aerospace* was going to press.

Noticeable by its absence is the pretty Gulfstream fleet, as the Savannah-based company has decided not to attend any major events this year, despite announcing two new jets on the eve of the National

Fast-paced and complex: CarteNav develops C4ISR mission software.

PICTURE: CARTENAV.



Tim Hawes: "We are working very closely at the highest possible level within the UAE Government to ensure the comfort and safety of all attendees, which is our main priority."

PICTURE: TARSUS GROUP

Business Aviation Association (NBAA) business aviation convention and exhibition (BACE), which took place in Las Vegas, Nevada last month.

Mark Burns, the Gulfstream Aerospace president, said: "Our customers have shared that their preference is for smaller events right now, and we are hosting those accordingly. We anticipate returning in the future."

The Global Air Traffic Management (GATM) conference will return to the Dubai Airshow on November 15, where industry leaders will cover key topics including, reforming training regulations for the new world, reducing demand and capacity imbalances with trajectory-based operations, and 'are we ready to integrate drones to our airspace'?

Hawes said: GATM will serve as the most important platform for air navigation service providers and civil aviation authorities to discuss the latest technological trends improving safety and efficiency in this new era."

Safety steps

For visitors to the show worried about what safety steps have been put in place regarding Covid-19, Hawes said every base had been covered.

"We are working closely with government entities in Dubai to ensure that we provide all attendees with the smoothest and safest experience," he said.

"Dubai is one of the first cities in the world to safely and effectively restart the events sector, hence event organisers are ensuring full compliance with the wide range of precautionary measures to maintain everyone's health and well-being."

The UAE recently started opening quarantine-free travel corridors with multiple countries across the world, which counts as a major step for bringing a higher influx of travellers and tourists.

In addition, Dubai Airports recently reopened Dubai International's (DXB) Terminal 1, following a 15-month closure, as part of its plan to ensure the airport's full operational readiness. DXB is targeting 28 million passengers in 2021.

"For Dubai Airshow 2021, we are working very closely at the highest possible level within the UAE Government to ensure the comfort and safety of all attendees, which is our main priority. We will strictly follow the guidance of authorities, including Dubai Health Authority, and Dubai Municipality," said Hawes.

"We are also following all of the necessary safety precautions required in line with Covid-19 policies."



F-18 domed simulators

Advanced Aircraft Simulation centre for Tactical Training

The International Tactical Training Centre (ITTC) is a unique resource providing bespoke training to military and aerospace customers around the world, a division of the International Test Pilots School (ITPS) in London, Canada, ITTC draws on over twenty years of experience providing advanced tactical training to over 25 air arms.

LEVERAGING ADVANCES IN SIMULATION

The Advanced Aircraft Simulation Centre (AASC) is a unique facility established by ITTC to leverage advances in simulation to enhance the learning experience whilst driving down costs. The centre uses Virtual Reality (VR) and Mixed Reality (MR) as well as conventional simulators. An early adopter of such tactical training simulation, ITTC invested in this world-class facility to implement modern training curricula leveraging the latest synthetic technology. The AASC comprises four F-18 domed simulators, four F-35 pilot stations, an AW139 rotary-wing simulator, a Boeing 787 full flight deck FBW simulator and an

F-16 based Variability Stability System (VSS) engineering simulator used by the test pilot school.

The AASC also contains a mission briefing room and a large lecture theatre for unpacking missions in a collaborative classroom style. Simulators are networked, and within a synthetic battlespace, complex missions include real-time ACMI (Air Combat Maneuvering Instrumentation) to monitor the progress of an exercise and post-mission debriefing.

Live Virtual Constructive Training (LCVT) allows for very realistic tactical training in complex scenarios at a relatively low cost. The facility is customizable to meet training needs with optional refuelling or simulating Airborne Warning and Control Systems (AWACS) assets and up to six additional adversary simulators.

The simulator centre includes virtual reality using VR 360° headsets with a synthetic image. Thus, students learn in a

Mission briefing room



photorealistic immersive environment with extraordinary realism. The variety of available technologies allows ITTC to optimize training with the most advantageous devices.

BESPOKE TRAINING SOLUTIONS

ITTC is both responsive and innovative. Brendan Pierce is the ITTC Deputy Head of Training, a former Royal Canadian Air Force pilot and a Fighter Weapons Instructor. Pierce says, "our expert instructors develop a recommended syllabus based on thousands of hours of tactical experience. That syllabus is then optimized in consultation with the customer to maximize its training benefit in accordance with their specific needs." As air arms are looking for advanced tactical training in multiple areas of proficiency, including 5th Gen. threat, new standoff weapons and cyber threats are disciplines to be addressed.

Presented with a request for advanced training for tactical transport crews by a Southeast Asian customer, ITTC brought its expertise to bear to develop a new program within 30 days. ITTC can deliver a bespoke Advanced Airlift Tactical Training (AATT) course onsite at the customer's operating base. This course commences with ground training followed by a number of flight training sorties to increase a crews' ability to survive in real-world hostile missions. Courses fully optimize student learning with ground, simulation and flight training.

The Royal Malaysian Air Force contracted ITTC to provide a short-term solution to its fighter pilot training needs. ITTC provided at short notice, a program based on its upgraded L-39 jets and its advanced simulation capabilities. Anticipating the need for the FLIT graduates to go directly to F-18 and SU-30 conversion training, ITTC downloaded advanced training such as Beyond Visual Range (BVR) training to the RMAF FLIT course. The graduates of this program are now well into the tactical phase of conversion to the fighter and are performing well.

A FLEXIBLE APPROACH TO PROGRAM DELIVERY BY ITTC

ITTC customers are constantly looking for international standard training for their fighter pilots, helicopter pilots, fighter controllers, terminal attack controllers and Unmanned Aircraft Systems (UAS) crews. Places at military training establishments

Student training using Virtual Reality headset and F-35 pilot station.



for military students are limited, often security restricted and extremely expensive. This is where ITTC excels, providing a single entity that can rapidly provide training solutions based on the expertise of its cadre of highly experienced instructors.

Delivery of the training is also flexible, with theoretical lecture modules deliverable as Computer Based Training, live-online, in the classroom in Canada or the customer's country. Similarly, practical training or flight training can be presented in Canada at ITTC's world class training facility and Advanced Aircraft Simulation Centre (AASC) or partly or wholly in the customer's country utilising national assets.

Visit www.ITTC-Canada.com for more information and contact details.



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Clockwise from top left: IAI technicians work on the first Boeing 777-300ER P2F conversion project. PICTURE: IAI.

Big ambition: Turkish Technic brings skills across the spectrum of MRO to its new partnership in Asia. PICTURE: TURKISH TECHNIC.

Together: Signing the agreement are IAI Aviation Group's Yossi Melamed (left) and Abdul Khaliq Saeed of Etihad Engineering, with Rafi Matalon of IAI (left) and Tony Douglas looking on. PICTURE: ETIHAD. Next step: P2F conversions in Abu Dhabi will build on 777-300ERSF work by IAI and GE Capital Aviation Services. PICTURE: GECAS

Surprise, surprise..!

Unexpected partnerships sealed and agreements signed in recent months point to a shifting approach to the MRO industry in the post-Covid world.

Chuck Grieve reports.

As the MRO sector slowly claws its way toward levels of business last seen in 2019, the more nimble and innovative companies have been making headlines with surprise deals.

Arrangements that initially sound unlikely – such as a line maintenance partnership involving Dnata, the Dubai-headquartered ground services giant – on closer inspection show imaginative logic.

In Dnata's case, the agreement with Global Jet Technic (GJT), an independent line maintenance organisation based at Dubai International Airport, effectively creates a one-stop-shop of ground-handling, cargo and technical services at Dubai airports.

A bigger surprise was Etihad Engineering's announcement in August of a strategic partnership with Israel Aerospace Industries (IAI), made possible under the 2020 Abraham Accords, to set up a passenger-to-freight (P2F) conversion programme in Abu Dhabi for

Boeing 777-300ERs. The programme, which is expected to launch in early 2023, builds on work by IAI and GE Capital Aviation Services (GECAS) undertaken in anticipation of a boost in demand for wide-body, long-haul freighters.

Tony Douglas, Etihad Aviation Group chief executive, said the Boeing 777-300ERSF is "a technological breakthrough, given that it's the first in its size category to offer extensive cargo solutions. Not only do we see the demand, but we view it as a greener, more profitable, highly innovative solution for our airline customers, and an excellent way to drive value for our business."

In the initial stage of the partnership, Etihad Engineering plans to run two conversion lines accommodating multiple aircraft conversions per year. A spokesman said it was "too early to speculate" on the intentions of the parent company, Etihad Airways, with regard to its own fleet of 777s, which are due for retirement.

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Maria Sebastian, the MRO's head of transformation, business development and strategy, said the conversion facility will be in addition to Etihad Engineering's existing infrastructure and will not displace any other functions or capabilities. "We will continue to produce 1.5 million man hours per year," she said, adding there will be "some recruitment" involved.

Amman-based Joramco and VD Gulf (UAE) of Sharjah surprised the regional MRO community with their cooperation agreement, which will aid the two independent companies in expanding their capabilities, while encouraging and promoting sustainable development for both. Their plan is to "optimise their synergies for a one-stop-shop unscaled customer experience".

Jeff Wilkinson, Joramco chief executive at the time, said the agreement points the way to "the future of the MRO industry in the region". The market, he added, "is big enough for both of us; we see opportunities in cooperation".

His counterpart at VD Gulf, Mikhail Khoroshaev, said it was "prudent", particularly in the aftermath of Covid-19, to follow the example of other industries and work together to "open new frontiers globally" for both partners.

Wilkinson viewed the 'east-meets-west' nature of the new partnership as a "win-win". VD Gulf's eastern background has left it with "skills we don't have, and we have skills they don't have. We can complement each other."

Both organisations are European Aviation Safety Agency (EASA)-approved; Joramco is Federal Aviation Administration (FAA)-approved, while VD Gulf holds approvals from several eastern European aviation authorities.

