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HIGH HOPE

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FOR THE
UAE'S MARS
MISSION**

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TIMES Aerospace Limited
3-4 Rumsey House
Locks Hill, Rochford
Essex, SS4 1BB, UK
Tel: +44 (0)1702 53 0000
Fax: +44 (0)1702 53 3088

Regional Office
PO box: 371391
Dubai Airport Free Zone
Building 6EA, Suite 222,
Dubai
United Arab Emirates
Tel: +971 4 603 336

Website: www.arabianaerospace.aero

Publisher:
Mark Brown
mark.brown@arabianaerospace.aero

Display Advertising:
Dave Winship-Evans
david.evans@arabianaerospace.aero

Grant Lee
grant.lee@arabianaerospace.aero

Editor: Steve Knight
steve@knighttrain.co.uk
Editorial head office:
Aerocomm Ltd,
Norths, Rectory Road, Orsett, Essex
RM16 3JU UK.
email: ella@aerocomm.aero
For news stories:
news@arabianaerospace.aero

**COVER: Blast-off in Japan.
The UEA's Hope mission to
Mars takes off.
PICTURE: HIROKI YAMAUCHI/
KYODO NEWS VIA AP.**

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Hope for Mars and hope for a sounder future

The successful launch of the UAE's Hope Mission to Mars is a tremendous leap for the emirates and its growing space industry – but even more so for the Arab world as a whole.

Arab states have been increasing their space activities, particularly in the field of satellites. Astronauts from Saudi Arabia and the UAE have also been guests in space on international partnership missions.

But Hope is different. This first interplanetary mission makes a major demonstration of the region's intent.

For several decades there has been a step-change in attitude to science, technology, engineering and mathematics (STEM) subjects in the

region's schools and colleges, indicated by the development of advanced engineering in the aero structures manufacturing sector with artificial intelligence (AI) and 3D printing techniques.

Sheikh Mohammed bin Rashid Al Maktoum, ruler of Dubai, speaking on the *Arabian Aerospace* weekly podcast, said the message of Hope was for the whole Arab world. "You can be better. You can improve your country. You can reach wherever you want. There are no limits!"

The positivity of the Dubai's ruler and the leadership of the UAE is welcome at a time when the nation's aerospace industry as a whole is reeling. In a country where more than 20% of the gross domestic product

(GDP) is linked to aviation and tourism, the coronavirus pandemic has been particularly brutal, with job losses and closures.

But, as this issue outlines, there is still an eye on training; on preparedness for the upturn. There is a resilience and a sense of hope across the region.

By the time this ambitious Mars probe mission reaches its goal of the Red Planet – hopefully in time for the 50th celebration of the UAE's federation – the country, along with the Middle East in general, will be enjoying a revival of fortunes with its airlines, its airports and its MRO and service businesses very firmly back in business.

Safe landings,
Alan Peaford, editor-in-chief



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come. In this 12-page special, we take a comprehensive look at what many of the training institutions in the MENA region have to offer.

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EAS finds the right recipe to cater for Covid cases

Ethihad Airport Services Catering (EAS Catering) has been commissioned by various government entities, business organisations and community centres, to prepare and provide meals to people affected by the global spread of Covid-19.

General manager, Andrew Caines, said: "The capabilities of our in-house food laboratory means we have direct oversight on the effectiveness of Covid-19 safety measures. We increased microbiological swabbing of surfaces and hands in order to validate disinfection and hand washing efforts, which are direct indicators of virus viability."

Since the start of the pandemic, EAS Catering has cooked and delivered more than 15,000 meals a day to people self-isolating or under quarantine, frontline medical staff, humanitarian drives, and for various businesses across the capital.

Saudi unveils major new defence show

Saudi Arabia's General Authority for Military Industries (GAMI) unveiled details of a new defence show on July 15.

The World Defense Show will take place in Riyadh from March 6-9, 2022.

His Excellency Ahmad Al Ohali, Governor of GAMI, has been tasked with localising 50% of the kingdom's military spending by 2030. He said the new show would play a key part in developing that business, "to attract the transfer of technologies, transfer of production and to optimise the kingdom's purchasing power".

Shaun Ormrod, former head of the Farnborough International Airshow, is CEO of the World Defense Show. He brings 20 years' experience of organising defence trade shows.

WDS will be the next generation aviation show, he told the virtual audience. "Interoperability and the new challenges facing the defence industry will be the central concept of the event, reaching out across air, land, sea, satellite and security domains."

In an already cluttered aerospace calendar,

Ormrod said the organising team had considered all the other defence events in the region before opting for the March date.

He said: "WDS is going to compliment all the other defence shows in the world and in the region."

A decision on a venue will be announced on September 1, but it will be big enough to accommodate land demonstrations and air displays. Ormrod concluded: "Saudi's growing commercial and industrial infrastructure offers unique logistical opportunities to showcase the latest defence technologies."

Smart pipe boosts 777X connectivity

Inmarsat and Boeing are delivering digital aircraft transformation through innovative new 'smart pipe' technology on board the new Boeing 777X aircraft.

The new advance in communications technology provides fast and secure in-flight broadband connectivity, from the cockpit to the cabin, allowing airlines to use multiple third-party applications at the same time.

The brand new infrastructure has been designed to independently allocate connectivity

bandwidth to multiple applications. This enables airlines to unlock important operational benefits, such as predictive maintenance, route optimisation, modernised air traffic management, and real-time crew communications, while also offering enhanced passenger entertainment, including high-speed internet and live television.

Diamond move

Qatar Executive has introduced its new Diamond Agreement, which is designed to simplify private jet travel by enabling customers to pre-purchase flight times at fixed-hourly rates on state-of-the-art long-range and ultra-long-range private jets. To join the programme, customers purchase a minimum of 50 hours flight time. There is no minimum annual usage.

A380 returns

An Emirates A380 aircraft returned to the skies on July 15 with EK001 to London Heathrow taking off from Dubai International Airport at 0745hrs. It was the first time since March that the aircraft had carried commercial passengers.

■ Huge problem, page 15.



Sabeti's safe seat

Sabeti Wain Aerospace, which dominates the Middle East region with its aircraft seating covers, has developed a safety product for airlines to consider following the current Covid-19 pandemic.

"The seat safety product is a clear plastic, which is flat-packed so it can be stored in the cabin without taking up too much room," said director, Paymen Sabeti.

"It can be attached behind the headrest on the seat and will cover the sides and the top of the passenger's head, keeping them separate from the people sitting next to and behind them. It is priced to be affordable and can be purchased in large numbers for all economy seats in the cabin."

There are two options; plain plastic or with leather or fabric stitched to the sides and back.

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Go-ahead for LCC

The first of two low-cost carriers planned for the UAE capital – Air Arabia Abu Dhabi – (AAD) has been given the formal go-ahead by the UAE’s General Civil Aviation Authority (GCAA) and has been awarded its air operator’s certificate (AOC).

Air Arabia Abu Dhabi is a joint venture established by the UAE’s national carrier, Etihad Airways, and Air Arabia, the Middle East’s first LCC, which is headquartered at Sharjah. The new independent budget airline will have its hub at Abu Dhabi International Airport.

“AAD will continue to work closely with the GCAA to finalise the launch date as market conditions improve and skies are open again,” the carrier said.

EASy does it...

ExecuJet MRO Services Middle East has received European Aviation Safety Agency (EASA) approval to perform line and base maintenance on the Dassault Falcon 2000EX EASy model.

Nick Weber, regional vice president, ExecuJet MRO Services Middle East, said: “We are delighted to extend our maintenance and support capabilities on the Falcon aircraft in the Middle East. ExecuJet is committed to providing class-leading customer service worldwide, so enhancing our service capabilities is paramount.”

Dnata’s Iraq boost

Dnata has been recognised for achieving the highest safety standards at Erbil International Airport in Iraq.

The International Air Transport Association (IATA) awarded Dnata the IATA safety audit for ground operations (ISAGO)

Lockheed Martin lands TAQNIA satellite deal



Lockheed Martin has been selected to develop a new ground system to control, manage and operate Saudi Arabia’s newest commercial communications satellite, SaudiGeoSat-1 (SGS-1). The deal follows the successful launch of the satellite.

The Saudi Technology Development and Investment Company (TAQNIA) and Lockheed Martin will develop and deploy the new ground segment for the secure and commercial operations of SGS-1.

The ground system supports advanced Ka-band spot beam communications services, commercial off-the-shelf-based broadband services, as well as Saudi-specific secure communication services.

“This modern satellite ground system will help take full advantage of the advanced capabilities of SGS-1 and nurture growing native engineering talent,” said Joseph Rank, chief executive, Lockheed Martin Saudi Arabia.

The system will be deployed in two phases, with the initial commercial system going online in late 2020 and the Lockheed Martin-engineered secure communications system following.

registration in Iraq, following the successful completion of a comprehensive audit of the company and its ground-handling operations at Erbil.

Dnata Erbil general manager, Tom Alwyn-Jones, said: “We constantly invest in training, processes and technology and engage our highly skilled people at all levels of the organisation to deliver world-class safety for our customers. The successful completion of IATA’s comprehensive audit demonstrates our ability to consistently achieve the highest standards across our operations.”

Strata advances

Strata Manufacturing (Strata) has completed work on the Strata Solvay Advanced Materials (SSAM) high-tech facility in Al Ain, a joint venture with Solvay, Belgium’s materials and chemicals company.

The 8,500sqm facility is currently being equipped with the latest technology and machinery ready for the testing and qualifying of processes designed to supply carbon fibre prepreg materials for primary structure applications in Boeing’s 777X programme.



Green power gets Pegasus thumbs-up

A battery-powered ground power unit (eGPU), made by the global airport equipment specialist ITW GSE, has a bright future in the Middle East, judging by the success of recent trials.

The latest operator impressed by the 7400 eGPU – described as a world-first – is Turkish low-cost carrier, Pegasus Airlines. “We liked what we saw,” said Can Cagatay Celikkol, the airline’s GSE maintenance and repair specialist.

He said the eGPU is a good fit for Pegasus Airlines alongside other electric vehicles, such as baggage tractors already in use. Adopting ‘green’ technology “is our most important project”.

The airline’s calculations on total cost of ownership established a break-even point at the end of four years. “The manufacturer tells us the eGPU has a minimum life of 10 years, so the benefits should be apparent over the long-term.”

Last year, Sharjah Airport wrote in glowing terms of the unit’s performance on its apron in June with temperatures at record highs. A spokesperson said it was “easy to operate and environmentally friendly due to noticeably reduced noise and carbon pollution”.

Carbon pledge

Rolls-Royce has joined the ‘race to zero’ campaign in the run-up to the 26th UN climate change conference (COP26), which will take place in Glasgow, Scotland, in November 2020.

The company’s CEO, Warren East, said: “This will see Rolls-Royce become net zero carbon in its operations by 2030 and, more fundamentally, set an ambition to play a leading role in enabling the sectors in which we operate to reach net zero carbon by 2050 through the development of new products and technologies.”

MALE milestone

Turkey’s indigenous medium altitude long endurance (MALE) unmanned air vehicle (UAV), Bayraktar, has achieved 200,000 hours of operation.

The armed drone, Bayraktar TB2, is now aiming at a record-breaking million hours.

This is the first home-made aerial vehicle to record such extensive flight time in the country’s aviation history.

2020



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Almaty agreement

Turkey's TAV Airports has signed a shared purchase agreement to buy Almaty Airport in Kazakhstan.

A member of Groupe ADP, TAV Airports signed a share purchase agreement to acquire 100% of the shares of Almaty Airport, together with its consortium partner, VPE Capital.

The agreement comprises the acquisition of the airport and associated businesses for \$415 million.

Covid testing

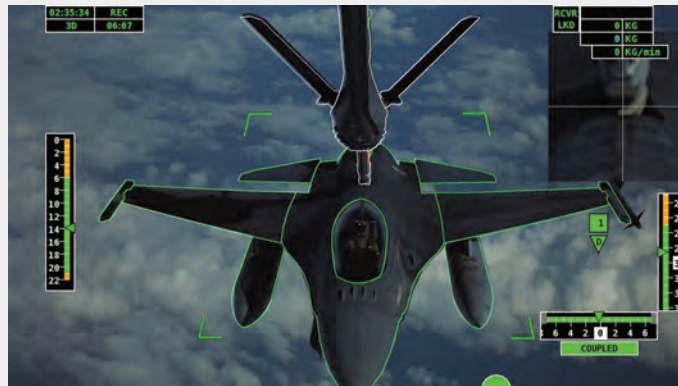
DUBZ, Dnata's baggage technology and logistics company, is now providing Covid-19 testing, enabling customers to safely complete the flight check-in process and obtain a medical certificate within 24 to 48 hours of testing – at home or any location of their choice in Dubai.

Customers booking the service are visited by a medical professional, who performs a swab test ahead of the home check-in process. The results are shared with customers digitally.

Wizz landing

Wizz Air and Abu Dhabi Airports celebrated the arrival of Wizz Air's first scheduled Wizz Air

Airbus boon as it achieves boom refuelling 'first'



Airbus has achieved the first ever fully automatic air-to-air refuelling (A3R) operation with a boom system.

The flight-test campaign, conducted earlier in the year over the Atlantic Ocean, involved an Airbus tanker test aircraft equipped with the Airbus A3R solution, with an F-16 fighter aircraft of the Portuguese Air Force acting as a receiver.

This milestone is part of the industrialisation phase of A3R systems ahead of its implementation in the A330 MRTT tanker development.

The campaign achieved a total of 45 flight-test hours and 120 dry contacts with the A3R system, covering the whole aerial refuelling envelope.

The certification phase will start in 2021.

Hungary flight to Abu Dhabi International Airport on July 1.

Khalil Lamrabet, senior vice president of aviation development at Abu Dhabi Airports, said: "The arrival of Wizz Air is a testament to the strength of the Abu Dhabi market and a reflection of the success of our investments in transforming Abu Dhabi International Airport into a strategically positioned global hub for airlines from across the world."

SAP award

Saudi Ground Services (SGS), Saudi Arabia's major ground-handling service provider, has won a MENA quality award from German enterprise software giant, SAP.

The award recognises the

region's top digital transformation initiatives.

SGS chief executive, Captain Fahd Cynndy, said: "Technology is positioned as a core enabler for us. SAP facilitated the transformation journey by automating human resources processes, flight data, sales orders, sourcing and contracting for more than 200 tenders per year."

Health costs call

Airports Council International (ACI) World and the International Air Transport Association (IATA) have urged that costs relating to public health measures aimed at mitigating the spread of communicable diseases should be borne by governments.

IATA's director general, Alexandre de Juniac, said: "The aviation industry wants to get the world moving again. We have successfully worked with the International Civil Aviation Organization (ICAO) and many governments worldwide to put in place standardised protocols that safeguard public health and give travellers the confidence to return to the skies. But the industry is still on the edge of a financial precipice.

"The extra costs of health measures mandated by governments must, as the World Health Organization recommends, be borne by governments. That will enable the industry to focus scarce resources on reconnecting the world and boosting economic recovery."

Strategic move

Gulf Air has appointed Sheikh Ali bin Mohammed Al Khalifa as director strategy and planning to manage one of the Bahrain-based carrier's main business units responsible for long term strategic plans.

Bid for Jet Airways

UAE-based Imperial Capital Investments is bidding to buy India's failed airline, Jet Airways. It is one of four companies to have been shortlisted.

Imperial chairman, Biraja Jena, said the immediate focus is concentrating on the acquisition of the airline and evaluating the available resources. Once done, the company would plan to assess overseas routes.

Strata partnership delivers A350-900 flaps shipsets

AI Ain-based Strata Manufacturing (Strata) has successfully delivered 100 shipsets of the assembled A350-900 inboard flaps (IBF).

Having completed the full first article inspection for the fabrication of six IBF components at its state-of-the-art facility in the Nibras AI Ain Aerospace Park, Strata now assumes fabrication and assembly duties in partnership with Airbus.