International expansion

Turkish Technic has, until recently, been pre-occupied with its move to the new Istanbul Airport. Following the completion of that with the Turkish regulator's approval in June, the MRO turned to strategic international expansion in Asia-Pacific with a heads-of-agreement with Sapura Technics of Malaysia.

Sapura, itself a Part 145 MRO service provider based in the southern city of Johor, focuses on narrow-body types. The tie-up furthers Turkish Technic's ambition of becoming an active player in a market considered the fastest-developing in the world.

Iker Ayçi, chairman of parent Turkish Airlines, said the MRO was "continuously evaluating" the investment opportunities in the Asia-Pacific region.

"We believe that these investments will be of great importance for our company and our



“We’re looking at Dnata as a strategic partner. We’re trying to build up our line maintenance. Long term, we need to set up as an MRO [for heavy maintenance] somewhere in the UAE.”

CAPTAIN KHAMIS AL KAABI

PICTURE: GJT

country's civil aviation [sector] in terms of achieving our company's goals of increasing its market share in the global MRO market."

In Dubai, Dnata's Tim Walker, vice-president, commercial and business development, said the global air services provider views the partnership with GJT – described as a referral agreement – as "another tool in the toolbox".

"We already offer an extensive range of technical services," he said. "What we were interested in was giving our customers a competitive proposition to centralise their local operations."

There is demand, he said. Operators had been looking at their outstation cost base well before the pandemic, which simply accelerated a trend, creating "a growth opportunity" for the right partners.

While it was too early to speculate on how much of the Dubai line maintenance market might go to GJT, Walker said the skills and expertise across both organisations meant they would be ready for the recovery when it came.

"One of our goals is to be innovative – to anticipate change, to be primed and ready when it happens," he said. "We're focused on being fit for the future."

Line maintenance capabilities

Captain Khamis Al Kaabi, chairman of GJT, had approached Dnata "to add scope" to its ground-handling business – "to complete their package" with GJT's Part 145-approved line maintenance capabilities at Dubai International Airport.

"We're looking at Dnata as a strategic partner," said Al Kaabi. "We're trying to build up our line maintenance. Long term, we need to set up as an MRO [for heavy maintenance] somewhere in the UAE."

That would fulfil his personal ambition to become "the first local guy" to establish a standalone independent MRO operation, for which he sees "a big gap" in the UAE.

The referral agreement, secured with the "directives and blessings" of HH Sheikh Ahmed bin Saeed Al Maktoum, chairman and chief executive of the Emirates Group, started bearing fruit almost immediately, with GJT engineers performing transit checks. This was new business and not work taken from other MROs.

As the pandemic started to bite, in March 2020, GJT approached several global airlines with an offer to support them free of charge "because all of us are impacted". The trust gained through that initiative has helped raise GJT's profile and reputation.

It has also helped propel GJT further afield. Through its relationship with Emirates and other UAE airlines, GJT is planning on expanding to Ghana and Sudan, where its line maintenance station opened in September. ■



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Blockaviation wants to convince a sceptical air transport industry about the cost savings and efficiency gains of moving fleet data on to a blockchain. Chief executive, John Roberts, explained the grand vision to **Martin Rivers.**

BLOCK MAGIC

No-one working in aviation disputes that – for all the industry’s achievements – efficiency is often lacking in the day-to-day business of flying aircraft.

Cost-cutting has ironed out much wastefulness in recent decades, but managers can only go so far when passenger safety trumps all other concerns.

Without an obsessive focus on maintenance, repair and overhaul (MRO), airlines simply wouldn’t have the trust of the general public.

That makes the mountain of paperwork that accompanies each and every flight a necessary evil in our industry.

When it comes to managing that paperwork, however, there’s ample scope for automating processes and streamlining communications. And, if there’s one technology that can revolutionise this field overnight, it’s blockchain.

“There’s been a lot of scepticism about blockchain in the last few years,” admitted John Roberts, chief executive of Dublin-based Blockaviation, a start-up trying to convince airlines, lessors, manufacturers and MRO firms about the technology’s benefits.

“That hasn’t helped. But I think now, with Covid, we have to find efficiencies to get airlines back in the air. The industry’s been on life support for the last few years.”

Blockaviation’s first – and, perhaps, biggest – challenge is demonstrating to the industry how a technology more often associated with cryptocurrencies can transform record-keeping practices.

To understand this, you first need to understand the cumbersome, inefficient way that owners of aircraft currently establish airworthiness compliance.



John Roberts: “We have to find efficiencies to get airlines back in the air.” PICTURE: BLOCKAVIATION

Take Blockaviation’s prime targets – lessors.

Today, leasing companies need to maintain a complex, highly detailed paper trail for each and every aircraft in their fleet. Whenever one undergoes routine or mandatory maintenance – a C-check, for example, or remedial work following an airworthiness directive – new documents are added to the pile, proving that the work was completed to the standard required by legislators and regulators.

Other records are maintained for components such as engines and auxiliary power units, detailing any replacement parts and monitoring

utilisation rates, like flight hour cycles.

“The aircraft is not worth anything without a fully coherent paper trail,” Roberts emphasised. “When it comes to part-out, the owners of the aircraft can get hammered because of incomplete paper trails, or paper trails that can be questioned.”

Under the current system, records are typically sent to lessors on an ‘ad hoc’ basis, arriving via e-mail as PDFs of scanned, dirty-fingerprinted documents.

Efforts began to digitise this process in 2017, when a new digital standard – Spec 2500 – laid the foundation for “crates” of data that pool these documents together in a computer-readable, XML format. Once stored in this new, digital format, entries can be queried or verified without needing to trawl through hand-written or scanned paperwork.

However, that only solves half the problem.

Physical documents may be frustrating and time-consuming to deal with, but they’re also secure. When you export data to a digital format – even one that includes scanned copies of



original paperwork – you greatly increase the risk of fraudulent or doctored records passing by unnoticed.

Any company using Spec 2500 crates of data needs to have total, unwavering faith in their accuracy and authenticity – and that’s where blockchain technology makes a difference.

Blockchains, unlike any other types of data, are designed to be both decentralised and immutable. They exist as shared ledgers – or copies of records – that are stored by multiple, independent parties (each referred to as a ‘node’) in an encrypted format that’s cross-referenced to ensure that none of the contents can be altered.

Data invalidated

If an anomaly arose in one copy, that version of the chain would be broken and the data it contains invalidated. Blockchains thereby create trust in data – without needing an author or inspector to vouch for it.

“Blockchain, very simply, is a secure network,” Roberts explained. “And that’s what we’re using it as. We’re using it as a service to notarise these transactions as parts move and aircraft move and records move from place to place. It’s just a highly secure network that creates trust.

“It allows you to say, ‘Okay, forget it, we know that’s what happened on that date. There’s the record of it. Next’.”



So many aircraft to follow: When it comes to managing the paperwork, there's ample scope for automating processes and streamlining communications. PICTURE: BARBARA BARRETT.

When you combine the verifiable accuracy of blockchain data with the digital convenience of Spec 2500 records, you begin to realise what Blockaviation is pitching to its customers.

"The costs of moving aircraft around with their records is absolutely incredible," Roberts noted. "So the efficiencies that can be garnered here through a network, which we can digitise in a standardised way and create standardised processes, are enormous."

Lessors are a logical first target for the company, as they often take delivery of brand new aircraft and must then entrust third-parties – airline lessees, their customers – with the onerous task of record-keeping.

As long as the aircraft is delivered with Spec 2500 documentation, a lessor can give it a single, verifiable digital identity from day one of its lifespan. That identity exists on the blockchain as what Roberts calls a "networked record" that's visible to all authorised parties – reducing their dependence on locally stored asset management platforms. Its existence removes any need for owners and operators to use locally stored asset management platforms.

Septics rightly warn that this raises questions about the ownership and control of data.

At the time of writing, Blockaviation had recruited just four customers – including lessors SMBC and Airastle – who collectively manage 1,200 aircraft.

That's a fraction of the global commercial

fleet. But, if Roberts wins over a larger share of the industry, then the pool of data stored on his network will be so valuable and strategically important that it would be reckless to entrust it to a single, corporate entity like Blockaviation.

Yet here, too, the decentralised nature of blockchains provides the solution.

Governance council

"We want Aircraft Leasing Ireland to buy a node," Roberts said, referring to one digital copy of the distributed ledger that forms the backbone of the network. "We want [multinational information technology company] SITA, for example, to buy a node; the International Air Transport Association (IATA) to buy a node; one of the big leasing companies to buy a node. Then we've got the governance council."

By distributing its infrastructure between key industry bodies, Blockaviation can ensure that the access rights and privileges given to all parties – including itself – arise from an external consensus mechanism.

That, essentially, means building a network and then handing it over to the industry – for a fee, of course.

"There's nobody else doing what we're doing," Roberts emphasised. "We're building essential industry infrastructure. So it's conceivable that, eventually, it'll be owned by the industry."

WHY THE CORE IS STILL FRUITFUL FOR AMAC

VIP completions and a steady stream of MRO work has kept AMAC Aerospace busy without venturing into new areas of business. **Chuck Grieve reports.**

While MROs around the world are closely following the boom in passenger to freighter (P2F) conversions, one major aircraft centre is happy to let it pass by.

AMAC Aerospace, a leader in private, VIP and corporate aviation services, remains focused on its core business of cabin completions, modifications and upgrades.

"We would be fully capable of doing [P2F conversions] in-house," said Bernd Schramm, group chief operating officer. "Luckily, we are busy so we haven't felt it necessary to explore the P2F option."

Among current projects, the Basel, Switzerland-based company is working on its third ACJ320 VIP completion since it chalked up a world-first such completion of an A320neo in spring 2020. It delivered its second this past summer and is on schedule to deliver the third by the end of the year.

Schramm said the differences between the neo and classic series A320s, from the perspective of a completion centre, are "not that big". Its aluminium construction makes it comparable to other A320 and A319 variants.

□□□□□

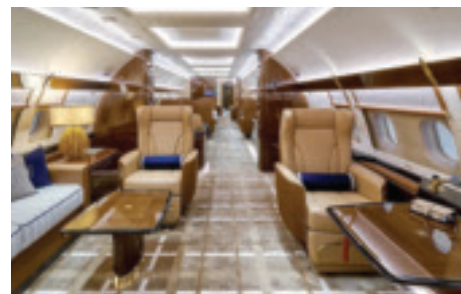
The bigger difference, he said, is with the A350, which is 50% composites, as well as the Boeing 787, "a new model for which we are also well prepared".

AMAC has started the completion of its first A350. "That is the challenge right now," said Schramm.

On the maintenance side, AMAC has noticed an increase in demand for maintenance on privately owned aircraft and attributes that to a growing interest in charters. The company has added new types, such as the A350, B787 and Bombardier Global 7500, Gulfstream G500 and G600, to its extensive list of approvals in the last two years.

Customers change aircraft, Schramm observed, and upgrade to newer models, "so it's only logical that we follow the requirement and expand our capability".

With five hangars at its main Basel base, AMAC relies on "tactical interlinking" of hangars and workshops to effectively manage the multiple projects under way at any one time. The facilities are busy, said Schramm, but "we don't over-pack our hangars. We always keep a certain reserve for aircraft-on-the-ground (AOG) events."



History-maker: The main cabin in AMAC's world-first ACJ320neo VIP completion. PICTURE: AMAC



TECHS APPEAL

*Training enough technicians to meet demand is a growing challenge throughout the MRO industry. **Chuck Grieve** talks to companies who have done something about it.*

It will come as no surprise to hear what Ene Krinpus, chief HR officer for Magnetic MRO, has to say about the challenges in hiring skilled technicians. Experience has shown Krinpus that “the hardest jobs to recruit for are in the aviation sector, especially licenced engineers”.

It’s a familiar story. For the last decade at least, observers have been warning of an alignment of factors hitting MRO – trainee numbers remain stubbornly low as retirees increase, just as demand surges.

Boeing, in its *Pilot and Technician Outlook 2021-2040*, predicts a need for 51,000 new technicians in the Middle East, 12% of the global requirement over that period.

The Seattle-based original equipment manufacturer (OEM) says the industry’s ability to meet projected demand, which it expects to track the market recovery, depends on its investment in a steady pipeline of newly qualified personnel. The industry will “need to keep a sharp focus and engage in collective efforts” to train and retain talent.

A perennial challenge in parts of the Middle East is attracting trainees from the domestic population.

In Abu Dhabi, Sanad Aerotech approaches training as a moral obligation, as well as practical consideration. Its internal training programme, covering mandatory, technical and soft skills modules, addresses the needs of both the business and the UAE.

“Empowering Emiratis and providing national talent with opportunities to be trained and upskilled in our sector has been a key focus for us,” said Mansoor Janahi, deputy group chief executive.

“As a national company, Sanad Group’s internal initiatives are aligned with the UAE Government’s nationwide emiratization programme, and we share its vision. In addition, training and nurturing of a local workforce is part of the overall effort in building and sustaining knowledge-based industries within the UAE.”

In Dubai, Emirates Aviation University (EAU) gained a global audience in more than 50 countries when it went “virtual” for its graduation ceremony in May.

Among the 600 graduates were 99 aircraft maintenance

Top quality: Engineering labs at EAU help students to familiarise themselves with components.

PICTURE: EMIRATES

Right: Joramco Academy has never had a shortage of Jordanian applicants for its programmes.

PICTURE: JORAMCO

technicians and engineers from two programmes – higher diploma in aircraft maintenance engineering and bachelor of engineering (BEng) in aircraft maintenance.

All gained European Aviation Safety Agency (EASA) and General Civil Aviation Authority (GCAA) certificates of recognition.

Joramco has never had a shortage of Jordanian applicants for its training academy, which was set up in 2007. Nationals from countries around Jordan and as far afield as Morocco and India have also been accepted.

Joramco says its academy is open to any candidate who meets the entrance requirements. The four-year programme includes two years of theoretical study and two years of practical experience on site at Joramco’s facilities at Queen Alia International Airport.

Samer Khurma, head of Joramco Academy, said: “With the MRO sector projected to continue growing steadily over the coming decade, the prospects offered by a career in this field are outstanding.

“As the largest independent MRO in the region, we at Joramco are particularly well-equipped to offer our experience and expertise to the next generation of aircraft technicians, and we are eager to pass down these insights to our students.”

Joramco Academy has ambitions of supplying technicians for the regional, as well as local, market. It’s a goal shared by Magnetic MRO in the Baltic and Nordic region.

Krinpus said the Estonia-based MRO set up its own training facility and vocational training programme in 2018 to tackle the shortage of skilled workers. So far two cohorts have graduated and gained their licences, another is about to graduate, while a fourth starts the innovative two-year programme in early 2022.

An EASA Part 147-approved training organisation, Magnetic is positioning itself as the region’s preferred apprenticeship and internship provider – “basically a teaching MRO”, said Krinpus.

Magnetic hopes to make the programme bigger, better and cross-border. It’s heading in the right direction: the programme took the 2020 European Vocational Skills Week award for training at work.



Mansoor Al Janahi:
“Empowering Emiratis and providing national talent with opportunities to be trained and upskilled in our sector has been a key focus.”

PICTURE: SANAD AEROTECH



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InsideMRO⁷

Consolidation and increased collaboration in the wake of the pandemic is less a result of the current disruption and more an acceleration of a pre-existing trend.

Chuck Grieve reviews the MRO picture.

Partnerships remain key for MRO's big players



Big business: Under their new MoU, LTME becomes Joramco's preferred MRO service provider for nacelles.

PICTURE: JORAMCO.

The current situation is going to force some MRO players to join forces to survive. That's the view of industry veteran, Kadri Muhiddin, chairman and chief executive of AMAC Aerospace, who views mergers and acquisitions (M&A) as a "kind of helping hand to keep the industry going".

Whether it's M&A or partnerships of independents, this generous point of view goes to the heart of the difficult question of right-sizing in the face of customer cash-preservation strategies.

Consolidation is a key lever to rationalising overcapacities where there is a "clear need", especially at the MRO and tier-2+ level, said Manfred Hader, senior partner at global consultancy, Roland Berger.

Given the drop in demand as a result of Covid-19, it is "unsurprising" that consolidation is high on the list of emerging trends, he added.

A similar picture is painted by Johann Panier, a senior vice-president with Air France Industries KLM Engineering & Maintenance (AFI KLM E&M). "The market is changing completely," he told travel data and analytics specialist, Cirium, in an interview. As airlines replace ageing aircraft, MROs will need to speed up development of the technical capabilities for new-generation equipment to "go on the next-gen aircraft as soon as possible".

AFI KLM E&M launched a new nacelle overhaul business last spring with US-based Triumph. It complements the group's other nacelle activities, including the dedicated repair shop in Dubai, Aerostructures Middle East Services (AMES), jointly owned with Safran.

Nacelles also figure in a new memorandum of understanding (MoU) between Joramco and Lufthansa Technik Middle East (LTME) – the first between the

companies – signed at MRO Middle East. The agreement gives the Amman-based Joramco the support of LTME to enhance its in-house capabilities.

In return for providing technical expertise and MRO solutions, LTME gains a site to relocate spares for consignment stock and repair capability.

It's one of many recent agreements concluded by Lufthansa Technik as the company trades its way out of what its chief executive, Dr Johannes Busmann, called the "toughest year in the company's history".

As Joramco's preferred MRO service provider for nacelles, LTME stands to gain business, while ultimately benefiting Joramco's end-customers by providing airline companies a cost-effective solution.

Jeff Wilkinson, Joramco chief executive at the time of the announcement, called the agreement "a significant step forward and the start of what is sure to be a highly productive and beneficial partnership for both companies".

Established relationships are important for continuity of supply and retention of skills. In the case of Turkish Aerospace Industries (TUSAS), the Ankara-based systems designer and manufacturer, a long-standing partnership with Boeing has led to a new contract to manufacture fan cowls for the Boeing 737.

Expands the portfolio

The agreement expands the portfolio of Boeing products manufactured by TUSAS in an industrial collaboration that the partners say supports the 737 programme's performance and affordability.

TUSAS has also earned a position alongside about 140 other suppliers on the prestigious Boeing premier bidder program, which recognises the consistent high performance of suppliers.

Meanwhile, Boeing also renewed a tailored parts package agreement with Turkish Technic, extending the MRO operator's current contract by three years. The agreement covers more than 9,000 part numbers and includes items sourced through the original equipment manufacturer (OEM) and its partners.

Aysem Sargin, managing director of Boeing Turkey, said: "Turkey is one of Boeing's strategic growth countries, and we see tremendous potential for the country to contribute to the global aerospace industry as an industrial and technology partner."

One company that has bucked the trend by actually expanding its business during the last year is AMAC Aerospace, the MRO and VIP completions specialist.

While none of this growth had earlier been through M&A, Muhiddin said AMAC Aerospace recently acquired Gamit Ltd, an asset management and technical support specialist based near Stansted Airport in the UK.

"Also before the end of this year we'll see AMAC Aerospace entering the Saudi Arabian aviation market," he added. ■

An Airbus-organised summit in Toulouse has called for every sector of the industry, together with governments, to band together to facilitate the biggest revolution that aviation has ever faced – cutting harmful emissions while keeping the industry growing.

Alan Dron was there.

For the past 20 months, the aviation industry has been fighting for survival, trying to keep afloat in the sea of red ink deluging its financial accounts.

But, for all the trauma caused by the pandemic, an arguably greater, long-term crisis faces the commercial aviation sector – how to clean up its act in such a way that it will be able to continue operating in the new greener environment.

As Middle East airlines gradually restore their schedules and bring their grounded fleets back into service, they will face greater pressure than ever to ensure they can continue to carry passengers and freight in as ecologically sound a fashion as possible.

The region's carriers and airports are aware of this pressing need and are at pains to demonstrate their green credentials, by using sustainable aviation fuels (SAFs), flying the most economically possible routes, and employing new technologies, such as electric ground vehicles.

But, if the predictions of the Airbus summit on sustainability are correct, airlines and airports around the world will have to do much more – both on their own account and in collaboration with their national governments and regulators – to ensure they can continue to expand in a way that leaves as little imprint on the planet as possible.