To fully automate the IBF manufacturing process, Strata will utilise hot drape forming (HDF) and computer-controlled robotic automated tape layup (ATL) machines, which gained first part qualification and first article inspection design and quality verifications early this year.

Strata CEO, Ismail Ali Abdulla, said: "We are constantly looking to expand our technical manufacturing capabilities by investing in cutting-edge technologies and nurturing our employees' abilities. This ensures better efficiencies and quality across our production lines and empowers us to advance within a highly competitive global aerospace sector."



A close-up, low-angle shot of a pilot's hand reaching up to adjust a control knob on a cockpit panel. The panel is filled with various switches, buttons, and indicator lights. The background shows the cockpit's instrument panel and a view of the sky through the windshield. The lighting is warm, suggesting a sunset or sunrise.

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Middle East countries are grappling with the loosening of Covid-19-related travel restrictions but, Alan Peaford asks, with airlines having been in survival mode are they, or their passengers, prepared to return?

Can airlines avoid becoming passengers themselves?

Muhammed Albakri is usually seen with a wide smile across his face. However, the International Air Transport Association (IATA) regional vice president for Africa and the Middle East looked ashen as he revealed the latest traffic figures to the media at the heart of the lockdown.

“The region is effectively in complete lockdown, with the travel and tourism sector shuttered. This is detrimental in a region where 8.6 million people depend on aviation for their livelihoods,” he said as he appealed to governments across the region to support the aviation industry through the worst of times.

The figures were alarming, showing a virtual end to passenger transport with a 97% drop in numbers.

Survival was the name of the game.

Where national policy allowed, some passenger carriers diverted attention to cargo. Collecting or delivering vital medical supplies, like personal protective equipment, or even fresh food, passenger cabins were converted to freighters, with special seat protectors making space for packages, while aircraft bellies were stuffed with cargo.

UAE national carrier, Etihad, was a classic example.

To complement its fleet of Boeing 777 freighters, it introduced a fleet of Boeing 787-10 aircraft as passenger freighters to operate 34 weekly flights, serving 10 markets. Each aircraft carried up to 45 tons of payload.

The move ensured the continuity of vital imports into the UAE, including fruits, vegetables, meat, medical supplies, mail and e-commerce.

Abdulla Mohamed Shadid, managing director cargo and logistics at Etihad Aviation Group, said: “As the national carrier to the UAE, Etihad is working closely with the government to ensure the country is well served and the needs of the people there are unaffected, while continuing to play our role as a facilitator of global trade between the east and the west.”

The airlines were also working quickly to retain cash. Thousands of jobs went from April through to July.

Dubai carrier, Emirates, was one of the worst hit. Thousands of staff were

dismissed – initially at individual meetings, but latterly by e-mail as the situation worsened.

Airline president, Sir Tim Clark, postponing his retirement to see the carrier through the crisis, predicted several years before 2019 traffic figures would be recovered.

IATA expected a potential loss of 2 million jobs throughout the industry.

Qatar Airways continued throughout the lockdown, leading a repatriation, not just of its own nationals, but also ferrying people via Doha from east to west and visa-versa. It too, though, needed to cut jobs to survive.

As the first wave of Covid passed, airlines – led by the UAE carriers – began to resume international services, even though entry to their own country was barred to all but nationals. In July, the UAE opened again to tourist and business traffic.

The focus now was on reinstalling confidence in the travelling public by ensuring safety measures were being introduced, while also reassuring people that the technology of equipment, such as high-efficiency particle arrestance (HEPA) filters, in all of the passenger jets, would filter out the virus in the cabin air circulation.

Getting tourism back is vital for MENA’s economic survival.

Significant impact

The decline in tourism activity is expected to have a significant impact in many countries, especially those relying heavily on it as a source of income, such as Morocco, Tunisia, Lebanon and Egypt.

In Egypt, where the tourism sector contributes close to 12% of gross domestic product (GDP), the International Food Policy Research Institute (IFPRI) estimates that shortfalls in such revenue will account for 65% of total losses in GDP caused by the crisis.

Other high-profile event cancellations, such as Dubai’s EXPO 2020 and the annual haj pilgrimage in Saudi Arabia, which were expected to attract 25 million visitors and 2 million religious tourists respectively, will put a strain on the countries’ economies. More than 400,000 tourism jobs could go, according to research by analyst PwC.

Wide-body aircraft – and particularly the Airbus A380 – are predominantly grounded, while narrow-bodies are in demand as regional routes begin to operate again.

Stefan Pichler, CEO of Royal Jordanian said: “The first kind of traffic to break apart [in such circumstances] are the long-haul connectors. So, the airlines who focused on this will go through harder times than the airlines like ours, which have more stability with origin and destination (O&D) traffic. “I’m very confident that we – even as a small boutique airline – will get out of it.”

Muhammed Albakri: The IATA vice president’s usual wide smile (seen here) was missing as the pandemic effect worsened.



Sunset for Etihad's A380s:
With the company transforming itself into a smaller, point-to-point airline, will its 10-strong fleet be the best fit for its operations?



Middle East faces up to a huge problem...

With passenger numbers predicted not to recover to pre-coronavirus levels until 2023, Alan Dron asks if this is the beginning of the end for the Airbus A380 and looks at how the region's airlines have coped with the pandemic so far?

No aircraft has more symbolised the rise of Middle East airlines than the A380. Its cavernous interior allowed airlines to install luxurious configurations (at least in premium-class cabins) including private suites and lounges.

It also allowed airlines to maximise passenger loads, particularly when operating into slot-constrained airports.

The two-class configuration of some of Emirates' A380s, for example, accommodated 615 travellers.

Now, however, the aircraft's future in the Middle East is under threat.

The 2019 decision by Emirates to cut its final order for the double-deck behemoth meant that the last aircraft was scheduled to come off Airbus's production line in 2021 anyway. The question is, will the dramatically reduced number of people flying mean that the aircraft's time in service will also be curtailed?

The omens are not good.

Airlines globally have kept only their most productive aircraft in service during the pandemic – and many of those have been converted to temporary freighters, to offset the

sudden loss of underfloor cargo space on passenger aircraft.

Etihad Airways and Qatar Airways, together with Air France, British Airways and Lufthansa, have all parked their fleets. Qatar's Group CEO, Akbar Al Baker, has said that the airline's 10 A380s "will not return for at least a year, and maybe never".

Given Etihad's continuing retrenchment, the likelihood of all its fleet returning is slim.

Breaking up

And the first few examples of the type have already been dispatched by Air France and Singapore Airlines for breaking up, despite being only 10 to 12 years old – remarkably young for a modern airliner.

Few airlines are prepared to take them on second-hand, both because of the costs involved and the fact that only certain airports are capable of handling them.

In truth, the A380 was always more popular with passengers than airline accountants. Carriers had to sell a lot of tickets to get it to profitability levels. That sense of airiness and cabin space came at a price.

Continued
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So, what now for the A380?

Will it become a victim of circumstance and largely vanish from the airways, or will it continue to serve through to 2030 and beyond?

Much depends on the aircraft's fate at Emirates which, with a fleet of 115, operates close to half of the 242 delivered worldwide. (The airline has eight more on order but is reportedly trying to reduce this number.)

Early in the pandemic, the airline was reported to want to cut 45 A380s from its fleet. However, in an *Air Transport World* webinar in June, Emirates president, Sir Tim Clark, reiterated that he was "a great believer in the A380 and when fuel is at \$30-\$40 and you can fill it, it's a cash producer".

He was generally more upbeat on prospects for the aircraft than previously, but its future at the airline is not clear.

However, given that it makes up such a large part of Emirates' fleet, a significant part of the inventory is likely to remain in service for the rest of this decade at least.

New role as a freighter

More generally, there is the possibility of the A380 finding a new role as a freighter.

Lufthansa Technik is calculating the necessary modifications to enable the aircraft to take on this new role for an unnamed customer, but it stresses that it is, at present, only creating the paperwork that would be required for an airline to apply for a supplemental type certificate to change the A380's role, rather than actually cutting metal.

The need to move urgent consignments of freight during the pandemic has seen virtually all major airlines transforming passenger aircraft into temporary freighters – whether by simply piling (lightweight) cargo on seats and securing it with nets or other restraints, or by removing all seats in the cabin.

Emirates, for example, has operated 96 of its 153 Boeing 777-300s in cargo configuration, while Qatar Airways began using its passenger 777s to carry 50-60 tonnes in the belly (as opposed to the 100 tonnes of a dedicated 777F freighter).

The pandemic's effects have already been painful for many Middle East airline staff. With long-haul traffic expected to be the last to recover, after domestic and regional services, airlines have been shedding staff rapidly.

Most are tight-lipped over the numbers of jobs lost, but when ground personnel are added, it will likely be more than 100,000 throughout the region.

At the end of last year, airlines were concerned over the availability of flightdeck crew, with many heading to the Far East (especially China) to take advantage of the rapid expansion of airlines there.

In the space of six months, that problem has been solved – but not in a way that anyone expected, or wanted. ■

Many long-haul aircraft passengers look forward to their on-board meal – it is all part of the journey experience – but things are starting to change. Marcelle Nethersole reports.

CATERING FOR THE COVID-19 CHANGES

The Covid-19 pandemic has meant that many airlines are now having to rethink their on-board catering services.

Turkish Airlines, for example, whose caterer is Do&Co, has been gradually starting to resume commercial services since June. It has chosen to reduce its options and simply offer a snack box or bag in each class on flights longer than two hours.

Passenger Mustafa Gundogdu, who recently flew from Istanbul to London, said: "The food was served in the usual way, starting from both ends of the aircraft. We were offered a plastic-wrapped small sandwich, a small bottle of water, a fruit juice in a tetra pack, and a plastic-wrapped cake. No alcoholic beverages were served though."

Gundogdu added: "Overall, it was the same flight as usual, the only difference was wearing a face mask and the downgraded food service."

Emirates is also simplifying on-board catering services to reduce interaction and movement in the cabin.

On some airlines, passengers may see measures such as in-flight social distancing, so that people can eat freely; this may include being served meals by zones.

Aircraft catering supply chains are a big part of helping make changes to on-board catering.

Fabio Gamba, director general at the Airline Catering Association, whose current members include Dnata and Saudi Airlines Catering, said it is



The ACA has adopted new safety guidelines for the industry in order to help its members navigate the Covid-19 pandemic.

PICTURE: AIRLINE CATERERS ASSOCIATION.

important to restore confidence in passengers and still manage to serve good food, even if it is on a simpler scale.

"You can travel this summer and enjoy food on board your flight," he said. "Food is not connected to virus spread and strict food safety measures, refined through decades of air travel, remain in place to make sure that everything leaving our kitchens is safe."

"If you travel, you can continue to enjoy your meal on board with peace of mind." ■

HOW THE MIGHTY ARE FALLING!

The pandemic and resulting shutdown have shone a harsh light on wide-bodied aircraft, writes Chuck Grieve.

The bigger the aircraft, the bigger the issue as airlines struggle to chart a successful route through projections of load factors, fuel prices, lease ends, heavy maintenance and cabin renewal.

"If an airline has a choice in size – as clearly Emirates, Etihad and Qatar do – the largest aircraft in their fleet will take the biggest hit," said Phil Seymour, president of IBA, a leading aviation data and advisory company.

IBA puts the global oversupply of passenger aircraft at 2,500 units, including 1,300 wide-bodies.

"Where the 777-300ER is the largest aircraft in a fleet, I can see it might be under pressure," said Seymour. "With Emirates, it might have a sweet spot."

His "thoughtful conjecture" is that Emirates may put some of its 777-300ERs on A380 routes if possible. The airline "may decide to park up A380s rather than handing back 777s" at lease-end.

The 777X "was clearly designed to suit the Middle East market", he said. With its new wing and latest

engine technology, it may be the long-term answer to the Gulf carriers' problems of range and payload.

Low fuel prices make it economically viable in the near-term to operate older 777s longer. "In oversupplied market conditions, we've observed lessors engaging in shorter-term leases with lower rents, or power-by-the-hour (PBH)-style deals to keep aircraft in operation and avoid inheriting parking and maintenance costs," said Seymour. "Lease extensions will probably cost around one-third of the rate operators are paying now." ■



Phil Seymour: "The largest aircraft will take the biggest hit."



Back in action: EgyptAir has resumed its non-stop flights to more than 29 international destinations.

MENA region starts to pull up... slowly

Even as north African countries have begun reopening their borders and restarting commercial operations, airlines across the region are finding ways to adapt to the Covid-19 reality.

Vincent Chappard and Anuradha Deenapannay report.

Three months after the March shutdown of global air transport and a 90% drop in traffic, the north African recovery period has begun.

At the height of the crisis, all flights to and from the MENA region were suspended, except for overflights, emergency operations related to humanitarian aid, medical/humanitarian relief flights, and repatriation services.

According to the International Air Transport Association (IATA), total 2020 air traffic in the region is expected to plummet by 50%.

Consequently, any revival is likely to be crucial for airlines, especially at the start of the summer period.

Morocco authorised domestic flights within the kingdom on June 23. Royal Air Maroc resumed flights to Laayoune, Dakhla, Oujda and Agadir from its hub in Casablanca.

As *Arabian Aerospace* was going to press, the national carrier had decided to increase the number of frequencies and destinations gradually. Air Arabia Maroc had also reactivated its domestic flight programme.

The European Union had agreed a plan to reopen external borders with 14 countries on July 1, including Morocco, Algeria, and Tunisia.

However, the state of emergency was extended in Morocco until July 10, with a progressive reopening of its borders. Royal Air Maroc launched a special programme for international flights on July 15. They were open to all Moroccans, as well as citizens of other nationalities residing in Morocco. Passengers had to present PCR test results at the time of check-in.

The Moroccan Airports Authority (ONDA) took the necessary measures to enable the kingdom's airports to welcome travellers in strict compliance with health security rules.

Tunisia reopened its airspace to commercial flights on June 27. A dozen flights were operated from France and Italy. Domestic flights had started earlier (June 12).

Tunisair Express led the way with scheduled flights between Tunis, Djerba and Tozeur.

List of countries

Tunisian authorities have established a list of countries according to three categories. At the time of writing, only travellers from countries on the green list – Germany, China or Italy – can reach Tunisia without restriction.

Those coming from countries classified orange (including France, Morocco and Spain) will have to present a negative PCR test and follow a quarantine process. Passengers from other countries (classified red like Algeria or Russia) are not allowed to Tunisia unless they are Tunisian citizens.

On June 23, while air transport was at a standstill, Air Algérie announced that it had reopened several of its commercial agencies in certain cities of the country. The national airline added that “the resumption of flights is an exclusive decision of the Algerian public authorities”. According to official statements, a resumption of flights would be “imminent”.

All Egyptian airports restarted commercial flights on July 1, following a government decision to revive the tourism sector. Special measures have been taken, including Covid-19 tests.

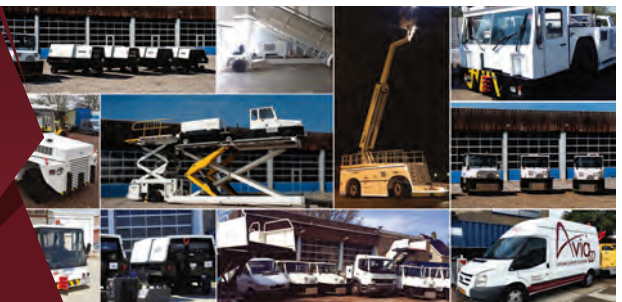
EgyptAir resumed its non-stop flights to more than 29 international destinations.



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Developing resilience with digital tower

In the Middle East there is a huge disparity between very small and very large airports. How can digital tower technology enhance the safety and reliability of air traffic management (ATM) facilities ready for changing air traffic demand? Frequentis Middle East Managing Director, Josef Kutschi and Aerosense Digital Tower Expert, Peter Gridling, explain.