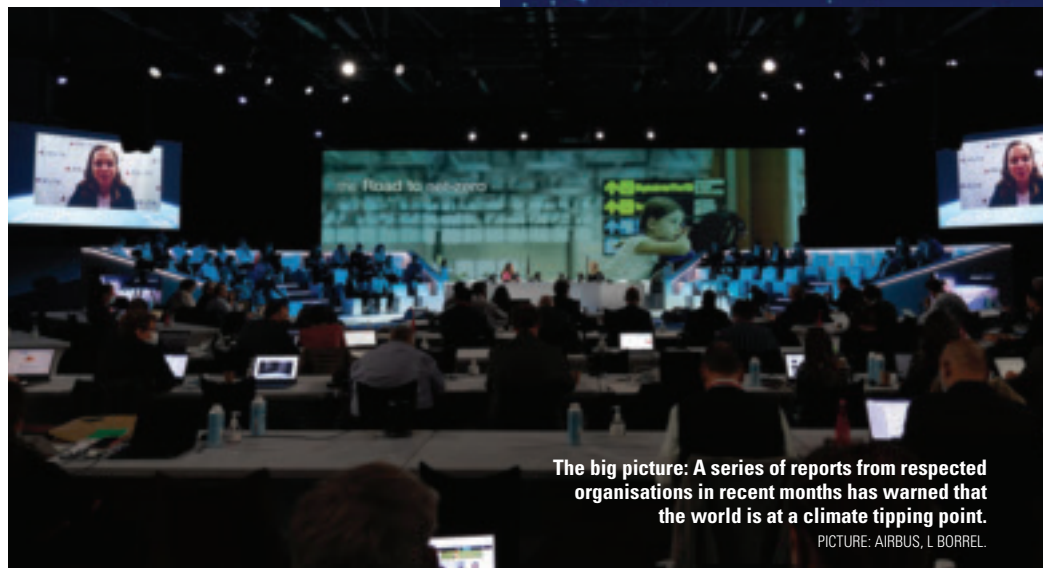
Set the rules

The over-arching message from the summit was that all parties must come together to fund the technologies and set the rules that will allow commercial aviation to continue to grow and serve the world's population, while simultaneously cutting its impact on the environment.

A series of reports from respected organisations in recent months has warned that the world is at a climate tipping point. If nothing is done – and done now – to start to slow the rise in the planet's temperatures, mankind faces a bleak future.

Aviation may not be one of the largest producers of emissions, but it is one of the most prominent, and thus faces considerable criticism from environmental campaigners.

At present, commercial aviation accounts for around 2% of CO₂ emissions. Even allowing for the arrival of new-generation jets that produce around 15-20% less CO₂ than their predecessors, the industry's rapid growth pre-2019 meant that the benefits of new aircraft were



The big picture: A series of reports from respected organisations in recent months has warned that the world is at a climate tipping point.

PICTURE: AIRBUS, L BORREL

IT'S NOW

already being outstripped by the overall growth of flights.

This is particularly true in Asia-Pacific, where rapidly growing middle-classes in countries such as China and India are using their new-found disposable income to board airliners for the first time. And those countries' airlines are expanding to accommodate the growth in traffic.

In the Middle East, too, the growing number of low-cost carriers (LCCs) is encouraging more people to take to the skies for the first time, increasing the size of the market.

Slowing, then reversing, the growth in airline-produced CO₂ will be similar to halting a supertanker – it will take time. But that process has to start now, a message that top-level executives from Airbus strongly pushed at the two-day summit.

"It's going to be a decade of extraordinary change," said Julie Kitcher, Airbus' executive vice-president, corporate affairs, communications and sustainability. "Decisions that we make today are going to lay the foundations for that sustainable future. We need large-scale investment, innovation, and digital transformation."

She cautioned against opinions voiced by some green campaigners that air travel should be rationed: "Net zero [emission] means sustainable growth, not arbitrary limits on growth, or taxation."

The summit heard that the travelling public have contradictory views on airlines' attempts to improve their green credentials. Passengers expect airlines to cut emissions but are generally unwilling to contribute to them doing so, several airline bosses said.

For several years now, many airlines have offered passengers the option of offsetting the CO₂ emissions from their flights by paying a small extra amount on top of their ticket price. However, only around 1% of passengers actually pay the extra, the summit was told. "Consumers want things, but are unwilling to pay for them," said Barry Biffle, chairman and CEO of US LCC Frontier Airlines.

Offsetting can take several forms.

Johan Lundgren, CEO of UK LCC EasyJet, added in an informal briefing at the event that the airline was being careful only to work with the

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...OR NEVER

highest-quality offsetting projects, mostly involving either reforestation, or the prevention of deforestation.

He made the point, however, that offsetting could only be an interim solution before new, zero-emission technologies became available some years down the line.

Similarly, several speakers commented that SAFs could also only be a bridging strategy until new technologies, such as hydrogen power, reached maturity.

Some environmental lobby groups are already complaining that SAFs require the growing of crops as feedstock on land that could otherwise be used for growing food crops for people.

However, this problem is already being minimised by the increasing use of multiple pathways to produce SAFs that do not require land and valuable water supplies. The use of waste cooking oils and the creation of fuel from CO₂ extracted from the atmosphere is rapidly being either trialled or is already in use.

The biggest challenge is to vastly scale up the quantities of SAFs being produced. Multiple



Looking ahead: Guillaume Faury believes that a hydrogen-powered airliner in the 150-200 seat range could be available by around 2035.

PICTURE: AIRBUS, JV REYMONDON.

companies are investing in the necessary plants to do so, but at present considerably less than 1% of the world's demand for aviation fuel is being met by these methods.

Lundgren was cautious about SAFs, describing them as essentially another form of offsets and an interim step until hydrogen power cells can be used more widely.

"I think hydrogen is absolutely key. There's a lot to be done, but it's a proven technology. I can't see SAFs being a long-term solution for short-haul aviation."

Biffle agreed over SAF limitations: "I think a lot of people have jumped on to the SAF bandwagon. Unless it actually improves emissions, just the fact that it's a sustainable source isn't going to tackle CO₂ levels."

Airbus CEO, Guillaume Faury, argued that, in the short-term, SAFs were essential, but producing enough of them was "a very important concern for us".

He asked: "What is the scalability? You need the right product, at the right time, in the right place at the right price." Much would depend on the scale of investment in the necessary technologies over the next few years, he said.

Hydrogen will require huge investments in the production of the fuel, as well as in the necessary infrastructure in airports and supply networks, but Faury believes that a hydrogen-powered airliner in the 150-200 seat range could be available by around 2035.

Continued
on Page 90



In development: Vertical take-off taxis, like the CityAirbus, have been mooted as the new mode of travelling around major cities such as Dubai.

PICTURE: AIRBUS.

CONTINUED FROM PAGE 89

Achieving that in-service date will require selecting and maturing the powerplant and accompanying fuel technology by 2025. There will then be a two-year period of choosing partners and suppliers, with a project launch in 2027-28. Development of the aircraft would then take seven to eight years, allowing for the necessary – and considerable – certification challenges.

“In 2027 we have to launch major investments, not only at Airbus but with all our partners,” he said. That would require help from the world’s airworthiness authorities: “We need to have a certain degree of assurance on the regulatory environment and the availability of fuel – hydrogen. I’m more concerned about that; we’re having talks with energy suppliers.”

Lundgren urged governments and international bodies to come together and create a framework to make the transition to hybrid or battery-powered aircraft possible. Money would have to be ploughed into research and development (R&D), he said.

The source of that money has still to be resolved. Lundgren said he could understand calls for a fuel tax to pay for that R&D – provided it replaced certain national taxes – and provided that money from such a fuel tax was channelled into this research. (Traditionally, governments have been extremely reluctant to fence off tax revenue for specific purposes, fearing that this could lead to multiple demands for chunks of tax revenue to be hived off to different causes. They much prefer that all taxes go into the general revenue ‘pot’.)

Despite all these difficulties, however, Lundgren said it was potentially commercially worthwhile for airlines to make the effort to solve the problems involved in becoming ‘greener’. “We think this is a competitive advantage,” he said, “Customers aware of our offsetting policies are 8-9% more likely to choose to fly with us.

When we’re fighting for 0.2% of a market, that’s massive.”

The price of SAFs remains a problem. They are currently at least three times more expensive than fossil fuels. That price will reduce as more supplies start to come on-stream, but is likely to remain higher than conventional fuels.

Electric, hydrogen-powered or hybrid aircraft are seen as the long-term solution to emissions. However, batteries will probably never have the ability to power long-haul aircraft. And electrically powered aircraft will require huge investment by airlines and airports for recharging facilities, as well as the ability to turn round aircraft quickly.

Lengthy recharging process

Many LCCs depend on 30-minute turnarounds, so a lengthy recharging process is not viable. A potential solution is having easily changeable battery packs that can be swapped during brief stopovers.

Despite this: “We are convinced that electricity will revolutionise flight in the future. This is not just ‘idea of the week’,” said Karim Mokaddem, Airbus’ head of electrification. One of the key technologies on the company’s radar was batteries, he added.

The power of batteries is increasing and making them more viable energy sources for aircraft like helicopters and the approaching new generation of urban air mobility (UAM) vehicles, such as vertical take-off taxis that have been mooted as the new mode of travelling around major cities such as Dubai.

However, there were signs at the summit that Airbus and others are cautious about these small urban air vehicles being depicted as ‘aerial taxis’, whisking well-off business executives between city locations or to and from nearby airports.

Asked by one audience member if homeowners might object to a helipad next to their house, Balkiz Sarihan, Airbus’ head of

UAM strategy execution & partnerships, said that UAM vehicles would probably not start with the sort of urban air services that have been mooted in recent years.

The first areas for which UAM vehicles would be used were likely to be emergency services, or reaching remote areas with limited surface infrastructure, she said. There had to be social acceptance of the new vehicles and people were more likely to agree to their nearby presence if they were seen to be filling gaps in a country’s transport infrastructure.

One major weakness in some regions’ transport infrastructure is inefficient air traffic control systems. Pilots of airliners from the Middle East heading through European airspace have to pick their way through a patchwork of national air traffic flight information regions (FIRs).

The European Union has been trying to simplify this patchwork for decades through the creation of much larger blocks of airspace – with very limited success.

Only a few have so far started operating. The rest have been held up through a mixture of trade union intransigence – national air traffic controllers’ unions are concerned that larger blocks incorporating several countries’ airspace will lead to redundancies among their members – and a lack of political will among European governments to force the measures through.

“It’s absolutely appalling we haven’t seen progress in this area,” said Lundgren. “We could save 15% fuel just by remaking the air traffic control system. It’s ridiculous when we’re chasing kilos [in emission savings] on flights. Everybody knows about it, and talks about it, but nothing happens. We hope public pressure starts to have an effect.”

That public pressure may start to bring together airlines, airports, fuel suppliers and regulators to help commercial aviation prosper – or even survive – over the next 20 critical years. ■

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The latest group of future Saudi Arabian air traffic controllers to train with New Zealand's Airways International was the first to include Saudi women learning ATC skills abroad. Alan Dron reports.



Watching brief: Saudi air traffic control students are supervised during an exercise as part of their two-year training in New Zealand.

Far left: The latest group of Saudi Arabian air traffic control students celebrate after completing their studies in New Zealand.

PICTURES: AIRWAYS INTERNATIONAL

KIWI TRAINING 'FIRST' FOR SAUDI WOMEN

The eighth group of General Authority of Civil Aviation (GACA) students from Saudi Arabia has graduated from air traffic control (ATC) training with Airways International, 11 years after the first batch to arrive in New Zealand completed their training.

GACA and Airways International marked the milestone as 34 students graduated following two years of study. Almost 200 Saudi students have now completed ATC training with the New Zealand organisation since 2009.

The latest class included four female students – the first Saudi women to train as ATCOs outside their own country.

"It has been such a privilege to be one of the first women from Saudi Arabia to be offered this opportunity," said 21-year-old Hatoon Alotaibi.

"I feel very lucky and I'm so proud to be one of the girls!"

Saudi Air Navigation Services (SANS) employs the graduates on their return to Saudi Arabia. It is prioritising hiring women for ATC roles, with the aim of extending female employment.

The students spend their first year in New Zealand studying English at educational establishments, followed by a year-long ATC training programme at Airways International's Palmerston North training centre.

Students have to achieve level 6 English in the international English language testing system (IELTS), together with International Civil Aviation Organization (ICAO) level four, which focuses on aviation-specific language.

Well in excess of 90% of students pass the ATC training, said Airways International CEO Sharon Cooke. This is partly due to the high level of testing carried out by Saudi authorities before students are sent to New Zealand. "We've never had to go back to them and say 'Hey, you've sent us a candidate who we don't think will get through,'" said Cooke.

After New Zealand, the students return to the SANS academy in Saudi for location-specific training before they start operating as controllers under supervision.

The students stay with local families or in flats during their studies and are immersed in the culture and lifestyle of New Zealand during their stay, said Cooke. "When they're with us, we make sure it's not just about ATC training – we ensure it's a whole-life experience."

CAAI SCOOPS SECURITY TRAINING AWARD

CAA International (CAAi) has been named as the training organisation of the year at a major aviation security event in Dubai.

Hosted by Emirates Group Security, the Emirates AVSEC global 2021 symposium and awards honour outstanding individual and organisational achievements and contributions to aviation security.

CAAi, the technical cooperation, consulting and aviation training arm of the UK Civil Aviation Authority, was recognised for its outstanding contribution to aviation security training.

This included its programmes to support the International Civil Aviation Organization (ICAO) year of security culture in 2021, and its work to educate and upskill aviation regulators and regulated entities on subjects including oversight, and compliance.

CAAi has provided aviation safety, security, and economic regulation assistance in more than 140 countries.

Kevin Sawyer, senior manager of aviation security at CAAi, said: "We are thrilled that Emirates Group Security has recognised our efforts to



Trophy secured: Kevin Sawyer collects the training organisation of the year award in Dubai.

PICTURE: CAAI

enhance aviation security training, and we are delighted to have received this prestigious award.

"I want to thank Emirates Group Security for hosting an outstanding symposium and facilitating some excellent, thought-provoking discussions that will undoubtedly positively

influence the future of aviation security.

"Looking forward, we remain fully committed supporting ICAO and working with the wider global aviation community to deliver the ICAO global aviation security plan priorities – increasing international cooperation and support to improve the

effectiveness of global aviation security."

The Emirates AVSEC 2021 global symposium marked the 20th anniversary of the 9/11 attacks on the USA and ICAO's year of security culture. The three-day symposium featured conversations on the themes to connect minds and secure the industry's future.

Brave new world: An artist's impression of the futuristic airport at the Amaala development in Saudi Arabia.

ILLUSTRATION: AMAALA



A breath of fresh airports

*Sustainability and environmental considerations are coming to the fore in the world of airport design and operation. **Chuck Grieve** looks into recent developments.*

Airports are “strong engines” of economic and social activity, so it’s a challenge to find a balance between operational imperatives, their environmental impacts, and what is socially acceptable.

Add to that the often-aggressive atmospheric conditions in the Middle East and it’s clear that airport designers and builders face a stiff test to meet current industry standards for sustainability.

Philippe Martinet, head of the Dubai business unit of ADP Ingénierie, a subsidiary of the Groupe ADP – one of the few global companies with operations throughout the airport value chain – has a better view than most.

“Airports have long been addressing sustainability issues, from noise to air quality, biodiversity, water management, greenhouse gas, and carbon footprint reduction,” he said. “They have also worked towards more sustainable operations through improvements and innovations.”

The Airport Council International (ACI) established its airport carbon accreditation (ACA) programme in 2009 as part of the aviation industry’s overall support of a ‘green’

transformation. Noise impacts have been subject to European regulation for more than 20 years.

Martinet said Groupe ADP set voluntary objectives for itself through its environmental policy. Six of the Middle East and subcontinent international airports in its network – Amman, Ankara, Antalya, Delhi, Hyderabad and Izmir – have already achieved ACA carbon neutrality.

The group’s cradle-to-grave involvement enables it to commit to reducing the carbon footprint through the whole lifecycle of the airport infrastructures, from construction to decommissioning, as well as introducing sustainable innovations.

These could include urban air mobility, intermodal connectivity with low-carbon vehicles, and supply of low-carbon fuels, such as sustainable aviation fuel (SAF) or hydrogen, in due course.

Among the group’s recent success stories is the new passenger terminal at Bahrain International Airport.

Designed by Groupe ADP as part of the airport’s modernisation programme, it holds the US Green Building Council’s leadership in energy and environmental design (LEED) gold

certificate for environmental impact.

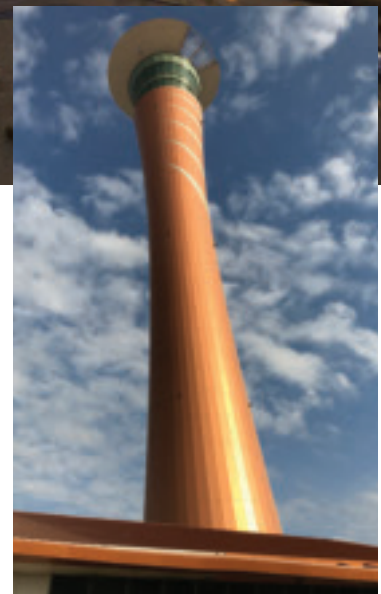
Current ADP Ingénierie projects include the rehabilitation of Mosul Airport in Iraq. ADP leads a consortium of contractors under a contract signed in February 2021.

The group is also providing planning and design services, project management and technical assistance for the international airports at Bahrain, Sharjah, Abu Dhabi and Dammam, and at Saudi Arabia’s ‘city of the future’ development at Neom Bay.

Another development in the kingdom’s north-west corner is Amaala, part of its ambitious ‘Riviera of the Middle East’ project conceived under Saudi Arabia’s ‘vision 2030’. There, the challenge is creating an ecologically sound luxury airport in the aggressive climate of the Red Sea coast.

The Amaala masterplan details a sprawling complex of resorts, residences, retail and entertainment villages, arts and cultural venues, in what the development authority calls “a haven of luxury and well-being underpinned by sustainability and philanthropy”.

The airport to serve it will embody



Iconic: The control tower at Jeddah’s King Abdul Aziz International airport is the work of Egis Group.

PICTURE: EGIS GROUP

Continued on Page 94

CONTINUED FROM PAGE 93

the “sustainability-focused values of Amaala itself”, and is “on track to open by the end of 2022”.

Amaala said the airport masterplan incorporates “unique design practices, drawing inspiration from its location”.

Elsewhere in Saudi Arabia, the international consultancy and engineering group, Egis, is developing “innovative solutions to manage infrastructure across all lifecycle phases for activities such as energy performance management, optimisation of airside land carbon sequestration, forecasting of flows, accident prediction, real-time incident monitoring, and optimising maintenance interventions”.

“This is happening in Riyadh, where our team is bringing together numerous data sources into one interface for planning, measuring and mapping progress with the Green Riyadh initiative,” said a company spokesperson.

Unfortunately, companies further down the value chain that provide the very visible ground support equipment, rely on adequate airport infrastructure to support any transition to ‘green’ machinery.

Rune Lind Pedersen, strategic marketing manager for ITW GSE, which makes a range of electric ground power units (eGPUs), said: “We have a lot of ground-handlers who want to go green. They see a lot of benefits with the eGPU in terms of low operating and maintenance costs, and greater reliability with no noise or air pollution.”

He admits, though, that there are



Greener power: ITW GSE's new 140kVA ground power unit (eGPU) supports an Emirates B777-300.

PICTURE: ITW GSE.

infrastructure challenges, especially at large, established airports set up to cater for diesel GPUs and ground-handling equipment. New airports are a different matter. “We’d definitely like to speak to designers at an early stage of planning,” said Pedersen.

It’s a similar story from Emmanuel Petiot, sales manager for the ground-support equipment specialist, Sovam. “Certainly, we can see an increasing demand for full-electrical solutions in many parts of the world, but many airport infrastructures at the moment still require a diesel engine solution.”