As we begin to look towards airspace recovery, we turn our attention back to the modernisation of the ATM system and the benefits for the Middle East. In Saudi Arabia, for example, we consider the huge number of remote airports and the efficiency enhancements that could be gained by rethinking airport tower services. Handling peak traffic for major planned events in the Middle East could also be solved with the same solution.

In contrast to conventional air traffic control towers, remote digital towers (RDT) provide additional support tools for the controller, which create a safety enhancement. Features like augmented reality, automated object detection and virtual safety nets, which all assist the controller in their challenging role. Most importantly, RDT provides location-independence for air traffic control (ATC) services, something which doesn't exist in a traditional tower.

To give an example, Saudi Arabia has

27 international and domestic airports, not to mention nine military airbases. So we see the benefit of a RDT facility, also called a virtual remote tower centre. This would allow multiple airports to be controlled from the same facility, enhancing both the safety and the availability of ATM services at the remote airports. This set up brings advantages of flexible staffing and ad-hoc allocation of ATM services depending on traffic volume. Single facilities could also be set up as a contingency solution for airports, and two centres can be connected to provide additional resilience to overcome pandemics or events with similar severity. By geographically decoupling ATM services from a location, virtual centres increase agility, capacity and cost-efficiency, while enabling better contingency planning.

RDT for sudden capacity changes

One issue with the wider ATM system today is the lack of flexibility. Flexible and modular digital tower features are key to

managing reduced air traffic now, increased future demand, while preparing us for traffic peaks, and for the next potential crisis.

The virtual centre concept, based on IP tech, will become more important than before, because of its flexibility for contingency situations and general scalability. What we are looking at is a networked solution, which seamlessly integrates the air traffic flow from the airports in the upper airspace, but which is scalable and flexible in terms of resources and traffic load. This allows air navigation service providers (ANSPs) to integrate remote digital tower and approach solutions, therefore adapting to traffic demands in a holistic way.

This solution requires the ability to add and remove controller modules and combine or separate functions. An RDT is designed to manage sudden traffic peaks, making it ideal for annual events like the Haj Islamic Pilgrimage in Saudi Arabia, which draws close to 2.5million people each August. But, in contrast, when we look at the recent and current reduced air traffic levels across the world, ANSPs are still having to run fully staffed towers. This is because one controller is required for tower services and another for approach. With an integrated solution, the tower and the approach module can be combined in times of low traffic volume and separated when traffic increases. Being able to adapt to demand allows for increased business continuity.

Frequentis DFS Aerosense, a joint venture company formed in 2018 between Frequentis and DFS Aviation Services, is focused on providing advanced turnkey remote sensing solutions for ATC across the world to support airports with capacity and growth. At the start of 2020, the company was awarded a contract from the Danish ANSP Naviair to build an integrated Remote Tower centre, including the approach automation solution PRISMA.



The PRISMA approach solution (PRISMA APP), is designed to autonomously process flight plan data and surveillance data for air traffic services (ATS). The APP function includes Safety Net functionality such as short-term conflict detection, area proximity warnings and minimum safe altitude warnings, all designed to assist the ATCO with optimal situational awareness.

With additional automated controller tools it is possible to integrate an advanced surface movement guidance and control system (A-SMGCS) into the digital tower environment, to further enhance airport surveillance and controller functionality. An automated tower pad, for example, will intelligently unite information and the appropriate action into a single user interface, allowing increased safety and more efficient taxi, improving airport capacity as a result. The ability to exchange data with other tower modules in real-time, further enhances controllers' workflow allowing them to fully focus on planning and traffic coordination.

Reliability and resilience

The virtualisation of ATC systems empowers air traffic controllers to work from any location, but also to serve any airspace – even beyond national or regional borders. The ability to also combine civil and military ATM services in the same RDT facility also offers its advantages for shared situational awareness, and reduced costs of ownership for contingency management.

As we become more digital, we must consider the potential for cyber-attack. These new safety risks can only be

mitigated if manufacturers and system operators take responsibility for safety and security together. Operational Technology (OT) cyber security measures must simultaneously fulfil dedicated performance and safety requirements. There must be a cyber security and quality of service solution which upgrades the telco network to an ATM-grade network, able to react to changing network demands, ensuring continuous availability and the quality of service between the airport and the Control Centre. The secure integration of solutions to operational environments, and the protection of the systems, can be best achieved by understanding and applying security best practises from both OT and IT worlds in the right places.

With customers on all continents, the Frequentis remote digital tower solution is already widely deployed and used operationally. This integrated combination of tower and approach, allows the user to handle multiple airports from one centralised system, providing automatic and instant coordination between tower and approach systems. With added A-SMGCS and tower automation tools, high throughput airports are able to significantly enhance their airport operations and manage sudden traffic changes safely and efficiently.

Frequentis is the only vendor able to provide a fully integrated solution, by having all these components in-house, while DFS provides the vital change and transition process and stakeholder management, key to a successful remote tower project. The extensive experience DFS gained when implementing its own

remote tower with Frequentis, created the perfect partnership for complete remote digital tower delivery projects.

To manage the reduced traffic of today, prepare for the recovery, and future capacity crisis, while also staying resilient, we need to look at digitalisation as something we adopt now, to prepare for the next decade.



Josef Kutschi, Managing Director, Frequentis Middle East

Josef has worked in the Middle East for the last 10 years, in various management positions for satellite communication and ATM industries. Josef joined the Frequentis Group in 2019 as ATM Sales Director, Frequentis Middle East, and was appointed Managing Director for the region in January 2020.



Peter Gridling, Digital Tower Expert and Vice President Sales Frequentis DFS Aerosense

Peter graduated with an engineer's degree in computer sciences and has strong camera and image recognition technology background, including forming a start-up company for image recognition technologies. Peter joined Frequentis in 2016 to support the digital tower team and is now VP Sales for Frequentis DFS Aerosense.

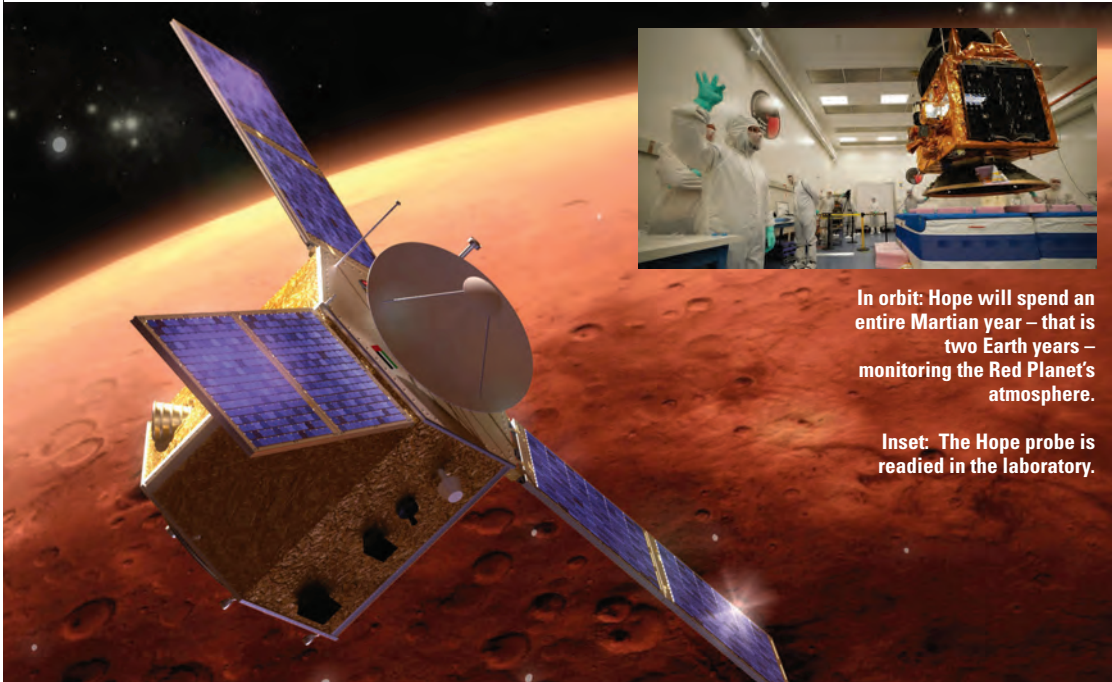
FREQUENTIS DFS AEROSENSE

Frequentis AG and German ANSP DFS Deutsche Flugsicherung GmbH, through its wholly owned subsidiary DFS Aviation Services, formed joint venture FREQUENTIS DFS AEROSENSE in 2018, to deliver turnkey remote tower solutions worldwide.

Frequentis contributes the technologies, as well as expertise in developing customised remote tower systems, and its worldwide network of locally represented subsidiaries that can implement remote towers globally. DFS Aviation Services contributes its operational air traffic management experience in consulting, validation, transition and training, as well as the deep operational experience gained through developing its own remote tower solution.

For more information, visit www.aerosense.solutions

Emiratis collectively held their breath on July 20 as the UAE's Mars 'Hope' probe was launched from the Tanegashima Space Centre in Japan. Steve Nichols reports.



In orbit: Hope will spend an entire Martian year – that is two Earth years – monitoring the Red Planet's atmosphere.

Inset: The Hope probe is readied in the laboratory.

It will use its scientific instruments, which include visible, infrared and ultraviolet spectrometers, to map and understand the lower atmosphere of Mars and the weather systems that exist.

Sarah bint Yousif Al Amiri, the UAE's minister of state for advanced sciences, said: "Our science orbit is our final resting place around Mars. At our closest point, we will be 20,000km from the surface and, at our furthest, the probe will be at 43,000km.

"We will look at how far the hydrogen and oxygen extends into space to get a better understanding of the loss of the Martian atmosphere.

"Understanding the evolution and the climate change of the Martian atmosphere is very important to help us understand how it transforms and changes."

Earth and Mars are very similar.

They both orbit in the Sun's 'Goldilocks' zone – where it may be not too hot and not too cold to be potentially habitable.

Mars has an extremely thin atmosphere with no oxygen. It is in the outskirts of the Goldilocks zone, just close enough to receive enough heat to be qualified as potentially habitable, but its thin atmosphere means it remains too cold.

And, while Earth has a breathable atmosphere and a liveable climate, Mars most certainly doesn't.

Planet's low pressure

We know that its atmosphere is now 95% toxic carbon dioxide at minus 55 degrees Celsius on an average day. The planet's low pressure means liquid water can't exist for more than a few minutes.

Scientists think Mars did have an atmosphere at some stage, as other missions have spotted hydrogen and oxygen near Mars, which now orbits around the planet in a giant cloud.

Hessa Al Matroushi, the UAE's instrument science lead on the Mars mission, said the Hope probe will help scientists build an holistic model of the planet's daily and seasonal cycles, and help explain why the planet lost a lot of its atmosphere to space.

By understanding the Martian climate, we might be able to save Earth from a similar fate in years to come. That's why Hope's data could be invaluable to life on Earth.

But the UAE's aspirations for Mars don't stop there. It has also declared that it aims to establish the first inhabitable human settlement on the Red Planet by 2117. The Mars 2117 Project is being developed and executed in partnership with major international scientific research institutions.

The goal is to inspire future generations and "instil a culture based on discovery and education".

UAE boldly going to Mars...with Hope

A couple of launch delays due to weather didn't help, but the probe eventually soared skywards at 06:58hrs local time (21:58hrs UTC July 19), lighting up the morning sky.

About an hour after launch, the probe separated from the rocket and unfurled its solar panels to begin the seven-month journey towards the Red Planet.

The launch is the first Arab space mission to Mars and aims to study the Martian atmosphere, inspiring the region's youth and paving the way for scientific breakthroughs that could affect us on Earth.

The \$200 million Hope (Al-Amal in Arabic) probe now faces a 60 million kilometre journey. It is expected to reach Mars by February 2021, just in time for the celebrations planned to mark the Emirates' golden jubilee.

Culture of possibilities

Sheikh Mohammed bin Rashid Al Maktoum, vice president and prime minister of UAE and ruler of Dubai, said: "The Hope probe embodies the culture of possibilities deeply rooted in the UAE's approach, philosophy and journey of accelerating development since the foundation.

"Our journey to space represents a message of hope to every Arab citizen that we have the innovation, resilience and effort to compete with the greatest of nations in the race for knowledge."

The mission has real science at its core. Hope will spend an entire Martian year – that is two Earth years – monitoring the Red Planet's atmosphere.



“We will look at how far the hydrogen and oxygen extends into space to get a better understanding of the loss of the Martian atmosphere.”

**SARAH BINT
YOUSIF AL AMIRI**

Building experience: No12 Squadron will provide the QEAF with valuable experience operating the Typhoon as it prepares to receive its first aircraft in 2022.



DEFENCE BATTLES ON

Military aviation in the MENA area has not been entirely unaffected by the Covid-19 pandemic.

Jon Lake looks around the region.

Some analysts expect a slowdown in sales of new equipment as a result of stagnation in the oil market, while others think countries like Saudi Arabia will continue their procurement plans at any cost, determined to ensure their security and to maintain influence.

Wars in Libya, Syria and Yemen have continued, with air power still playing a pivotal role. Developments in these campaigns have included the arrival of MiG-29s and Su-24s to support Field Marshal Khalifa Haftar's Libyan National Army (LNA), while the rival Government of National Accord (GNA) has been able to call on Turkish unmanned air vehicles (UAVs) and F-16s.

In Yemen, the air war has 'hotted up' and gained a new dimension, with Royal Saudi Air Force (RSAF) F-15s scrambling to deal with bomb-carrying UAVs dispatched by the Houthis against Saudi targets, including cities. Saudi air defences have also had to destroy dozens of incoming ballistic missiles.

The Saudi-led coalition had announced a

unilateral ceasefire in early April after calls from the United Nations (UN) to halt conflicts during the coronavirus pandemic. But, after Yemen resumed rocket, drone and ballistic missile attacks, Saudi Arabia launched a new military operation against Yemen's Iran-backed Houthi rebels.

Saudi military spokesman, Colonel Turki al-Maliki, said: "Targeting civilian facilities is a red line. We won't allow this to happen." He added that the Yemeni rebels were not capable of producing their own ballistic missiles and drones and laid the blame for the new round of attacks firmly at Iran's door.

More constructively, a number of air forces across the MENA region have pressed military transport aircraft into service to deliver aid, medical supplies and protective equipment. Turkey's new Airbus A400Ms have been particularly busy, flying medical supplies and personal protective equipment (PPE) to a number of European nations.

*Continued
on Page 24*



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CONTINUED FROM PAGE 21

IRAN

On June 25 the Iranian Tasnim News Agency reported the delivery of three 'domestically built' HESA Kowsar fighters, though accompanying photos showed these to be refurbished Northrop F-5s, and not the new indigenous Kowsar 88 trainer.

But any indigenous Iranian programmes may be rendered superfluous, if, as is widely expected, the current 13-year arms embargo ends in October.

If this does happen, Iran is expected to 'go shopping' for combat aircraft, air defence missiles, anti-ship missiles and even submarines, probably from Russia and China.

KUWAIT

Kuwait's air force modernisation is continuing apace, with the Kuwaiti-standard Boeing F/A-18E/F Super Hornet and Eurofighter Typhoon now flying.

Kuwait's permanent parliamentary committee is reportedly looking into the price being paid for the Eurofighter Typhoon, as well as allegations of "large-scale misappropriation of state funds" in connection with the procurement of the two new fighter types.

While the price being paid by Kuwait for its Typhoons is higher than that being paid by Qatar, the deal includes significant amounts of infrastructure, training, support and weapons integration, and thus is not directly comparable on an aircraft unit cost basis.