Converting diesel equipment in the company’s portfolio to full electrical is part of its product strategy, he said. However, clients need “suitable

solutions”, which dictates giving them the choice between electrical and diesel “for the time being”.

Petiot said Sovam is committed to developing a new ‘green’ product range, and recently received a grant which “reinforces our commitment to move toward sustainable development and will allow us to accelerate the process”.

“Obviously, we cannot radically rethink and convert all our products at the same time,” he said.

After consulting with customers, the company has developed a towable passenger stair with electrical assistance. Other development will follow, he added.

Pedersen said capital cost remains a stumbling block to the introduction of eGPUs. ITW GSE’s solution is a version of the familiar power-by-the-hour (PBH) subscription. It has yet to penetrate the Middle East market, but he believes it has promise in the post-Covid environment.

“PBH is an easy way to transition to a green fleet,” he said. “There’s no long-term commitment other than an initial one-year plan. It’s very flexible: you can, at any time, scale up or down depending on use, as demand fluctuates.”

ITW GSE recently extended its eGPU line-up with 140 and 180kVA units. Both incorporate a larger battery pack for substantially more capacity. “You get more than 300kWh with the largest version, which equates to four-to-six turnarounds, depending on the aircraft, before recharging,” said Pedersen.

SAFETY IS INDRA’S PRIORITY MISSION

Spanish company, Indra, is continuing to dominate the north Africa region with its air traffic management systems. Marcelle Nethersole reports.

North Africa is a key region for Indra, which provides proprietary solutions in specific segments of the transport and defence markets.

The company, which has offices in Morocco, Algeria, and Libya, has provided 5,700 air traffic management installations to 180 countries globally.

It has been operating in Morocco for more than 20 years and has been collaborating with the Moroccan Airports Authority (ONDA) for more than a decade to permanently modernise the country’s air traffic management systems.

In Algeria, the company is the main technological partner of Établissement National de la Navigation Aérienne (ENNA), Algeria’s air navigation service provider (ANSP).

“In 2018, Indra undertook the renewal of Algeria’s entire air traffic management infrastructure within a project which, given its size and ambitious scope, will place ENNA – the state air navigation service provider – at the forefront worldwide in terms of safety, efficiency, capacity and respect for the environment,” said Guillermo Rosello, Indra’s ATM director for Africa.

The project encompasses the modernisation of the existing control centres and the creation of a new one, plus the deployment of radar and automatic dependent surveillance – broadcast (ADS-B) systems.



Moroccan base: Indra’s office in Rabat. PICTURE: INDRA

Indra is also working with Algeria’s neighbour, Tunisia.

“We have operated for 12 years without interruption with the Tunisian Civil Aviation and Airports Authority (OACA, Office de l’Aviation Civile et des Aéroports),” said Rosello.

“Indra has modernised most of the air traffic management systems in the country and has also provided it with a dense network of primary and secondary radar and ADS-B systems that make this

airspace one of the safest in the world.”

Rosello said the company trains and employs local personnel for most of its activities in the region, adding that these staff bring “enormous value” to both technical and corporate tasks and form an integral part of the company’s culture.

“In our Algerian subsidiary, for example, we train young engineers and provide rapid advancement for them within the framework of the smart start programme,” he concluded.

Sirius business as new UAE lessor enters the market

New UAE-based lessor, Sirius Aviation Capital Holdings, aims to have 100 aircraft in its portfolio three years from now.

Alan Dron
reports.

Sirius Aviation Capital Holdings, which is based in the Abu Dhabi Global Market (ADGM), has acquired 10 aircraft from Singapore-based lessor, BOC Aviation. A further two were due to be on its books as Arabian Aerospace was going to press.

Sirius also has a pipeline of transactions that it will complete by the end of 2021.

The new lessor acquired the aircraft – a mix of Boeing 737s and Airbus A320s – after entering joint ventures with aviation investors Corrum Capital and HPS Investment Partners.

Sirius' share of the joint ventures was funded via its anchor investor, Abu Dhabi Catalyst Partners (ADCP), which provided \$100 million. ADCP is a joint venture between Mubadala, the UAE's sovereign wealth fund, and US investment company, Falcon Edge.

"The idea is to use the capital that we've sourced from ADCP to co-invest and build out the fleet with other partners, Corrum and HPS," explained Sirius CEO, Howard Millar. "We have been cash buyers and are seen as a company that will efficiently execute an acquisition."

Sirius is pursuing a strategy of acquiring sought-after, single-aisle, mid-life aircraft on lease to top-tier airlines.

There is no intention to acquire wide-body aircraft, which are more prone to valuation shocks – many are still in storage around the world because of the pandemic.

Sirius decided to specialise in mid-life aircraft rather than newly built examples for several reasons, said Millar, former deputy CEO of Ireland-based low-cost carrier, Ryanair.

Firstly, there is a large pool of 737 and A320-family aircraft available: "They're the workhorses of the aviation industry. It's a deep and liquid market and they're strongly in demand. Short-haul traffic has already started to significantly recover, whereas long-haul is still in the doldrums."

In addition, major lessors – notably Chinese companies – are competing aggressively to acquire new aircraft.

Ten years ago, Chinese lessors accounted for 10% of the leasing market. That has risen to 30% now and Sirius, if it were in the 'new aircraft' space, would be competing against Chinese companies with access to unlimited capital at little cost.

Specialising in aircraft in the middle of their lives (8-12 years old) can bring more attractive financial returns for a lessor, although there is much more technical expertise required to manage mid-life aircraft.

"You need to be a mixture of an accountant and an engineer," said Millar. "If you acquire a new aircraft and lease it to Etihad, for example, you'll see it again in 12 years, which is like a financial transaction, whereas we have to deal with lease extensions or remarketing the aircraft globally."

Specialist skills

Building a team with these specialist skills is one of the primary reasons why there are fewer competitors in the mid-life segment of the market. The Sirius management team have, between them, more than 120 years' experience in aviation.

The other major difference between leasing new and mid-life aircraft, said Millar, is that in older aircraft, much of their value is in the engines. "Around 80% of the value of a new aircraft is in the airframe and 20% in the engines; those figures are inverted as aircraft age. Engine type and condition is very important to us – where they are in their life-cycle and what the return conditions are at the end of the lease."

Buying good-condition aircraft leased to reputable airlines is fundamental to Sirius' business model. "It's about ability to pay. Top-tier airlines have continued to pay their rentals during the pandemic."

And Sirius has been picky in buying its first assets: "In order to buy the 12 aircraft we've so far acquired, we looked at around 300," revealed Millar.

"It's like buying property; you buy really good buildings with really good tenants, except our 'property' is movable, 'property with wings', so if the tenant defaults, you can repossess the asset and move it anywhere in the world."

He anticipated that 737-800s and -700s, as well as A320s and A321s, would form the bulk of Sirius' future portfolio: "A319s we would look at, but it's a very narrow market."

Sirius is only acquiring aircraft that are already on lease to airlines, and they must have a minimum of three years remaining on their current leases. The company is not buying 'naked' aircraft – those without a lease attached.

The company plans to more than double its fleet to 20-plus aircraft in the next 12 months, and to more than 100 in the next three years.



Howard Millar: "You need to be a mixture of an accountant and an engineer."

PICTURE: HOWARD MILLAR.

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PICTURE: AERALIS.



Middle East money targets pioneering jet trainer

An as-yet unnamed “Middle Eastern sovereign wealth fund” is backing the creation of a new advanced jet trainer, which could be set to revolutionise the market.

Jon Lake reports.

British military jet developer, Aeralis, has signed an initial £10.5 million (\$14.5 million) investment agreement with an as-yet unnamed “Middle Eastern sovereign wealth fund”.

This new injection of finance will be used to support the design, development and first flight of the company’s innovative Advanced Jet Trainer (AJT) platform.

Earlier this year, the start-up agreed a three-year contract with the UK Royal Air Force’s Rapid Capabilities Office (RCO) for research and development into a new modular approach to the design and development of future aircraft.

Aeralis is expected to make further announcements about its new funding partner later this year or early next – and it could be that the timing of these will identify the partner, which is perhaps why the company is not saying whether it will occur at the Dubai Airshow or at the new Saudi World Defence Show!

Tristan Crawford, Aeralis CEO and chief designer, believes the conclusion of this investment agreement promises to “disrupt the defence aviation space, and really create new capability”.

Just as importantly, he said, it will provide “a lot of much-improved efficiency for military customers in the combat air space”.

Crawford hailed the deal as a “transformational moment”, underlining that the sovereign wealth fund backers were “very big supporters of this concept”.

With British Aerospace rolling the very last Hawks off its Brough production line, there is an obvious gap in the market for the new Aeralis trainer, and it’s one that Crawford is eager to fill.

“Our view is that it’s time to realise what life looks like after Hawk,” he said.

“The market is going to need a new vision – a new kind of system. I don’t think we’ll see the past being repeated; we’re entering a new world where militaries will be using uncrewed and crewed flying.”

Crawford added: “The successor to Hawk is going to have to address those questions, with much more flexibility and operational capability, with much harder targets in terms of cost efficiency.”

The CEO makes no bones about admiring the aircraft that he’s aiming to replace. “We’re fans of the Hawk; we grew up with the Hawk; I worked on the Hawk,” he said. “Obviously, it’s very important for us, as fans of that kind of British ingenuity, to see that continue.”

“I made the decision to start the company, to really try and take that concept forward, to make sure that British ingenuity stays alive and well, and that we continue to deliver the best of British into that market.”

He is confident that Aeralis can deliver a replacement for Hawk in terms of capability and jobs.

“We are absolutely passionate that the capability we have in the UK to create a new aeroplane of this size is all there; we just need to do it,” he said.

Potential customers

Aeralis is targeting a wide range of potential customers, but existing Hawk operators (many of them in the Middle East) are a natural fit for the advanced trainer version, and for some of the other Aeralis-variants, manned and unmanned, that are now being highlighted.