But Kuwait is sensitive to pricing, after the controversies surrounding the country's procurement of the Airbus Helicopters H225 Caracal, and after allegations that kickbacks were paid associated with a Kuwait Airways acquisition of 15 Airbus A320neos and 10 Airbus A350 aircraft.

MOROCCO

On June 25, Boeing confirmed that the Kingdom of Morocco has signed a US foreign military sales (FMS) contract for 24 Boeing AH-64E Apache attack helicopters, plus 12 options, with manned-unmanned teaming (MUM-T) 2 kits, spares, and support.

A weapons package also included AGM-114L and -114R Hellfire anti-tank missiles, APKWS laser-guided rocket kits, and AIM-92 Stinger air-to-air missiles, along with unguided 2.75in rockets and 30mm ammunition for an estimated cost of \$4.25 billion.

QATAR

With its new Dassault Rafales now in service and working up to full operational capability, Qatar is preparing to induct its next two new fighter types.

The Boeing F-15QA is now flying in the US,



Operational: No12 Squadron is a unique initiative between the UK and Qatar.

and recent US Department of Defense (DoD) notifications seem to indicate that more of these aircraft will be acquired than was originally expected.

Under the deal signed in December 2017, Qatar was due to receive 36 F-15QA Advanced Eagles, but recent statements suggest that the FMS contract may be for 48 aircraft.

There has also been progress with the third of Qatar's planned new fighter types, with a joint UK-Qatari Typhoon squadron having begun flying as an integrated unit.

On June 19, the British Ministry of Defence announced that the Royal Air Force and Qatar Emiri Air Force (QEAF) Typhoon Squadron, known as No12 Squadron had "marked an important milestone" by commencing flying as a joint squadron.

No12 Squadron is a unique initiative between the UK and Qatar and will provide the QEAF with valuable experience operating the Typhoon as it prepares to receive its first aircraft in 2022.

The announcement is understood to indicate that the first Qatari pilots are now working up to combat-ready status, having completed conversion training.

No12 Squadron was stood up on July 24 2018 and is the first Joint Squadron in the RAF since World War II.

UAE

Following the example set by the US Air Force Thunderbirds formation aerobatic display team and the US Navy's Blue Angels, the UAE Air Force's Al Fursan aerobatic display team flew a series of displays over some of the nation's main hospitals.

By doing this, the Al Fursan team showed their appreciation of the UAE's doctors, nurses, paramedics, and administrative and technical staff, who were saluted as the nation's real "first line of defence".

The displays were mounted at the request of His Highness Sheikh Mohamed bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and deputy supreme commander of the UAE Armed Forces, who invited the public to share these moments of pride and unity in appreciation of the nation's healthcare professionals working round the clock

to ensure public safety in the face of the Covid-19 pandemic.

The displays began on Sunday June 21 in Abu Dhabi. Al Fursan flew over the Al Rahba Hospital, Sheikh Khalifa Medical City, Zayed Military Hospital, Emirates Humanitarian City, Sheikh Shakhbout Medical City, and Al Ain Hospital in Al Ain.

On the second day, Al Fursan flew over Al Dhafra Hospital in Madinat Zayed, and on the third day it toured the Kuwait Hospital in Dubai, the Al Kuwait Hospital in Sharjah, the Sheikh Khalifa General Hospital in Ajman, the Field Hospital in Umm Al Quwain, the Field Hospital and Ibrahim Bin Hamad Obaidullah Hospital in Ras Al Khaimah, and the Khorfakkan Hospital, the Field Hospital and the Masafi Hospital in Fujairah.

The Ministry of Health and Prevention publicly saluted the flypasts, saying that they had carried an inspirational message of thanks and gratitude to the frontline medical, nursing and administrative staff.

The UAE armed forces have not been neglecting their operational training during the pandemic. The United Arab Emirates Joint Aviation Command conducted combined naval and air training operations in the southern Arabian Gulf with elements from the US Naval Forces Central Command and US Air Forces Central Command, from June 21-25.

A combination of aircraft and surface assets tracked and engaged simulated fast-attack craft during the air operations in maritime surface warfare (AOMSW) training exercise.

Emirati Boeing CH-47F Chinook, Northstar/Bell 407, Boeing AH-64D Apache, and Sikorsky UH-60M Blackhawk helicopters practised operating from an expeditionary sea base, the *USS Lewis B Puller*.

UAE pilots successfully completed deck landing qualifications aboard the Puller, and conducted day and night landings and refuelling operations.

The training exercise was intended to maintain and enhance interoperability and to demonstrate UAE and US resolve to respond to threats in the region, preparing forces to meet the challenges of ensuring freedom of navigation and the free flow of commerce in what are some of the world's busiest waterways. ■

Questions remain over the future of the Abu Dhabi-based Advanced Military Maintenance Repair and Overhaul Center (AMMROC) and its state-of-the-art maintenance, repair and overhaul (MRO) facility, which should be open for business by the end of the year. Alan Warnes reports.

AMMROC on the rocks?

For nearly six years, AMMROC has been building a shiny, new facility at Al Ain. Founded in 2010, the joint venture between Mubadala (now EDGE), Lockheed Martin Corporation, and Sikorsky (now a Lockheed Martin company) looked all set for success.

However, Lockheed Martin's latest earnings report, released on April 21, disclosed the shock news that AMMROC had lost the master performance-based logistics (PBL) contract with the UAE Air Force.

That, according to one senior company figure, "leaves AMMROC in a very precarious situation".

"Not too surprisingly, there are a lot of questions over what the future holds for us and we, along with our shareholders, are evaluating our options," added the source.

It must have come as a huge shock to US giant Lockheed Martin which, by the end of March, had invested \$435 million into the joint venture.

Single customer contract

All of AMMROC's current business is dependent on a single customer contract to provide MRO services for fixed and rotary-wing military aircraft. However, in mid-April, the customer announced its intention to award the contract to a competitor, believed to be Global Aerospace Logistics (GAL).

AMMROC had been set to provide a full performance-based logistics or 'power-by-the-hour' service to 36 different military aircraft types, including the Airbus A330 Multi Role Tanker Transport (MRTT), Boeing AH-64D Apache, Boeing CH-47D Chinook, Boeing C-17A Globemaster III, Lockheed Martin C-130 Hercules, Lockheed Martin F-16, and Sikorsky UH-60. In total, more than 500 aircraft operated in the UAE were involved.

The plans were to consolidate all the MRO work from several locations, including Al Dhafra and the GAMCO/Etihad facilities at Al Ain, into one big facility. Aircraft should have started entering the new MRO facility in May 2016 but, because of delays, never did.

It seems the government grew tired of repeated delays to the new set-up, now expected to open at the end of 2020, barring any Covid-19 impact.

The shock decision came after AMMROC inducted the first aircraft, an air force CN 235, into the new Al Ain facility on March 5. Its arrival for depot-level maintenance marked the soft operational launch of the facility. It was

There are a lot of questions over what the future holds for us and we, along with our shareholders, are evaluating our options.

State-of-the-art: A 1:600 scale model of AMMROC's new Al Ain facility was shown at last year's Dubai Airshow.

PICTURE: ALAN WARNES.

followed by a A330 MRTT and C-130 aircraft for heavy inspections.

In its first quarter earnings report, Lockheed Martin said it is working with AMMROC's management and its joint-venture partner to understand its options. These include whether there is a basis to challenge the award and retain the MRO services, explore the possibility of AMMROC continuing to provide MRO services as a subcontractor to the competitor, the possibility of replacing the contract with other customer arrangements, or winding down the business.

Contest awards

A source said: "There is no procedure to contest awards made by the UAE Defence Force and, as AMMROC is 60% owned by the UAE Government, it probably wouldn't go down too well with the majority shareholder anyway."

By mid-June, AMMROC was working with GAL and the air force to plot the way forward and see how much of the depot-level support would be put into Al Ain.

GAL has always supported the 14 helicopters and fixed-wing aircraft operated by the UAE's Joint Aviation Command (JAC) fleet. The company's CEO, Khalid Al Breiki, said in November: "We signed four contracts in 2019, including two worth AED 3.739 billion (\$1.02bn) with Joint Aviation Command and Presidential Command. We also signed the first international contract as an Emirati company to provide maintenance services for most of the aircraft of the Kenya Air Force."

In a statement, he added: "We explore further opportunities to deliver comprehensive life cycle support solutions that deliver value and operational efficiencies to the JAC."

On July 21, Abu Dhabi-based defence conglomerate, EDGE, announced it had bought all of Lockheed Martin's shareholding in AMMROC





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Isolating on an air ambulance: FAI has been operating at maximum capacity, averaging around six missions per day. PICTURE: FAI.

Business aviation is beginning to recover from the carnage caused by Covid-19. Dave Calderwood reports.

A HEALTHY OUTLOOK...

Green shoots, optimism, opportunities... there seems to be something for everyone to strive for in the aftermath of Covid-19.

Just look at statements made recently by key members of the business aviation community.

The Argus Group said: "May 2020 recorded an 84% increase in activity from April in North America, which means we have already made up one-third of our losses from Covid-19, and June is looking just as strong."

"We live in a global, connected, world and business aviation will be vital to our recovery. As we face down this new, unforeseen, challenge our industry will rise to the occasion and it will play a key role."

Price disparity

London, UK broker, Colibri Aircraft, added: "There are as many as 680 fewer person-to-person touch points flying privately when compared to commercial flights, potentially reducing the chances of catching Covid-19. Price disparity between first-class flight tickets and flying privately is set to fall as commercial airlines will be under pressure to increase the cost of flying per passenger as they reduce their load factors to help with social distancing."

"With their duty of care to staff, more corporates will be inclined to offer their senior executives, who fly first-class, the option of flying privately."

Mohammed Al Husary, CEO of UAS, chipped in: "Though the world economy is now poorer than it has been for decades and headed toward a deep depression, there will still be business opportunities, executives will



Adel Mardini: "I see a big opportunity for us."

still need to travel and will opt more for business jets and the connectivity and freedom chartering aircraft brings."

Adel Mardini, founder and CEO of Jetex, which has its HQ in Dubai and bases around the world, was even more optimistic.

"I see a big opportunity for us," he said. "The issue is not with commercial airlines, it is the fact that people have concerns about big terminals packed with lots of people and where they are mixing with thousands of others."

"We believe that people will come to us, not because they want to fly a private jet, but because they want to use a private terminal."

Backing this up, Mardini cites business increasing as soon as travel restrictions were eased. Flights from Rome, Italy, for instance, were booked immediately it became possible in June.

Plethora of online platforms

Then there are the plethora of online platforms for booking flights, which have seen many more people, especially younger business travellers, take advantage of lower cost flights.

Mardini also expects shake-ups among operators and fixed-base operations (FBOs), and is preparing to take advantage of any opportunities that fit in with Jetex's plan.

"I expect a few businesses will be reshaped after this crisis," he said. "We are hungry to acquire individual FBOs and we can see them wanting to be secure under a big umbrella."

One operator that has remained busy is DC Aviation, which has an FBO at Dubai South.

DC Aviation has introduced a programme for rapid Covid-19 pre-flight virus testing for crew and flight support personnel. Anyone who tests positive for the virus does not participate in flights and immediately enters a phase of self-isolation.

The test programme was introduced on the initiative of Dr Lutz Helmig, the owner of DC Aviation, and a well renowned physician.

With airline travel restricted, air ambulance or medevac flights have proved essential during the pandemic for returning sick patients – whether from Covid-19 or something else.

FAI is the world's largest fixed-wing air ambulance jet operator by revenue, logging far above 10,000 hours per year. It has been operating at maximum capacity, averaging around six missions per day with its 10-strong fleet of five Learjet 60s, four Bombardier Challenger 604s, and one Global Express air ambulance aircraft. Additionally, FAI is supplementing its fleet with its executive charter fleet of business jets.

The business is there and growing. Operators need to seize the moment.

A VISION THAT'S NARROW MINDED

A design for a new VIP aircraft configuration is being targeted at the Middle Eastern market.

Alan Peaford reports.

When the world's first private BBJ 787 DreamJet flew into the Dubai Airshow in 2017, it sent a buzz across the region and beyond.

Now, the team that had the vision for that aircraft are back together with a proposal that could be a real game changer – and they see it as a perfect pitch for a Middle East market.



The A220 – formerly known as the Bombardier CSeries – has been eagerly received by the airline industry since it was bought by Airbus as the entry-level narrow-body. With a clean-sheet design and all of the latest technologies to reduce emissions and fuel, it is proving popular.

But for Stephen Vella, CEO of Kestrel Aviation, and Tom Chatfield, CEO of Camber Aviation, it is an



opportunity to shake-up the top end of the private aviation market. With the additional involvement of designer, Jacques Pierrejean, they have now presented that vision to the world.

“This is a team that’s worked well together and thrives on innovation,” Vella said.

“We had a steep learning curve with the 787, with a lot of new design features in that aircraft. And we thought, well, why not leverage that on to a narrow-body project?”

Chatfield said the A220 will compete against the BBJ and ACJ aircraft. “It proved to be the ideal platform; it’s a clean-sheet design,” he said.

“The interior cabin is well suited to be able to configure it into a corporate aircraft. It has as much floor space as an A319, or a BBJ MAX 7. It’s got lots of height, lots of width, and together we were able to design what I think is a very innovative and welcoming interior.”

The designers’ research showed that owners want a separate crew area in front; they want to have a mid-cabin lavatory and they would prefer to have the private suite at the back of the aircraft. This design has these three fixed zones, then flexible areas for dining, for entourage, and even for a child’s bedroom. ■

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Recovery charge ready for take off

Business aviation could spearhead the industry recovery after experiencing its most torrid time ever. Alan Peaford reports.

When the Covid-19 pandemic hit the Middle East in mid-March, it wasn't just the airline industry that felt the impact.

The region's fleet of business aircraft was grounded. "It was terrible," said Ali Alnaqbi, founding chairman of MEBA, the association for the industry across the Middle East and North Africa.

"It just stopped," he said. "Even for repatriation flights, you needed a permit and approval but they were halted."

Alnaqbi spent much of the lockdown in dialogue with governments to plead the case for support for business aviation companies. "Aviation was on hold totally. So, there has been a great negative effect on fixed-based operators



Ali Alnaqbi: "We can turn around very quickly."

(FBOs) and all the business aviation companies in the region," he said.

Alnaqbi believes the sector will bounce back. "We can turn around very quickly," he said. "Business aviation is very flexible. We can actually fly before the airlines."

It is a view backed by Dubai-based Pascal Bachman, senior vice president for Europe, Middle East and Africa for Jetcraft, the global leader in aircraft sales, acquisitions and trades.

"The airlines are going to reduce their service and, in some countries, there'll be no airline service, or it's going to be at a very reduced capacity, at least initially, and people will just have to find other ways to travel," Bachmann said.

"This will lead people to search for alternatives;

there's only one alternative, and that's private aviation."


Already, daily business aviation movements in the USA have overtaken 2019 numbers for the same days.

"Even during lockdown, we were busy and closed deals on aircraft. Now it [lockdown] is lifting it will make our life easier. And there's pent-up demand," said Bachmann. "One of the key things is confidence."

During the travel ban, many owners have carried out maintenance and upgrades to aircraft – but there are calls for more.

The European Business Aviation Association (EBAA) secretary-general, Athar Husain Khan, said: "We have an opportunity to rebuild better by reducing air transport emissions in the most cost-efficient way. Business aviation's continuous investments in sustainability, health and safety, are the new normal."

■ At the time of going to press, plans were still going ahead for the 2020 MEBA Show to take place in Dubai on December 8-10. Alnaqbi said the organisers were continuing to monitor the situation.








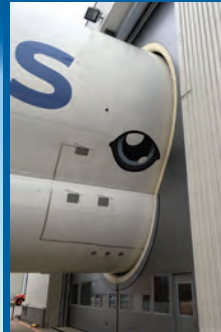


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MENA'S CLASS OF 2020

*Coronavirus notwithstanding, the aviation and defence industries will need pilots, engineers and aircrew for generations to come – and the MENA region is the place to get them trained. In this special spotlight feature, **Jill Stockbridge and Dave Calderwood**, supported by **Vincent Chappard, Marcelle Nethersole and Steve Knight**, have been looking at a number of the facilities involved.*



Hands-on experience: Students train in the Cirrus SR22 flight simulator.

Opening the door to the future

Two years after it first opened, Emirates Flight Training Academy (EFTA) at Dubai South is looking forward to reopening when given the go-ahead.

“We closed EFTA in March based on the Dubai Government’s direction and to ensure the health and safety of our students, employees and other stakeholders,” said a spokesperson.

“Even though the academy is closed, we are maintaining and following all health and safety protocols set by the Dubai Health Authority. Internally, we have set enhanced procedures, new policies and norms for when we reopen to students.”

EFTA is a world-class facility on 184,000sqm of grounds. The academy has its own runway, air traffic control tower, and maintenance centre. It operates a fleet of Cirrus SR22 piston-

engine aircraft and Embraer Phenom 100EV jets.

EFTA quickly ramped up the training of new cadet pilots after its opening in 2017.

By the end of 2019, it had 252 students, including 11 female cadets, all drawn from seven nationalities. It’s now on its 17th intake of new students, with the initial intake of cadets due to have qualified in March 2020.



Captain Abdulla Al Hammadi, vice president of the academy, said: “It is an extremely fruitful and rewarding journey as we continue on this path of providing world-class aviation training.

“We have crossed several key milestones in these two years in terms of cadet progression, new partnerships,

taking delivery of our full fleet of aircraft, inducting advanced technology, and building up our facilities.

“We are looking to attract and train young and keen talent, who will become career-ready after graduation and help address the regional and global shortage of skilled commercial pilots.”

EFTA recently received its sixth mini full-motion flight simulation training device. These are the first of their kind in the global aviation industry and are modelled on the two aircraft types in its fleet.

In 2019, 27 cadets completed their first solo flights on the Cirrus SR22 and have clocked up a collective 3,671 hours and 19 minutes of flying. Each cadet is required to complete a total of 185 hours flying aircraft.

The first female cadet to fly solo, Latifa Al Mansoori, took to the skies in September. ■



MROs FOCUS ON THE ENGINEERS OF TOMORROW

The worldwide shortage of aircraft engineers and technicians is still apparent, despite the reduction of flight hours during the pandemic.

But aviation will return and there are extra tasks to perform, some of which may require checking and signing off by a licensed engineer.

Consequently, maintenance, repair and overhaul (MRO) organisations are not easing up on training and recruitment.

Ethihad Engineering, for example, is expanding its operations in aircraft maintenance and parking to meet the new requirements of airline operators with fleets grounded due to the Covid-19 pandemic.

Operators from around the world have worked closely with the company to bring forward maintenance work that was initially planned towards the end of the year.

Current projects involve the delivery of cabin uplift, passenger to freighter conversion, longeron modification, heavy maintenance (C-check), major structural modification, parking solutions, painting and deep cleaning of aircraft for both Ethihad

Airways and third-party airline customers.

Likewise, Emirates Engineering is busy looking after its fleet. Ahmed Safa, Emirates' divisional senior vice president engineering said: "We have a comprehensive aircraft parking and reactivation programme that strictly follows manufacturers' guidelines and maintenance manuals, and we have enhanced standards and protocols of our own.

"We also have the enviable challenge of a full wide-body fleet – 115 A380s and 155 B777s – and the most sophisticated systems and avionics in the industry. While a narrow-body aircraft only requires around 3-4 employees working for eight hours or so to cover it, our aircraft need 4-6 employees working a 12-hour shift. And, taking extra precautions while maintaining social distancing, adds its own interesting twist to the proceedings."

Of the 270 aircraft in its fleet, Emirates had initially parked and wrapped up 218 aircraft – 117 at Dubai World Central and 101 at Dubai International airport – that involved more than 15,500 hours of work. ■



Big job:
An Emirates engineer works on an aircraft undercarriage.

EAT SO HUNGRY FOR SUCCESS



In 2014, Etihad Airways purchased the fixed-wing section of Horizon Flight Academy and, after re-launching and rebranding, Etihad Aviation Training (EAT) became the first European Aviation Safety Agency (EASA) approved training organisation (ATO) in the UAE.

It is also approved by the General Civil Aviation Authority (GCAA) and is an EASA Part 147 maintenance training organisation.

With the acquisition of four twin-jet training aircraft, in 2017 EAT became the first aviation training academy in the world to use a jet aircraft in the initial step of flight-training.

Based at three locations in Abu Dhabi, EAT is now a commercially focused business open to external customers. It offers a wide range of courses, including airline training, type rating, cabin crew safety and service training, instructor training, cadet programmes and aircraft maintenance training.

The centre currently operates 11 full-flight simulators, including three Airbus A320s, one Airbus A330/A340, one Airbus A350, one Airbus A380, two Boeing 777s, and three Boeing 787-9 Dreamliner units.

The facility is expanding and will soon see the arrival of a new Airbus A320



fixed-based device, which will be available to third-party customers.

Additionally, EAT has 12 Airbus and Boeing fixed training devices and, at the flying school, four Phenom Embraer 100 jets, 10 Cessna 172s, six Diamond DA42s and two Extra 300LTs for upset recovery training.

It has also incorporated Etihad Airways Technical Training into its portfolio. This is a part 145 and 147 maintenance training organisation approved by the

James Collishaw:
“We have just secured our first North American customer and have ambitions to grow in North America, South America and Asia.”

Main picture:
An A350 training simulator.

GCAA, EASA, and the Jordanian Civil Aviation Regulatory Commission (JCARC), with dedicated Airbus A380 and Boeing 787 classrooms.

Boeing 787 maintenance training is carried out on Boeing’s state-of-the-art desktop simulator (DTS), while A380 training uses the Airbus competence trainer (ACT) system.

Having direct access to Etihad Engineering, the largest commercial aircraft maintenance, repair and overhaul (MRO) services provider in the Middle East, provides operational aircraft for practical training.

James Collishaw, head of business development, said: “EAT’s initial business was generated in the Middle East. However, we quickly started our European certification, which was awarded in 2018. That opened the door to the European airlines and has demonstrated steady growth since. We have just secured our first North American customer and have

Kuwait’s cost-effective high-speed programme

Founded in 2014, Kuwait Flight Academy claims to offer pilot qualification in less time and at less cost than similar schools in the region.

It does this by running intensive training programmes, offering its EASA Zero to ATPL (A) course, which is designed for students with little or no flying experience.

Trainees transition through the EASA private pilot licence, airline transportation pilot licence theory, night rating, instrument rating, multi-engine piston, and

commercial pilot licence. After successful completion of the course, students hold an EASA CPL(A) licence with ATPL(A) theory completed and are authorised to act as a co-pilot (first officer) on aircraft engaged in commercial air transportation.

KFA runs its programmes in the classroom and its Cessna 172 simulator.

Flight-training is undertaken with the partner school – the Egyptian Aviation Academy in Giza – or in Europe. ■



GOOD PILOT PROSPECTS ON THE HORIZON

Part of the Edge group, Horizon is the region's largest independent helicopter flight-training academy.

Its state-of-the-art facility in Al Ain, Abu Dhabi, operates an all-Bell fleet of 407, 429 and 505 helicopters, along with modern flight simulators, with courses designed for novices to experienced military pilots.

The region has seen a growth in demand for helicopter training, fuelled by the expected employability of pilots.

Hareb Thani Al Dhaheri, CEO Horizon, said: "A recent study by Boeing estimated a demand for 59,000 helicopter pilots worldwide through 2037. With increased defence spending and new uses for rotary aircraft, the industry is thriving, and more jobs are becoming available, from law enforcement and search-and-rescue operations, to offshore support and emergency medical services.

"With a great number of pilots retiring, trained helicopter pilots are almost guaranteed a job in this growing industry for the next 18 years."

The majority of the students at Horizon are sponsored by the military, but the school has seen the profile changing.

Al Dhaheri said: "We have a lot of youth cadets as students, but we also have international students and candidates from other GCC countries. Lately, we've noticed an influx of females breaking into this male-dominated industry in the region, and that trend is beginning to trickle down to Horizon. It is an exciting and welcome change."

The international-standard courses can be tailor-made to customer requirements. Both civil and military training is undertaken using simulators and on turbine glass cockpits, which offer the new pilot a wide range of operational skills.

The team also provides additional training in night vision goggles to help pilots navigate the difficulties of flying in the dark.

The academy's most recent addition to the training fleet are the Bell 505 helicopters. Al Dhaheri said: "The Bell 505s are configured for flight-training, fully equipped with an integrated glass cockpit that enables pilots to experience modern controls on a single-engine aircraft. The aircraft delivers exceptional visibility and has a high-tech flightdeck and adaptable cabin design, with advanced avionics enabling first-time pilots to fly with confidence." ■

EGYPTAIR READY TO RESTART WITH NEW SIMULATORS

EgyptAir Training Academy is poised to restart training and has been busy with brand new full-flight simulators.

The Cairo-based academy worked with L3Harris to install a new Reality Seven full-flight simulator for the new Airbus A320neo, and that's now up and running.

Soon to arrive, once the pandemic restrictions are lifted, is one of the world's first full-flight simulators for the Airbus A220-300, that's been especially designed and manufactured by FlightSafety International.

"The simulator has completed production and is awaiting customer testing once pandemic travel restrictions ease," said FlightSafety's Steve Phillips.

"Following testing, it will be installed at the EgyptAir Training Academy headquarters at Cairo International Airport. We expect that training will begin in the fourth quarter of 2020."

This is the first simulator FlightSafety has built for the Airbus A220-300. It's based on the company's FS1000 simulators, which are designed to enhance performance and reliability, and lower life-cycle costs compared to previous-generation devices.

They include FlightSafety's electric control loading and cueing technology, and a new multi-function instructor operating station that features an intuitive interface, scalable graphics, and large multi-touch displays.

"We are continuously looking to evolve, and ultimately enhance, our training academy by incorporating new technologies into our full range of training devices," said Captain Ahmed Adel, chairman and CEO of EgyptAir Holding Company. ■

ambitions to grow in North America, South America and Asia."

Etiha Airways, EAT's largest customer, has implemented an evidence-based training (EBT) recurrent training programme. All the EAT instructors are qualified to deliver this training, to the competencies required by pilots in order to operate safely, effectively and efficiently in a commercial air transport environment.

Collishaw said: "These competencies enable the effective management of the most relevant threats and errors – those which are based on evidence collected in operations and training. Fundamental to EBT is the concept of 'resilience'; the ability of crews to bounce back from an adverse situation and produce a safe outcome.

"EBT aims to improve pilots' resilience though developing the underlying competencies that assist in managing any situations they may face. Competency-based training is widely recognised as the future of the industry's training philosophy."

To compliment EBT, Etihad Airways has a competency-based ab-initio training programme known as multi-crew pilot license (MPL).

Collishaw said: "EAT has developed its state-of-the-art B787 MPL programme and also the next chapter in the development of our EBT offering. The B787 MPL will offer flexibility for the future. Accompanying our legacy A320 MPL programme, the EBT advances will continue to increase our safety margins.

"We plan to maintain the high-quality standard, but will attempt to increase the cost-efficiency of our training by incorporating new devices and programmes.

"Once approved by the relevant authorities, these will enable us to offer high-quality competency-based programmes to the wider aviation market at more commercially viable prices, allowing an overall increase in the effectiveness of training and safety." ■

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Farres Moneer: Big plans.

SAUDI AVIATION CLUB TO EXPAND

The Saudi Aviation Club (SAC), which is based at Thumamah Airport, near Riyadh, was expecting flight-training to restart following the coronavirus outbreak as *Arabian Aerospace* was going to press.

Club managing director, Farres Moneer, said all precautionary measures would be in place.

SAC provides flight-training for private pilots (PPL), sport pilots and instrument ratings.

Once things are back to the new normal, Moneer is planning to start training at two new locations – Madinah and Qassim – as part of the plan to roll out flight-training across the kingdom.

SAC was established in 2000 as an independent non-profit entity to promote aeronautical sciences and develop general aviation and airports in the kingdom.

Prince Sultan Bin Salman Bin Abdulaziz is the founder and chairman. ■

OxfordSaudia links up with US university

OxfordSaudia Flight Academy has launched an initiative for its pilot graduates to go on to a degree course with the renowned Embry-Riddle Aeronautical University in the US.

The academy, a joint venture between the Saudi National Company of Aviation (SNCA) and training company CAE, believes it is an intelligent way for graduate pilots to continue their aviation education should there be a shortage of jobs as they gain their licence.

“We signed a memorandum of understanding (MoU) with Embry-Riddle Aeronautical University’s Worldwide Campus for graduates to receive credit hours toward a degree,” said Captain Larry Wade, CEO of Oxford Saudia.

“It was important to choose a university partner capable of catering to all present and future students of our academy. We want only the best for our students, and the choice of university had to match our philosophy for selection of our training partners, staffing, and equipment.

“We are uncompromising in giving students and instructors training from institutions with a long history of providing the highest level of quality education, professional development, and academic experience. Embry-Riddle exceeds those requirements.”



Welcoming everyone: OxfordSaudia was set up in 2017 at King Fahad International Airport, Dammam.

Embry-Riddle offers a range of aviation degree courses, from the business of aviation to aircraft engineering, with everything in between.

OxfordSaudia was set up in 2017 at King Fahad International Airport, Dammam, with the aim of training students from across Saudi and the Middle East. It offers a complete zero to commercial pilot’s licence/air transport pilot licence (CPL/ATPL) course, with a foundation year before the full-time integrated course.

Unusually, it finishes with a type rating for

Captain Willem Marais: “We have used the time to prepare lots of improvements in our virtual flight-training capabilities.”



RABIGH WINGS TO REOPEN WITH

Saudi Arabia’s Rabigh Wings was expecting to reopen and be fully operational as *Arabian Aerospace* was going to press.

Captain Willem Marais, general manager of Rabigh Wings Aviation Academy (RWAA), said: “Like all aviation, we were brought to halt on March 20. No training was possible whatsoever.

“We have used the time to prepare lots of improvements in our virtual flight-training capabilities and will present them to the Saudi General Authority of Civil Aviation (GACA) for approval soon.

“Our operational staff also kept themselves busy with online courses, including International Air Transport Association (IATA) training in safety management systems (SMS),

quality management systems (QMS) and auditing.

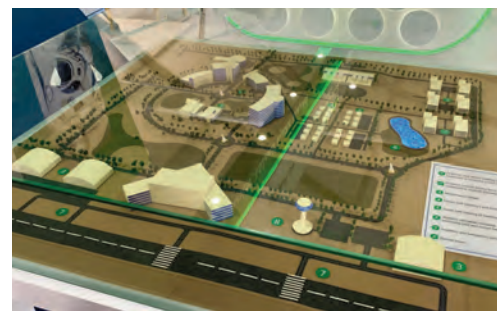
“Our aircraft were preserved as per manufacturer specifications and requirements and will now be brought back to full operational service.

“We are busy implementing full Covid-19 protocols and have taken all the required steps to adhere to the very strict guidelines as issued.”

RWAA will be setting strict measures to ensure safety for flight-training.

These include certified flying instructors (CFIs) being allocated one aircraft (tail number) that only he/she will fly for a 14-day period.

Cadets will be allocated to CFIs in groups of



Model facilities on display: The academy will support 1,650 trainees annually, including 1,200 in aircraft maintenance and 450 pilots.

BIG AMBITIONS FOR SAUDI'S TAYARAN

It's a little over a year since the National Aviation Academy of Saudi Arabia, also known as Tayaran, had its inauguration at its King Abdullah Economic City (KAEC) HQ.

On that day, Prince Sultan bin Salman, head of its board of trustees, said Tayaran had been established to train talented individuals pursuing careers in various aeronautical fields.