These include a light fighter, a close air support aircraft, but also an unmanned tanker, an intelligence, surveillance, target acquisition, and reconnaissance (ISTAR)-roled remotely piloted aircraft system (RPAS), and even a ‘loyal wingman’ type unmanned combat aerial vehicle (UCAV).

“The UK has done an incredible job in installing, around the world, an aircraft that is loved by air forces everywhere. The thought of that diminishing because we’re losing Hawk (obviously, the production of Hawk is stopping) is not, in our view, a good thing,” said Crawford.

“You’re seeing a supply chain that amounts to around about 4,000 jobs, which are going to be at risk if we haven’t got something that replaces Hawk,” he concluded. ■

E-delivery 'first' brings

An up-and-coming international aircraft asset manager with roots in Morocco is making a name for itself with innovation and a can-do attitude.

Chuck Grieve talks to chief executive, *Ali Ben Lmadani*.

How do you deliver an aircraft during a global pandemic lockdown? Electronically, of course – right up to the factory-to-base ferry flight.

E-delivery is what ABL Aviation calls the process that it pioneered with an Airbus A321neo placed with Pegasus Airlines, the Turkish low-cost carrier, just as the pandemic restrictions started to bite in April 2020.

Ali Ben Lmadani, chief executive of ABL Aviation, credits the pandemic response with accelerating the inevitable. "Covid pushed us to do this," he said. "In this regard, it was very helpful."

Moroccan-born Ben Lmadani founded his full-service aircraft investment and independent asset management company in 2014. It now has bases in Casablanca, Dubai, Dublin, Hong Kong and New York.

With more than \$2 billion in total capital allocations and 42 aircraft managed, it counts Lufthansa, Delta, Iberia, and Pegasus among its growing list of clients.

Grappling with the challenge

In April 2020, when ABL completed the world's first e-delivery, "nobody was doing it", although others were also grappling with the challenge. ABL "needed to find a solution"; it was simply a matter of honouring business commitments.

"We discussed with Pegasus the idea of doing this as an e-delivery," Ben Lmadani said. This meant as much as possible of the normal three phases of delivery – technical acceptance, transfer of title, and ferry flight – had to be completed remotely.

"The technical was done by Airbus directly. Instead of having all the people moving to Toulouse for delivery, with lawyers etc, all the signatures were done remotely.

"Of course, we needed the pilots to deliver the aircraft to the airline, and that was it."

Since then, ABL has completed several more e-deliveries, including an A320neo for Pegasus, and watched as competitors and banks followed suit.

Innovations seem to be ABL Aviation's hallmark, and the company is gaining industry



Ali Ben Lmadani: "Owning the value on assets shouldn't be the business of the airline."
PICTURE: ABL AVIATION

recognition for them.

It arranged the first aircraft purchase funded by a Japanese operating lease with call option (JOLCO) combined with Aircraft Finance Insurance Consortium (AFIC) supported debt, enabling a Middle East client to purchase a new Boeing 787-9 aircraft.

It also secured JOLCO financing for the A321 e-delivered to Pegasus.

ABL was the first aircraft asset manager to set up offices in Africa – in 2017 in Casablanca – a milestone for Ben Lmadani as a "proud Moroccan". It appears to have been a good tactical decision, and adds an interesting dimension to ABL's network of offices.

Morocco is a "very strong" aviation market, he said. His company is looking at more projects in-country, such as aircraft end-of-life work "like part-out or dismantling, which have lots of added value". He cites the example of countries, including Spain and France, where comparable industries are established. Morocco, he suggests, "can do better" with its lower cost and "very smart" labour force.

"I'm always trying to see how we can make Moroccan aviation grow," he added.

Reason to be optimistic

From his perspective as a frequent international traveller, Ben Lmadani has reason to be optimistic about the future of aviation and his company's role in it. The recovery of domestic markets in the US, China, and elsewhere is "amazing", given the dramatic impact of Covid-19 on the industry.

Among significant ramifications of the pandemic downturn was the widespread renegotiation of lease terms by airlines, and the boost overall to leasing. Operators, he said, are "more and more inclined to lease".

Covid-19 gave a significant push to leasing and reinforced the perception of aircraft leasing as a separate business to running an airline.

"Owning the value on assets shouldn't be the business of the airline; that should be the business of leasing companies. So, [the risk of] having the future value of an asset on your balance sheet [when] you don't know if you're going to need it five years from now should be taken by someone else."

a new lease of life

New option: Turkey's Pegasus Airline received an A321neo in the world's first e-delivery.

PICTURE: AIRBUS

ABL Aviation's global insights report of September 2021 noted that lessors now own nearly half of all aircraft on the market, and lease rates per seat are now lower, in actual dollar terms, than they were 30 years ago; in real terms, they're probably half of what they were when leasing was in its infancy.

In the Middle East, leased aircraft have long been present in the fleets of operators such as Emirates, Flydubai and Qatar Airways. Ben Lmadani said: "They were new companies and they were smart about it. I think they leased more than some of the old-time legacy carriers at that time.

"If I were CEO of an airline, my job is to market seats. My job is to make sure that my profit and loss is all right. My job is to negotiate with lessors to make sure that I have a good lease. My job is not to have a bunch of metal on my balance sheet that I'm stuck with if I change my business model.

"This is the way the world is going; this is where the smart airlines in the Middle East – and you have lots of them – are going. They are

leasing, similar to some of the airlines in the US, which I think is the future."

The economics of aviation are impossible to ignore, he added. "Without aviation, there is no business." As well as facilitating trade and investment, the support industries surrounding aviation make a huge contribution to a country's economy.

Very smart

"If you look at the Emirates, you have this whole ecosystem that is built on aviation. I think it was very smart, developing as it's needed. We saw that in Jordan, with a lot of investment being done in aviation, and in Morocco [which is] pushing very hard to become the hub of African innovation."

In the aftermath of Covid and with a growing urgency for sustainable operations, fleet renewal is high on the agenda; airlines "are getting rid of the old fleet now and leasing the new fleet because they see that there's good opportunities. There will always be a need for aircraft." ■

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Safely does it: Passengers departing from Doha will soon be in the charge of Qatar's own air traffic controllers.

PICTURE: WIKIMEDIA COMMONS



Qatar's new FIR set to fly

The first major change in decades to air traffic control arrangements in the Gulf is imminent as the creation of a new Qatar flight information region (FIR) nears its final stages.

Alan Dron
reports.

Aircraft heading for destinations in the Arabian Gulf, or transiting that region have, for years, been guided by controllers at the Bahrain FIR.

The island kingdom's FIR, which it inherited after independence from the United Kingdom in 1971, covers a large slice of the western side of the Gulf, from the UAE's western extremity in the south to near Kuwait in the north.

One reason for the large area originally allocated to the Bahrain FIR was the relatively close proximity of Gulf Arab states to each other; if every nation had its own FIR, it was calculated that airline pilots would have to contact a new controller every 20 minutes or so.

The Bahrain FIR takes in the Qatari peninsula and the airspace around it.

In April 2020, however, the Qatar Civil Aviation Authority (QCAA) signed a contract with Independent Business Group Sweden (IBG). This included the development of the country's air navigation system and increasing the efficiency of Qatar's navigational devices, as well as training and developing the skills of controllers on how to deal with the new equipment.

Aviation infrastructure specialist, IBG, was also engaged to increase the capacity and throughput of Hamad International Airport and its predecessor, Doha International Airport, to allow for growth of Qatar Airways and to prepare the country for the increase in traffic anticipated for the 2022 FIFA World Cup.

That contract was signed during the diplomatic dispute between Qatar and its neighbours, Saudi Arabia, Bahrain, and the UAE, as well as Egypt.

The three-and-a-half-year dispute, which only ended in January this year, effectively closed the airspace of the neighbouring countries to Qatari aircraft. That meant that Qatar Airways' flights had to operate in and out of Doha using a narrow corridor across the Gulf to and from Iranian airspace.

Once under Iranian air traffic control, Qatar Airways' flights could turn on to the headings for their destinations.

However, the closure of Saudi, Bahraini and Emirati airspace meant significant detours were required for many Qatar Airways flights, considerably increasing some flight times and costs.

For example, a Qatar Airways flight from Doha to Djibouti would normally depart the Qatari capital and head southwest across Saudi Arabia to the Horn of Africa, a journey taking around 2.5 hours. With Saudi airspace closed, however, the flight had to navigate out over the Arabian Gulf before turning south across Oman (which remained neutral in the dispute) and on to Djibouti, creating a journey some four hours long.

Agreed in principle

With the work by IBG under way, Qatar's proposal that a Doha FIR (together with a Doha search-and-rescue region – SRR) should be established was agreed in principle at the International Civil Aviation Organization (ICAO) session in July, according to the country's ministry of transport and communications.

The proposal included Qatar's intention to withdraw from the current arrangement, whereby Bahrain handled air traffic over its neighbour's territory.

The ICAO, the United Nations agency that oversees global aviation affairs, noted that Bahrain had provided safe and efficient air navigation services in the region, but also acknowledged Qatar's right to request the establishment of a Doha FIR/SRR over its sovereign territory and contiguous airspace.

The ICAO council invited Qatar and Bahrain, plus surrounding states, to get together and agree on appropriate technical arrangements to implement the Doha FIR. Those details were scheduled to be discussed over the late summer and autumn, with a further session to discuss final details due to take place at the ICAO council meeting in Oman as *Arabian Aerospace* was going to press.

The schedule calls for the new Doha FIR to go live in March 2022. ■



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The UAE has selected two more astronauts to join the National Aeronautics and Space Administration (NASA) training programme in the US in January 2022. Steve Nichols reports.

UAE'S LATEST ASTRONAUTS ON THE LAUNCHPAD FOR NASA TRAINING



Passionate about space: Mohammad AlMulla and Nora AlMatrooshi join the UAE's astronaut corps.

PICTURE: MBRSC.

Nora AlMatrooshi and Mohammad AlMulla have been chosen from a pool of 4,305 applicants to join the UAE's corps of astronauts.

His Highness Sheikh Mohammed bin Rashid Al Maktoum, vice president and prime minister of the UAE and ruler of Dubai, took to Twitter to make the announcement.

The pair join Hazzaa AlMansoori and Sultan AlNeyadi, the first Emirati astronauts on the programme.