"The academy will strengthen the Saudi economy and the aviation industry," he said.

Tayaran has courses across the board. They include pilot training for both airline and helicopter operations, with most of the flight-training taking place at Thumamah Airport, which also hosts Tayaran drone pilot training.

Other courses include GACA 147 approved aircraft maintenance technician training.

Captain Mohammed Al-Subaie, Tayaran's general manager, said the academy would support 1,650 trainees annually, including 1,200 in aircraft maintenance and 450 pilots, making it one of the largest centres of its kind in the Middle East.

The academy has also signed a memorandum of understanding (MoU) with Emirates Flight Training Academy in Dubai to share expertise, jointly promote their training programmes, and exchange cadet pilots and aircraft maintenance technicians between the two academies.

"We accept sponsored applicants who pass our admission tests, regardless of their gender," said Al-Subaie. "In three years, the academy will accept students from around the world. Such an ambitious project will initially begin with around 5% of the total number of applicants.

"The academy is committed to utilising the best technologies and teaching internationally accredited programmes to prepare its members to become pioneers. It will provide job opportunities for young people who, Crown Prince Mohammed bin Salman has said, are our foremost resource."

Right now, to get courses moving again after the hiatus created by coronavirus, Tayaran is offering a 25% discount for cadet pilots on a self-funded course, and is also able to arrange interest-free loans for cadets through the Alinma Bank.

an Airbus A320 as part of the course, rather than the type rating being added on later.

Investment in the school has been strong, becoming a CAE authorised training centre and installing a CAE full-flight simulator for the A320, and ordering 60 single-engine and twin-engine aircraft from Diamond Aircraft for its training fleet.

All the aircraft were equipped with Jet A-burning Austro engines and Garmin G1000 NXi glass cockpits – plus, unusually, a flight data recorder for post-flight analysis.

Talking about the order, Anthony

Miller, director of global business development at OxfordSaudia, said: "It marks a new era of aviation training in the kingdom, which is well aligned with the kingdom's 2030 vision.

"SNCA is determined to provide the aviation industry with highly qualified male and female pilots who will be part of the development of our aviation industry and serve as an integral tool for development in the region. We have carefully selected Diamond aircraft because of their well-known reputation of safety and efficiency."

Captain Larry Wade:
"It was important to choose a university partner capable of catering to all present and future students of our academy."

IMPROVEMENTS TO VIRTUAL CAPABILITIES

four and training will be controlled in these cadet groups.

Classroom training will be limited to the minimum and virtual training will be investigated continuously.

Normal sanitation protocols have been implemented for all facilities, aircraft and simulator.

RWAA was Saudi Arabia's first aviation academy, set up to train new pilots from private to professional. Last year it started on a major upgrade to its fleet, accepting delivery of a second Tecnam P2006T twin-engine trainer.

"We firmly believe that with a Tecnam fleet we can reduce training costs dramatically and our aim is to complete a 240-hour multi-engine commercial pilot's licence (ME-CPL) in 14-16

months, which is in line with the worldwide market," said Marais.

"Currently, we teach private pilot licence (PPL), instrument rating (IR), multi-engine (ME) and commercial pilot's licence (CPL) as well as flight instructor rating.

"Facilities include three classrooms, a fully operational flight dispatch room (ops room), seven instructor cubicles, a crew resting facility, as well as adequate office space.

"In Jeddah, we have a fully operational fixed-base operation (FBO), which includes two classrooms, a marketing office, as well as administration and financial offices. As most of our clients are from Jeddah, the first 6-8 weeks of PPL ground-school are presented there."

Our operational staff also kept themselves busy with online courses.
CAPTAIN WILLEM MARAIS

EXTRA SIMULATOR SET TO EASE PRESSURE ON PSAA

The Prince Sultan Aviation Academy in Jeddah, Saudi Arabia, evolved from the Saudia Pilot Training Institute, which opened in 1959.

The current training facility was inaugurated in April 1979, as flight operations centre, designed to train Saudi Arabian Airlines staff.

The centre still focuses on Saudia, but also undertakes third-party training for other companies. It does not conduct ab initio training; focusing on pilot ratings and custom-designed training courses.

Captain Ismael S Alkoshy, managing director, said: "We welcome all persons, regardless of their gender, to our custom-designed training courses, which cover cabin crew, flight dispatchers, flight operations personnel and other skills training.

"We offer airlines in the region full-flight simulator training, as well as ground-training courses, either in PSAA facilities or online through distance learning and virtual classrooms. Courses include aircraft systems, procedures, performance, safety, human factors, crew resource management, safety management systems (SMS) and dangerous goods handling."

PSAA has broadened its range of training subjects and built a number of partnerships with reputable international organisations. It recently became an IATA regional training partner, as well as an ICAO associate member for the trainair plus programme.

The centre's two A320 full-flight simulators (FFSs) have been under pressure covering training

for Saudia, and offering Flyadeal, Flynas and Saudi Gulf slots – but only when available. This issue will be resolved when PSAA's recently purchased third A320 FFS is installed this summer.

Al Koshy said: "The increasing proportion of Saudi pilots in the Saudia and Flyadeal workforces – Saudia anticipates all its co-pilots being Saudi nationals within the next few years – means that this source of business is likely to increase. We are investing in new equipment to be able to support the additional demand."



He added: "When it opened, Prince Sultan Aviation Academy was the only place in the Middle East to offer commercial aviation training. Today, we have moved away from being a training centre for Saudia, to a strategic business unit of the Saudi Arabian Airlines Corporation. The government's goal is to have us offer the highest level of training possible, with a focus on safety and quality.

"As we look back, a great amount of progress has been achieved. As part of our considerable investments in technology, we have developed our distance-learning programme to support our customers by lowering their training costs. This newly approved training methodology decreases the number of people physically attending training courses."



PIONEER KEEPS ESAT AND AFA ON THE CUTTING EDGE

Tunisia's high-level training institutes are constantly updating their programmes to adjust to the growing need of the aeronautics sector. Based in Tunis Carthage, the University College of Aviation & Technologies (ESAT) is the only private tertiary institution offering an integrated and pluri-disciplinary programme in aeronautics and technology, including an e-learning platform.

ESAT, which was set up in 2003, is part of the group founded by Abderrazek Ben Amara, who joined Tunisair as a pilot after his studies in Switzerland.

A training pioneer, he had previously set up the Airline Flight Academy (AFA) in 1998.

Since then, the AFA has been providing airlines and aerospace companies with pilots (more than 400) and mechanics (600) using tailor-made theoretical and practical courses.

"It's essential to constantly adapt to technological evolution," said Captain Ben Amara, who has enjoyed the full support of his wife, Amen.

She was heavily involved in the venture from its inception. "I shared the passion of my husband by accompanying every student on the journey to knowledge and know-how," she said.

The captain and his team of instructors continue to train young Tunisians and Africans on three modern Airbus and Boeing simulators. The university is also awaiting an Embraer simulator.

ESAT is an International Civil Aviation Organization (ICAO) member. It offers recognised engineering courses in aeronautics, geomatics and topography, telecom and networking, computers and programming. New courses are being added, like on-board systems.

Dual degrees in aeronautical engineering benefit from partnerships with foreign universities or specialised institutes in Belgium, Canada, China, France, Germany, India, the UK and the USA.

Students benefit from scholarships and internships locally and abroad, in places like South Korea, to get professional experience while progressing in their curriculum.

Aicha Ben Amara, who took over as ESAT managing director from her mother in 2016, said: "We aim at excellence and innovation through an holistic approach. Human development, gender equality, leadership ability, language skills, and international experience are key elements of our training and education

programme. Around 90% of our aeronautics students get a job after their degree.

"I learnt the basics from my mother. I observed the daily functioning of students, the administration and teaching team," she continued. "I added my personal touch through immersion projects to enable our students to meet industry professionals. I wanted more student participation and interaction with the community."

Thus, an aeroclub, scientific and cultural clubs, and communication platforms, like Tunivision, were launched to foster interaction, curiosity, awareness, communication, and personal skills.

However, Captain Ben Amara believes more must be done: "African countries must join hands to set up a common specialised training centre. We need integrated pathways for human resource and skills development. Governments, too, must invest in training and research to build a scientific culture," he stressed.

The group's development plan includes the setting up of a new common campus in Tunis for AFA and ESAT to welcome more African students.

African countries must join hands to set up a common specialised training centre.
CAPTAIN BEN AMARA



Practice makes perfect: The PSAA has a large practical area.

PICTURE PSAA.

Wide-ranging return for L3Harris

For a huge company like L3Harris with so many areas of business, picking up when Covid-19 restrictions ease will be complicated.

The company's commercial training solutions division is involved in pilot training for both civilian and military operators, the supply of flight simulators and much more.

Pilot training is an ongoing necessity, for both new pilots and recurrent training of existing air crew. Before Covid-19, L3Harris was working with Oman Air and Qatar Airways training cadet pilots on a 19-month multi-crew pilot licence (MPL) course, which took them from zero hours up to a qualified co-pilot on a specific aircraft.

The first female commercial airline pilot of Saudi Arabia, Yasmeen Al Maimani, trained with an L3Harris company, Aerosim, and is now flying with a Saudi airline. Yasmeen said: "In recent years, Saudi Arabia has made strides towards granting women equal rights through the Vision 2030 programme, as well as lifting a ban on driving. This allowed me to finally achieve my first job offer in February 2019 as a Nesma Airlines first officer flying the ATR 72-600."

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L3Harris is also reacting to the 'new norm' with the launch of its air transport pilot licence (ATPL) essentials programme for aspiring pilots who are not aligned to an airline.

ATPL essentials will take future pilots from anywhere in the world with little or no flying experience to frozen ATPL in 18-24 months.

Cadets who join the lower-cost ATPL essentials programme will be trained by the company's leading instructors at L3Harris' state-of-the-art facilities.

Other parts of the company are also swinging into action with a number of L3Harris devices being prepared for installation within the region.

These include an A320neo RealitySeven full-flight simulator for EgyptAir's Cairo training centre. The device was assembled and completed in-plant acceptance at L3Harris' London Training Centre in February 2020 and is now prepared for installation in Cairo.

GAA'S DECADE OF SUCCESS... WITH MUCH MORE TO COME

Originally part of Gulf Air, when Gulf Aviation Academy (GAA) launched as an independent aviation training facility in 2010, it became the first European Aviation Safety Agency (EASA) approved training organisation (ATO) outside Europe.

In that first year, the academy also gained EASA 147 approval for its engineering programmes and became a UK Civil Aviation Authority (CAA) cabin crew training organisation.

Ten years later, GAA offers a range of courses for pilots, cabin crew, ATC, engineering, security, airport operations and ground training, as well as management and maritime qualifications.

CEO, Captain Dhaffer Al Abbasi, said: "Massive investment has taken place since 2010. GAA invested more than \$80 million dollars in equipment and renovation of the facilities to ensure compliance with international standards. We have built confidence with regional bodies and are compliant with civil aviation authorities across the Gulf, including Kuwait, Saudi, the UAE and Oman.

"The initial investment was in three new full-flight simulators (FFS), which was later expanded to six, with one positioned in Amsterdam to complement the market for that specific Embraer aircraft.

"The classrooms were renovated and the facilities extended by 75%.

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"We have upgraded our engineering labs and incorporated augmented reality into our aircraft engineering training programme, provided through our collaboration with KLM training E&M's NUVEON project for the Boeing 787 and 777, in addition to Rolls-Royce and Pratt and Whitney aircraft engine programmes and various aircraft systems.

"Additionally, we have invested in a range of cabin crew training equipment to keep abreast of the latest aircraft technology, such as the Boeing 787 door trainer."

GAA has recently invested in a fourth A320 FFS in Bahrain to support A320 type rating for pilots, reflecting the influx of the aircraft to the region.

Around 25% of GAA's training programmes are devoted to Gulf Air, but other clients include European flag-carriers, private and business jets, military operators and airports.

The academy has seen major growth, particularly in ground and pilot training. Al Abbasi said: "Ground training has been steadily growing as all airport staff are obliged to pass a mandatory aviation security (AVSEC) training programme. The growth in pilot training is due to rapid airline expansion in the Middle East and Indian subcontinent."

The academy has seen a change in both age and gender in student demographics. Al Abbasi explained: "We noted an increase in younger people aspiring to be part of the aviation field, as well as more females. We welcome this change and believe it is essential to reflect equality and empower women to have a major role in all fields.

"A main driver for this change was the ability to have the training programmes based in Bahrain, as previously much of the training was provided abroad."

Early last year, GAA announced a partnership with CAA International.

Imposing: GAA has claimed a number of training 'firsts' at its facility in Bahrain.



Schools maintain Jordan's three spirit

Flight-training is well established in Jordan with three schools for potential aviation professionals – the Royal Jordanian Air Academy (RJAA), Jordan Airline Training & Simulation (JATS), and MidEast Aviation Academy.

One of the oldest in the Middle East, RJAA was originally established by the late King Hussein bin Talal to encourage young Jordanians into aviation. However, the scope grew and, as it celebrated its 52nd anniversary, the school had trained more than 10,000 students from 40 nationalities, both pilots and technicians.

Training takes place in 70 modern classrooms in the main campus in Amman Civil Airport – Marka, or at a second campus in the southern city of Aqaba.

The academy offers pilot training from private pilot licence (PPL) to air transport pilot licence (ATPL), as well as flight instructor, instrument rating instructor, aircraft dispatch, cabin crew training and maintenance training. It has a fleet of 23 aircraft, both single and multi-engine, as well as five simulators.

JATS is also a long-established academy that offers state-of-the-art simulator training.

It is equipped with full-flight sims for A310-300, A320-200 (three units) and ERJ Embraer 170/190.

Based at Queen Alia International Airport (QAIA) in Amman, JATS is a type rating training organisation (TRTO) for pilots, and is also approved to conduct cabin crew and aircraft maintenance part 147 training.

It is the only institute in the QAIA free zone that uses solar energy, with a system that provides 100% of its electrical daily consumption.

The instructors are all Jordanian, but the students come from a range of backgrounds. Engineer Fares Masarweh, general manager, said: "Approximately 30% of the students are from local operators and the remainder are foreign customers. Since we are a TRTO, most of our pilots come through operators. However, we have a good percentage of self-sponsored pilots, mainly from India and Libya, and with some from South Korea. Currently, less than 10% of our applicants are female pilots."

He has seen the industry changing in the last 40 years and feels that training organisations in the country face a challenging future. He said:

"There is greater competition in the region now due to the creation of many new approved training organisations (ATOs). Our courses have changed as we have developed new training materials and, most recently, added the distance and e-learning courses.

"However, demand is decreasing due to the smaller size of operators and the slow rate of attrition in pilots."

MidEast Aviation Academy can also be found at the Amman Marka International Airport. Established in 2000, the academy offers PPL, ATP, commercial pilot's licence (CPL), multi crew cooperation (MCC) and flight instructor courses, with additional emphasis on managing crew, interview technique, and soft skills.

The engineering school offers B1.1 aeroplane turbine, B2 avionics, and a range of short modular courses for budding technicians.

Pilot training is in two simulators, an Alsim Al-200, and a medium size jet simulator; the Alsim ALC (FNPT II MCC), plus a fleet of five Piper Archer PA28 and two Piper Seneca PA34 aircraft. It is conducted by Jordanian instructors, who have air force or airline experience. ■

CREWS CONTROL FOR ALPHA'S CADETS...

Launched in 2008, Alpha Aviation Group is one of the largest and most-recognised providers of multi-crew pilot licences (MPLs) in the world.

Alpha specialises in airline training solutions, offering traditional cadet programmes, MPL, and type rating training, with approvals under several aviation authorities.

In February, the Sharjah-based Alpha Aviation Academy became an officially approved UAE General Civil Aviation Authority designated examination centre, authorised to schedule, book, and host air transport pilot licence (ATPL) and air law and operational procedures examinations for pilots who wish to convert or upgrade their licences.



More than 800 cadets from in excess of 70 countries have passed through the academy in the last 11 years.

Captain Nadhem AlHamad, general manager, said: "We have recently amended our age eligibility criteria, allowing us to cater to a more mature demographic (17-35 years old). This amendment has seen an increase in demand from individuals, who are already established in their work and are looking to upgrade or switch careers.



A moment in time: A selection of Alpha's cadets enjoy the 10th anniversary celebrations.

Furthermore, our number of female cadet pilots has doubled as a result of our commitment to gender parity and empowering women to achieve their piloting dreams."

The aviation environment has seen growth in the last decade, despite regional challenges, with the UAE maintaining a focus on aviation expansion and development. The academy has grown alongside the industry.

AlHamad said: "Since our 10th anniversary, we have moved to a new location and welcomed our 55th batch of cadets.

"Our new facility, located at the Air Arabia headquarters, is equipped with the latest advanced technologies that help create and foster an environment that is conducive to productive learning.

"We have also recently purchased a new A320 FNPT II MCC flight simulator that is aimed at further enhancing the cadets' training experience. Moreover, we have expanded our flight-training capabilities to Australia and southeast Asia.



"Internally, we have invested in our employees' continuous learning and development by partnering with an online learning platform to provide more than 2,500 courses on key soft skills and technical topics that are in line with the growth of our team. These changes have helped us win the training provider of the year award for two consecutive years – 2018 and 2019 – and we positively look forward to the next awarding ceremony this year."

Alpha has an ongoing partnership with Sharjah's low-cost airline, Air Arabia, which guarantees cadets flying hours on Airbus A320/A321neo, subject to the successful completion of line training. This is an exclusive partnership via a joint venture, making Alpha Aviation Academy UAE the carrier's official education arm.



Engineering success: MidEast Aviation Academy engineering school offers B1.1 aeroplane turbine, B2 avionics, and a range of short modular courses for budding technicians.

OMAN GEARS UP FOR 2022 LAUNCH

The region will have an additional facility in 2022, when the Oman Aviation Academy officially opens at Sohar International Airport.

The facility is a joint venture involving Airbus Helicopter, Oman National Investments Development Company, Al Hosn Investment Company, and the ministry of defence pension fund.

Although the facility itself is still under construction, the academy has already welcomed its first students, with the batches of pilot cadets currently undergoing the foundation training programme at Sultan Qaboos University (SQU) in Muscat.

The academy aims to become an approved training organisation (ATO) by the Public Authority for Civil Aviation of Oman (PACA) and the European Aviation Safety Agency (EASA).

It will accommodate 153 students at one time, when complete.

Partnered with CAE, the Sultan of Oman's Air Force, Oman Air and SQU, the academy will support customised pilot training for both civil and military aviation.



CAE will provide operating services to the academy, and also key elements for ab initio pilot training, including curriculum and courseware, as well as safety management and quality control systems. The flight instructors teaching at the facility will also be trained by CAE.

The fully integrated campus will offer state-of-the-art training technology, including a B737 MAX flight-training device from Netherlands-based MPS, which was expected to be delivered as *Arabian Aerospace* was going to press.

The device will have the latest version of MAX software installed and will also include advanced options, such as MPS instructorless training.

The facility, which includes 3,000sqm of aircraft hangar, in addition to 4,000sqm for students' housing, a tower and a taxiway, will exploit its location within Sohar International Airport to provide real-time training conditions for the cadets.

Flight-training will be undertaken in a fleet of Diamond Aircraft. The academy has signed a contract for six single-engine DA40 NGs and two twin-engine DA42-VIs – with an option to add 16 more.

CEO, Captain Abdullah Murad Al Bulushi, said: "Oman Aviation Academy is a new established ATO aiming to be one of the leading pilot training organisations in the region. We are highly focused on having the best team and the state-of-art-training devices to provide the highest training standards. Our vision is to make OAA the future hub for aviation training in the region."

SPATIAL USES PANDEMIC TO CATCH UP ON ORDERS

Cabin crew training simulator manufacturer, Spatial, has been busy working through the Covid-19 pandemic with its 'large' order backlog.

"We are fortunate, as we are busy at the moment manufacturing projects that came in before the pandemic, and we are continuing to work closely with our customers to deliver on that," said Marc Van den Broucq, managing director.

"We have also conducted a number of factory acceptances remotely over video links and these have gone quite seamlessly so far, but are by no means a full substitute for a proper hands-on test."

The Ras Al-Khaimah-based company manufactures everything from door trainers and virtual slide trainers, to cabin service trainers and cabin emergency evacuation trainers.

Its customers include Etihad Airways, Turkish Airlines, Pegasus Airlines, and Flydubai.

Van den Broucq said the company has been "pleasantly surprised" with new projects in the pipeline.

"A number of our clients are looking to procure new training devices," he said. "The approvals process for these is, however, understandably slower, given the critical challenges that most airlines are facing at the moment. Nevertheless, we remain very positive about the medium to long-term outlook for our industry."

Van den Broucq added: "The one constant that we hear from regulators in the cabin crew training space is that there is no real substitute for hands-on learning by using an actual aircraft or a door trainer. There has been great resistance in moving to a virtual training environment and, while we have heard anecdotally that some regulators have been willing to show some flexibility to accommodate temporary changes in how airlines conduct their recurrent training, we do not expect this flexibility to persist once a normal environment returns, as safety is a key area where regulators, understandably, do not compromise.

"The best way to continue training, therefore, does not involve any fundamental changes to the hardware itself, but rather the appropriate use of personal protective equipment (PPE), such as masks and gloves, during training."

Upon the successful completion of base training, cadets get a training contract with Air Arabia to build up their 1,500 hours and acquire an ATPL; this takes place as soon as the cadet receives his or her MPL.

AlHamad confirmed: "93% of our graduates are employed within one week of graduation with Air Arabia. The remaining 7% go on to work for other international airlines."

The academy continues to enhance its training capabilities, having this year partnered with international flight training provider, Fujairah Aviation Academy (FujAA), one of the largest training organisations in the region, to deliver the core flying phase of the academy's UAE pilot training programme.

This partnership will see batches of Alpha cadets undertake three months of the core flying phase of their pilot training programme at FujAA's campus in Fujairah, before they return to the Sharjah campus to commence the basic phase of the pilot training programme, which encompasses the transition from single pilot to multi-crew cooperation (MCC).

AlHamad added: "We have also recently expanded our training capabilities to southeast Asia and Australia and we are anticipating an expansion to south Asia soon."

Blazing a trail:
Fire simulation
is all part of the
training.

PICTURE: DYNAMIC
ADVANCED TRAINING.



DYNAMIC WAY TO CLEAR THE TRAINING BACKLOG

One problem facing everyone as coronavirus restrictions are lifted is operational currency for all aircrew – keeping vital skills up-to-date.

Yes, waivers have been issued by some authorities but, at some point, aircrew are going to need to return for ongoing proficiency training.

Dynamic Advanced Training, based at Dubai South in the Mohammed bin Rashid Aerospace Hub, is preparing for an influx of aircrew training.

This can cover all emergencies, from a hard landing to ditching on a stormy sea with injured, frail, or outside passengers.

Dynamic's cutting-edge facilities can even simulate a forced landing in a jungle or, at the other end of the scale, on a snow-covered freezing polar landscape.

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"As restrictions are eased or gradually lifted, aircrew must return to the training centres to fulfil the temporarily waived training requirements, taking into consideration both the limited capacities and the physical distancing requirements," said Dynamic operations director, Mark Kammer.

"Some air operators will find it challenging to cope with clearing the training backlog within the required periods. Outsourcing training may serve as an ideal opportunity to support air operators as they recover in a timely and cost-effective manner."

Dynamic Advanced Training is GCAA accredited and a one-stop-shop aircrew training centre with the space and capacity to help both small and large airline operators, for both commercial and business jets, to achieve and retain regulatory compliance.

Just as *Arabian Aerospace* was going to press, Dynamic Advanced Training received certification from the UAE's General Civil Aviation Authority (GCAA) as an approved cabin crew training organisation. ■

UNIVERSITY CHALLENGE TO GROW THE INDUSTRY

The University of South Wales (USW) Dubai offers recognised British bachelor and masters courses in aerospace engineering, and multi-accredited postgraduate courses in aerospace engineering, business and management, and cyber security. *Professor Paul Harrison, pro vice-chancellor innovation and engagement, and executive lead for USW Dubai, believes the college has a vital role to play in the growth of the aviation industry in the region.*



Airbus has predicted the need for more than 32,000 aircraft globally over the next 20 years – with in excess of 50% for the MENA and Asia regions.

This is highly likely to result in a significant shortfall in skills across all roles within the industry, particularly engineers and pilots.

In addition, the International Information System Security Certification Consortium estimates that there are currently 4.07 million cyber security jobs unfilled. Many of these are relevant to the aviation industry, including secure systems, systems monitoring, information governance, and security by design.

In terms of supply chain expertise, there is a definite shortage globally, with skills gaps throughout, from drivers and vehicle technicians, through to procurement and supply chain professionals. There is a strong drive to make it a more inclusive industry, and we hope that this will bear fruit in the not too distant future.

USW is addressing the need for aircraft maintenance engineers, aeronautical engineers, cyber security specialists and logistics experts, through its facility in Dubai. Our aircraft maintenance engineering programmes have been

growing strongly since our entry to market in 2018.

USW has now launched a range of programmes, including BEng (Hons) aeronautical engineering, BEng (Hons) MSc aviation engineering and management, and MSc strategic procurement management.

The new offerings serve to support the existing BSc (Hons) aircraft maintenance engineering degree with integrated European Aviation Safety Agency/General Civil Aviation Authority (EASA/GCAA) training, MSc international logistics and supply chain management degree, and MSc cyber security degree.

We also offer top-up degrees and foundation courses, through which a student can gain the right qualifications to move on to the degree programme.

Our students benefit from the campus' location next to Al Maktoum International Airport and the Mohammed bin Rashid Aerospace Hub, as well as the state-of-the-art learning and teaching space, which includes an EASA/GCAA-accredited workshop with an aircraft, and CFM56-3 jet engine, as well as mechanical principles laboratories and soundproofed maintenance areas.

• The university has worked hard to develop strong links to industry. •

ON-THE-JOB LEARNING A BIG

Set on the apron of Al Bateen Executive Airport in Abu Dhabi, the Gulf Centre for Aviation Studies (GCAS) offers a portfolio of more than 300 courses.

As part of Abu Dhabi Airports (ADA), operator of five major airports in the emirate, GCAS is one of the few aviation training centres located in an operational airport, providing students with a unique on-the-job learning experience.

It is also the world's first International Civil Aviation Organisation (ICAO) Trainair-plus training member; a fully certified and endorsed aviation training institution by the General Civil Aviation Authority (GCAA) of the UAE and is accredited by the Abu Dhabi Centre for Technical and Vocational Education and Training (ACTVET).

GCAS general manager, Zamzam

Alhammadi, has seen training requirements for staff change since the centre opened in 2009. She said: "There has been an increasing demand for air travel, boosting the need for sector-specialised and trained staff, and the use of automated services and technologically advanced systems in aviation has increased over the past decade.

"This is particularly relevant for airport staff, with the widespread implementation of technology in all aspects of operations. These new technological solutions not only require upskilling, but also change the very nature of aviation-focused customer service and operations."

GCAS has developed a range of practical and applied learning training programmes to meet the future needs of the industry. Alhammadi said: "We have broadened our



Zamzam Alhammadi.



Engineering the future: USW has a CFM56-3 jet engine on campus.

Dedicated laboratory space for IT and electronic practical tasks and avionics systems provide hands-on practical experience for students, and composite-based equipment to produce sample materials.

The university has worked hard to develop strong links to industry. It is important to provide an integrated solution to education and training to ensure employment-ready graduates, and we have always valued the role of industry in the delivery of our higher education, to give students the chance to learn from industry-leading experts in the field.

It is standard practice for us, as a university, to have industrial advisory boards for our professionally accredited programmes. These links with industry enable us to keep our courses modern, relevant, forward-looking, and ensure that our graduates are ready to hit the

ground running when they join business and industry.

As the city expands, we will build on our strong relationships so that other courses developed in South Wales can be made available to global organisations in the region. Airport engineering maintenance, airport security and air traffic control, are some of the areas being explored.

Dubai South's journey to become the world's major aviation hub is well under way, and USW Dubai is strategically located right on the doorstep of the world's largest airport. This provides our students with a combined experience of academic rigour and hands-on training in an ideal setting, and gives them good opportunities to secure on-the-job training, internships and part-time work with potential employers in the blossoming local economy. ■

PLUS FOR GCAS STUDENTS

portfolio. We now offer on-demand blended training, which combines the best elements of online learning, classroom, on-the-job and micro learning. Our students range from new joiners to those with many years of aviation experience, hailing from all over the world."

The centre is working to provide the skill sets that will be in demand over the next five to 10 years. Alhammedi explained: "According to the International Air Transport Association (IATA) aviation human resources report, training and development will play a vital role. From ensuring that a career in aviation is appealing to millennial workforces, to upskilling and retaining existing talent, training and development is more important than ever.

"Customer service takes on particular significance as automation and digitisation

will redefine its scope and change the job description and skills required."

The centre has developed partnerships with companies and organisations in the industry, including the Airport Council International (ACI), IATA and ICAO. Alhammedi said: "GCAS works closely with the industry and partners to ensure aviation best practice. One example is the ICAO's next generation of aviation professionals (NGAP) initiative. The vision is for a global aviation community that has sufficient competent human resources to support a safe, secure and sustainable air transportation system.

"We believe this initiative will go a long way in attracting a new generation of bright students to the aviation sector, especially in the UAE, as the aviation market continues to grow and thrive." ■

E-LEARNING ROUND-UP

POTENTIAL PILOTS ARE FLYING TO THIS SITE

AviationFly.com, the online pilot training directory, might well become the first stop for anyone considering a flying career.

Launched late last year, the website aims to connect the stakeholders of the pilot training eco-system – potential pilots, airlines, flight schools, and flight school suppliers.

For the potential pilots it is simple. In languages from Albanian to Zulu, the site offers contacts for and information about more than 350 flight school and simulator training centres in Africa, Asia and the Middle East, as well as more than 50 country-specific 'how to become a pilot' guides. An interactive assistant will also provide help and advice, as part of the free consultancy services for those who register.

The site is currently receiving 21,000 hits per month from more than 200 countries and registering 1,000 aspiring pilots monthly.

As well as offering free support to airlines for ab initio training, in June the platform launched a flight school suppliers directory, giving academies a resource for training aircraft, flight sims, ground school, management software and other essentials.

LOCKHEED MARTIN TAKES THE ONLINE ROUTE

Lockheed Martin is running its annual summer internship programme for UAE university students on a virtual platform to comply with distance-learning measures aimed at containing the spread of Covid-19.

Lockheed Martin's Center for Innovation and Security Solutions (CISS), based in Masdar City in Abu Dhabi, has hosted the merit-based programme every year since 2017, and took the initiative online this year as part of its commitment to advance human capital development in the UAE.

Top-performing Emirati and UAE-based university students pursuing degrees in science, technology, engineering, and mathematics (STEM) fields were invited to apply to join the three-month programme.

As part of the internship programme for 2020, up to 15 students worked remotely under the guidance of Lockheed Martin's engineers and chief scientists on real-world projects that will have a positive impact on the UAE's aerospace and defence industry.

Students received specialist training in fields related to artificial intelligence development, unmanned aerial vehicle design, defence simulation exercises, business administration skills, and IT systems management.

VIRTUAL ENGINEERING INTERNSHIPS

A new and innovative way to teach engineering has just started in the UAE. The first 22 engineering students have just begun a virtual engineering internship developed by CAE and the Tawazun Economic Council.