AlMansoori made history by becoming the first Emirati national to travel to the International Space Station in September 2019, with AlNeyadi acting as back-up on the mission.

AlMatrooshi, 28, is the emirates' first ever female astronaut.

She received a bachelor's degree in mechanical engineering from the UAE University in 2015 and is currently working as an engineer at the National Petroleum Construction Company.

Childhood dream come true

An Abu Dhabi native, she says it's a "childhood dream come true", but also sees the role as having a "huge responsibility".

Her interest in space started when she was just five years old after a teacher did an inspiring "trip into space" lesson, complete with a fully blacked-out classroom, which was then covered in grey cloth to look like the Moon.

"From that day, I wanted to be an astronaut," she said.

In a TV interview for *France 24* AlMatrooshi added: "It

doesn't matter if I'm the first or the 50th [female astronaut], as I'm going to be 100% committed and do my best throughout all the training."

AlMatrooshi has previously been a participant in the UAE's young ambassadors' programme and took part in the youth assembly, hosted by the United Nations.

She will now become an icon for the UAE's youth and help inspire future generations of Emirati astronauts.

"If I can do it, you can do it too," she said.

"And, if no-one has done it you can be the first.

"If you aim for the Moon and don't land there, you will be among the stars," she added.

AlMulla, meanwhile, was born in Dubai in 1988 and, with a career spanning more than 15 years, is currently the head of training at the Dubai Police Air Wing Centre.

He has received a medal for bravery from Sheikh Mohammed, the commander in chief award for the "best officer in a specialised field", in addition to the Dubai Police global

excellence award.

He was also a member of the Dubai Police youth council until the age of 30, and a member of the Dubai Police job happiness and satisfaction council.

He holds a commercial pilot's licence and has more than 1,500 flight hours under his belt. He also has a bachelor's degree in law and economics, as well as an executive master's in public administration from the Mohammed bin Rashid School of Government.

Passion for space

His passion for space was born out of his love for aviation and he became even more interested after meeting AlMansoori and AlNeyadi at the Dubai Airshow in 2019.

After discussions with them, AlMulla realised that he was eligible to join the astronaut programme and immediately applied.

The UAE's astronaut selection process took more than a year to complete and included personality and technical assessments, IQ tests and interviews. The final interview panel included NASA astronauts Anne McClain and Jessica Meir.

AlMatrooshi and AlMulla are now completing basic training at the Mohammed Bin Rashid Space Centre (MBRSC). This includes diver and flight training, including getting a pilot's licence.

They will join the NASA astronaut training programme in the US in January 2022.

Final mission training will depend upon their actual roles, which have yet to be decided.

GITAS votes for continuity

The Tunisian Aeronautics and Space Industries Group (GITAS) has elected Thierry Haure-Mirande as president for a second mandate.

Haure-Mirande is currently president of Aerotech Tunisie (a subsidiary of HM Group). GITAS also elected Islem Ben Mbarek – deputy director general of Al Badr Aerospace – as its vice-president.

GITAS represents 44 companies and 15,000 employees. Its mission is to support the development of the Tunisian aerospace industry ecosystem and its industrial performance, as well as promoting the expansion of the Tunisian aeronautical supply chain.

Pegasus CEO to chair IATA board

Mehmet Nane, CEO of Pegasus Airlines, was named as the new chair of the International Air Transport Association (IATA) board of governors at the airline organisation's annual meeting in Boston.

He is the first Turkish leader of the board and will take over from Jet Blue's CEO, Robin Hayes, at next year's AGM in Shanghai.

Nane said: "I am very

PICTURE: BOEING



BOEING'S GHATA-AURA RETURNS TO META REGION

Boeing has appointed Kuljit Ghata-Aura as its new president for the Middle East, Turkey and Africa (META) region but excluding the Kingdom of Saudi Arabia.

He succeeds Bernie Dunn, who is leaving Boeing after more than nine years with the company in the region.

It will be a return to the region for Ghata-Aura, who had previously served as the regional counsel for Boeing India, Middle East, Turkey and Africa for almost six years before taking up a post in the US.

He will be based in the Dubai office.

"Kuljit brings a wealth of experience to the role from many of Boeing's most important markets and businesses, including the Middle East, Turkey and Africa region, where he has spent considerable time. I look forward to working with him to drive further growth in the region," said Sir Michael Arthur, president, Boeing International.

"I am delighted to return to the region in this significant leadership role and to rejoin my colleagues as we continue to focus on partnering with all stakeholders in one of the fastest-growing and important markets for the company," said Ghata-Aura.

"Boeing has a strong presence in the region and there continues to be unique opportunities. We are, and continue to be, committed to working closely with the civil aviation and defence authorities and our customers to help achieve the region's aerospace ambitions and objectives," he added.

proud to be taking on such an important role. This is also a great indicator as to how far Turkish aviation has come."

Mathias' ME role at Air France-KLM

Air France-KLM has appointed Sylvain Mathias as the new regional commercial director Middle East, based at the company's regional headquarters in Dubai

Airport Free Zone.

Mathias takes over the role from Wilson Tauro, who has moved to South Africa as the new country manager.

Mathias becomes responsible for the regional team covering pricing, marketing and business intelligence for the Middle East, including the company's seven online markets – Bahrain, Egypt, Kuwait, Lebanon, Oman, Saudi Arabia and the UAE.



Sylvain Mathias. PICTURE: AIR FRANCE-KLM

LEADERSHIP CHANGES AT JORAMCO



Fraser Currie. PICTURE: JORAMCO

Joramco, the Amman-based MRO provider and the engineering arm of Dubai Aerospace Enterprise (DAE), has named Fraser Currie as its new chief executive.

He succeeds Jeff Wilkinson, who is taking up a new role at DAE Engineering to grow the engineering division's footprint.

Currie moved into the new role on October 1. For the past three years he has been chief commercial officer, having joined Joramco in 2018 from Bahrain-based cargo airline, Texel Air.

The new COO is Adam Voss. He has more than 30 years' aviation experience in the commercial maintenance and engineering sector, having worked across the Middle East,

UK, Asia, India, South Africa and Australasia for leading carriers. Most recently, he headed up South African Airways Technical as its CEO.

Currie said: "Joramco's commitment to providing superior services, safely and dependably, rests on having a competent team that will go the extra mile to serve our clients' and the shareholders' objectives. I am confident that Adam's extensive experience will allow Joramco to excel in the global marketplace.

"Joramco has gone through a very successful transformation over the past few years and I am looking forward to developing the company further with a clear vision," he added.



Adam Voss. PICTURE: JORAMCO

Phill O'Dell *Marcelle Nethersole speaks to the Rolls-Royce director of flight operations.*

1

■ Tell me about Rolls-Royce's electric-powered aircraft, ACCEL?

Rolls-Royce is leading a highly specialised challenge to build the world's fastest all-electric aircraft named the *Spirit of Innovation*.

This zero-emissions aircraft is expected to make a run for the record books with a target speed of more than 300mph (480kmh).

The ACCEL programme is short for 'accelerating the electrification of flight' and includes key partners YASA, the electric motor and controller manufacturer, and aviation start-up Electroflight.

Half of the project's funding is provided by the Aerospace Technology Institute (ATI), in partnership with the UK's Department for Business, Energy & Industrial Strategy, and Innovate UK.

We chose an incredibly fast kit plane called the Nemesis NXT for the challenge. The value of this project is in developing the capability and understanding around the ground-breaking electrical system.

2

■ Phill, you flew the ACCEL earlier this year. How was it?

It was a great achievement for me personally, the ACCEL team and Rolls-Royce.

The aircraft is incredibly fast; she's a thoroughbred. She is saying all the time, just let me go.

We know we can get to the other side of 300mph. What we don't know is just how far past we will get.

3

■ How do you prepare to break a speed record?

We are aiming for the world-record attempt in the coming weeks (possibly as *Arabian Aerospace* was going to press). We are now in an intense flight-testing period as we learn more about the all-electric capabilities and the technology that we have developed to power the aircraft.

The *Spirit of Innovation* has the most power-dense battery pack ever assembled for an aircraft. Its 6,000 cells are packaged for maximum lightness and thermal protection. An advanced cooling system can withstand the extreme temperatures and high-current demands during flight.

4

■ What's the difference in flying an electric-powered aircraft compared to a fuelled jet?

The fundamentals of flying the *Spirit of Innovation* are very similar to the training aircraft that I have been piloting in preparation for this programme.

However, I am learning about the electrical propulsion system all the time and it is very fast, so it is about understanding that speed and how to use it for the world-record run.

5

■ What are your views on sustainability in the future?

The decarbonisation of aviation is incredibly important to me personally and to Rolls-Royce.

The company is focused on producing the technology breakthroughs that society needs to decarbonise transport across air, land and sea.

This is not just about breaking the world record; the *Spirit of Innovation* is one way in which we are helping decarbonise the critical parts of the global economy in which we operate. We are committed to ensuring our new products will be compatible with net zero operation by 2030 and all our products will be compatible with net zero by 2050.



PICTURE: ROLLS-ROYCE

6

■ What is the next step for ACCEL aircraft?

We are currently focused on the all-electric speed world record but, beyond that, Rolls-Royce is offering our customers a complete electric propulsion system for their platforms, whether that be an electric vertical take-off and landing (eVTOL) or commuter aircraft.

We will be using the technology from the ACCEL project and applying it to products for these exciting new markets.

The characteristics that 'air-taxis' require from batteries are very similar to what is being developed for the *Spirit of Innovation*.

In addition, Rolls-Royce and airframer, Tecnam, are currently working with Widerøe, the largest regional airline in Scandinavia, to deliver an all-electric passenger aircraft for the commuter market, which is planned to be ready for revenue service in 2026.

7

■ What does a typical day involve for you?

One of the highlights of this project has been that I have worked incredibly closely with the whole project team and been part of the entire process.

Now we are in the flight-testing phase, so I work with my expert colleagues, analysing the data, ensuring that we have planned through all scenarios and executed robust safety measures.

It means building on our years of testing, led by our highly experienced test pilots, and then at this time, going for a test flight.

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