The internship was originally meant to be conventionally taught but Covid-19 put paid to that. The engineering students currently attend universities such as Khalifa University (KU), UAE University (UAEU), Higher College of Technology and Abu Dhabi Polytechnic (ADPoly).

The virtual engineering internship is an eight-week programme with each week focusing on a different module, including several related to business strategy and how engineering plays a role.

FREE E-LEARNING TO COMBAT THE VIRUS

National Aviation Services (NAS), a leading aviation services provider, is sponsoring a free e-learning course titled Covid-19: defeating the crisis and evolving as a leader, on the online training platform www.academy.aero.

The course, specially designed for aviation professionals, is the first ground-handling industry course to be made public by NAS.

NAS is offering this course free for up to 100,000 professionals from the aviation industry. It is available in English, French and Portuguese.

Comprising four modules, the course covers an overall awareness of the current pandemic, its effects on the aviation industry, the role of the aviation industry in mitigating its effects, and tips on how to deal with the situation. A certificate of completion will be awarded at the end of the training. ■

As the airline industry begins to emerge from its Covid-19 hibernation, airports are going to be very different places for the foreseeable future. Alan Dron reports.

Big changes on the way in the post-Covid world



The new normal: Thermal screening and social distancing has been put in place at Abu Dhabi International Airport.

Some people enjoy airports, most do not. For everyone, however, the next few months – perhaps years – will bring big changes as they navigate from terminal entrance to boarding gate.

Be prepared for longer queues at check-in, security, and passport control, and for greater use of automation, including self-bag-drop and biometric identification techniques, to cut down on the handling of passports.

Those changes may test passengers' patience, as Dubai Airports' CEO, Paul Griffiths, told Bloomberg news agency at the height of the pandemic: "Going through an airport, the whole travel experience, will be as enjoyable as open-heart surgery."

Perhaps acknowledging that passengers and staff will only put up with the irritation of wearing masks and (in the case of staff) cumbersome personal protective equipment (PPE) for a certain amount of time, Griffiths added that these new measures could only be short-term solutions to minimise the chance of infection at airports until a new coronavirus vaccine is distributed globally.

Airports throughout the Gulf have put in place a range of measures to help prevent the spread of the virus and – importantly – give potential passengers confidence that they can travel safely again.

Emergencies often encourage the emergence of new technologies. Abu Dhabi Airports, for example, has partnered with Tawazun Strategic Development Fund to launch the new CoDi BOT unmanned ground vehicle (UGV).

The CoDi BOT, designed and built by UAE-based Marakeb Technologies, is a multi-purpose cleaning vehicle.

It uses bursts of ultraviolet rays to sterilise hard surfaces, screens people through thermal infrared monitoring, and also disinfects areas with liquid cleaning agents. It was being trialled in the airport terminal, cargo and staff areas from May.

The UGV is remotely controlled, using real-time video and a high-speed data connection.

It is being operated alongside a range of what have become common preventative measures, including thermal screening, nasal swabbing, and polymerase chain reaction (PCR) testing, to detect anyone with the virus.

"Abu Dhabi International Airport has implemented a range of special measures across its cargo and passenger operations, including workforce cluster management, thermal imaging cameras at key transit areas, free Covid-19 tests for passengers and employees, and roster re-alignment," said Abu Dhabi Airports acting deputy chief operations officer, Waleed Salem Al Hemeiri.

Bahrain International Airport (BIA), meanwhile, has implemented all necessary health and safety measures to protect the wellbeing of passengers and staff.

Transferring operations

BIA is now in the final stages of transferring operations to the new passenger terminal building, a state-of-the-art facility that will enhance the travel experience and increase the airport's capacity to 14 million passengers a year. The existing terminal's capacity is four million.

"Since the start of the pandemic, Bahrain Airport Company (BAC) has implemented all the precautionary measures recommended by the authorities to ensure the health and safety of passengers and staff, and the protection of public health in the kingdom, and in support of the airport's role in facilitating repatriation flights," said BAC CEO, Mohamed Yousif Al Binfalah.

"With these additional measures in place, we are in a stronger position to fully resume operations safely and effectively.

"We are taking careful steps in collaboration with our partners to help get the kingdom's aviation sector up and running again through maintaining social distancing measures, implementing enhanced sanitisation and hygiene standards, thermal screening, and mandating PPE as key pillars to achieving this goal."

Like many aviation professionals, Al Binfalah believes that international harmonisation of new regulations will be important in encouraging passenger flows again.

"There's an opportunity for concerted efforts to be coordinated at a regional level to establish a set of mutually harmonised guidelines that will enable us to overcome our shared challenges during these unprecedented times, restore confidence and reimagine the travel experience again," he said.

With the right measures in place, hopefully Paul Griffiths' predictions of open-heart surgery will be downgraded to a minor procedure. ■



Mohamed Yousif Al Binfalah: "With these additional measures in place, we are in a stronger position to fully resume operations safely and effectively."



Cleaning up: Honeywell's ultraviolet cleaning system can treat an aircraft cabin in less than 10 minutes.

INDUSTRY SEES THE LIGHT ON PROTECTION

Technology has a key part to play in the airline industry's fight to win passengers back in a post Covid-19 environment.

Steve Nichols reports.

Most experts agree, to regain passenger confidence, the aviation industry is going to have to use technologies including touchless biometrics, improved communications, e-commerce, and digital health passports, to future-proof operations.

In a recent webinar, Barbara Dalibard, CEO of multinational information technology company, SITA, said: "Covid-19 has had a huge impact – something we have never seen before."

She said the future of the airline industry will be driven by cost reduction and doing more for less.

"I think the safest way to ensure that passengers don't have to touch anything is with mobile technology," Dalibard said. "This will start with check-in, using bag drops and bar codes with your mobile device, and going through to boarding."

Building passenger trust

SITA says the goal should be about building passenger trust by making travel safe, easy and contactless, and predicts we'll start seeing more check-ins outside of airports.

The more that passengers can do on their smartphones, the more confident they'll be about air travel.

Biometrics and digital identity management will be fundamental capabilities in this touchless journey. SITA says they will enable greater automation, accuracy, and efficiencies for both the air transport industry and its customers.

"This is a business where everyone has to collaborate – airports, airlines and government," Dalibard said.

A recent survey by Future Travel Experience (FTE), an online media, events and industry change leader, found that more than three-quarters of respondents (77.4%) expect to see increased adoption of "touchless" biometrics to verify passenger identity; 74.8% anticipate greater use of

self-service and automation for passenger processing; and 69.2% expect to see technology used to identify passengers displaying Covid-19 symptoms.

Rohit Talwar, CEO of professional foresight firm, Fast Future, said: "The challenge now is to encourage passengers to return to the skies by demonstrating how clean, safe, and consistent the flight experience is across the globe.

"The crisis has driven many to accelerate their innovation and digital transformation initiatives. Ideas that were once considered speculative, or 'nice to have', are moving to the top of the agenda.

"We are far too early in the transition from crisis to recovery to know exactly what will work. What is clear is that it will require a willingness to pursue rapid and focused innovation and technology experiments, to consider ideas that were previously deemed unthinkable, and a commitment to expand our horizons and learn fast."

Personalised boarding information

Extending the use of smartphones could see live, personalised boarding information sent direct to passengers via an app, SMS or e-mail.

A recent paper prepared by FTE agrees and says that biometric technology can help the industry deliver a seamless and touchless airport experience. It says efforts to enable offsite pre-enrolment for biometric processing, removing the need for passengers to enrol using a kiosk once they arrive at the airport, should be accelerated.

It says health or immunity passports are being explored in some countries but a global solution would require buy-in from multiple stakeholders, government agencies and health authorities.

The roll-out of biometric facial recognition technology would also enable a touchless passenger experience.

But what else can we expect to see?

The use of ultraviolet (UV) light within automatic tray recirculation systems and baggage is being examined.

Screening specialist, Smiths Detection, has announced the launch of ultraviolet light kits capable of destroying up to 99.9% of microorganisms on baggage trays.

Smiths said the UV-C lights are contained within a specially designed casing and pose no exposure risk to staff or passengers

Its global director aviation, Richard Thompson, said: "UV-C lights are a practical, straight-forward way that airports can help reduce the transmission of any bacteria or virus that might be on the surface of its trays, now and in the long-term."

Trials are under way at airports and the system is available immediately for installation with short lead times.

Also, Honeywell and Dimer are to bring an ultraviolet cleaning (UVC) system to airlines that can significantly reduce viruses and bacteria on cabin surfaces.

Honeywell says the system can treat an aircraft cabin in less than 10 minutes. ■

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A new look: Masks are now part of life in the Etihad Engineering hangars and shops.

MROs: What will be the new normal?

A 'new normal' for maintenance, repair and overhaul (MRO) is inevitable in the aftermath of Covid-19, but what exactly does that mean?

Chuck Grieve has been finding out.

Nobody needed a crystal ball to predict that most MRO business would drop as soon as aircraft stopped flying.

Analysts monitoring MRO have forecast a year-on-year drop in business of 60-75% in 2020, and little hope for a fast recovery as airlines delay maintenance, run down inventories, and opt to tear down grounded aircraft for spares.

Some observers, quoted by Reuters, suggested the impact would likely be deeper than originally thought, with a proper recovery not anticipated until 2025. In the words of Richard Aboulafia of Teal Group: "This is going to be a very brutal time for companies dependent upon aftermarket revenues."

David Doherty, head of sales for Etihad Engineering, said his "best guess" for a full MRO recovery was 30-36 months, with the different markets returning at their own pace.

MROs will be hit by a drop in man-hours as airlines turn to newer technologies, he said. "There's a big shift in where we see the market going. Older aircraft that require more man-hours will be put out to pasture earlier."

Short-haul is expected to recover faster than long-haul, he said, but MROs will still have to invest significantly for types such as the Boeing 787s and Airbus A350s that, he suggested, will be "the aircraft of choice for long-haul".

But opportunities emerge from crises. Fraser Currie, chief commercial officer of Joramco, said demand for Joramco's services had remained strong, although the type of work had changed.

Currie said little of the initial activity by airlines to park aircraft touched Joramco. However, he said, as airfields began ramping up, the Amman-based MRO saw "a massive surge in long-term storage options" as airlines moved aircraft from their home hubs to locations strategically suitable for a fast return to service.

For Airbus' Paul Oliver, the situation created an unexpected opportunity to bundle MRO. "In many cases, abrupt parking meant both aircraft and mechanics were co-located," he said. "This presents a rare chance to embody modifications in one shot, without having to compete with network planners for precious ground time, as is the case during so-called 'normal' times."

Emirates and Etihad Airways were among those airlines to capitalise on the situation – in Etihad's case using the grounding to refresh the cabins of its entire fleet of 96 aircraft.

This "opportunity amidst the crisis", in the words of Frederic Dupont, Etihad Engineering's vice-president technical sales and customer service, extended to cabin uplift, passenger-to-freighter (P2F) conversion, longeron modification, heavy maintenance, major structural modification, painting, and deep cleaning for Etihad Airways and third-party airline customers.

Down the road in Dubai, Ahmed Safa, Emirates' divisional senior vice-president engineering, said some scheduled heavy maintenance had gone ahead despite the pandemic.

Gradually restored services

With 218 of its 270-unit fleet parked at Dubai World Central and Dubai International Airport, Emirates was in a good position for reactivation as the airline gradually restored services in line with the easing of travel restrictions. "We need around four to five dedicated employees and at least 18-24 hours to put one of our aircraft back into service," Safa said.

The evolving situation forced airlines to think outside the box. Temporarily adapting passenger aircraft for cargo was one option adopted by many, including some Middle East carriers.

Lufthansa Technik was quick to offer supplemental type certificates (STCs) for all common types – including for the first time the A380 – on the back of what it said was strong interest.

Airbus subsidiary, Satair, meanwhile offered comprehensive parts kits for P2F conversions, with or without removing the seats, acknowledging this temporary solution to revenue and load factors "is not for everyone".

Joramco's Currie said there has been an "interesting" consequence of original equipment manufacturer-mandated extensions to maintenance planning document tasks. As some airlines took up that option to extend service intervals, others brought maintenance forward, fundamentally changing "this natural divide" between summer and winter seasons in the airframe MRO business and keeping demand buoyant.

"We're seeing that the winter season is not being affected at all," he said. "So it's going to be interesting. As far as the rest of 2020 and into Q1 of 2021 is concerned, we're confident. Then it'll just depend how quickly the fleet comes back, but we're feeling quite upbeat."

"Don't get me wrong; there is a new 'normal', and we have to right-size to meet that. But it's not been as drastic as it might have been."

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Marcelle Nethersole *speaks to Vice President, Airports & Airlines Sector Middle East, India & Africa at SITA.*

1

■ SITA is a multinational information technology company providing IT and telecommunication services to the air transport industry, so what new challenges has Covid-19 created?

This crisis has had a dramatic impact on the industry.

On the economic front, demand will be slow to recover, placing significant pressure on margins. This is already driving a focus on cost-containment.

Any recovery will also depend on re-establishing the confidence of passengers, while addressing new requirements to ensure the health of travellers and employees alike.

Technology will be vital. First, it is about ensuring customers can quickly become compliant with new and fast-changing regulations. New preventive measures aimed at limiting risk in the airport and on board will require a new approach to passenger management.

Complementing basic hygiene measures, such as the use of masks and gloves, technology will, for example, enable low-touch solutions using mobile equipment and biometrics.

SITA is already enabling remote working for airports and airlines with our cloud-based contact centres. But, as operations resume, our airport management solution will meet the need for new efficiency and operational predictability at the airport, while the introduction of a more agile common-use platform, where airlines are able to provide a more mobile experience for passengers, will be key.

2

■ With reduced passenger numbers, has it made an environmental impact on the airports?

Of course, less business activity and restricted travel has positively reduced the impact on the environment worldwide across all industries. Historically low carbon emission rates have been registered globally.

However, as normal operations resume, these are artificial levels that cannot be sustained in the medium and longer term without firm action from airports and airlines. This is an area where collaboration between players and technology can play a key role in improving efficiency and, by extension, the environmental impact.

3

■ Why will 'smart technology' be needed for airlines to safely return to the skies?

Technology is fundamental in helping airlines and airports to be compliant with new and fast-changing regulations that will help restore passenger confidence.

New preventive measures aimed at limiting risk in the airport and on board the aircraft will require a changing approach to passenger management.

SITA has started rolling out new solutions that address the current challenges, focusing on three areas – distancing, hygiene and sanitation, and health checks.

With distancing, we can use real-time monitoring technologies, along with predictive analytics, to ensure appropriate space between passengers at key points across the airport. Predictive analytics will also support more proactive planning.

We can also look to use passengers' mobile technology, before they arrive at the terminal, to extend the boundaries of the airport, where key steps, such as check-in and bag drop, are managed.

With hygiene and sanitisation, we can use a combination of biometric and mobile solutions so passengers can avoid touching a kiosk or any other surface, managing their journey from the comfort of their own phones.

Also, with the addition of integrated health or thermal checks into key touchpoints, such as check-in kiosks, governments can leverage our risk-management solutions to be able to use pre-boarding checks.

4

■ What other technologies can you see becoming relevant in future airport terminal designs?

Experience shows that the more we can automate the passengers' journeys, the happier they are.

In a post-coronavirus world, this automation – whether it is biometric identity or using your mobile phone to manage your steps through the airport – has taken a new importance.

Our solutions allow the passenger to, for example, check-in a bag using a mobile device, manage a kiosk interface, or board an aircraft with just a face scan.

5

■ When can you envision a 'normal' return to service for both airlines and airports?

What is clear is that new hygiene requirements will become part of the fabric of travel and will remain in place for the foreseeable future. They will shape what will become the 'new normal' for travel. However, technology will play a key role in automating these processes and making them less intrusive.

6

■ What does a typical day hold for you?

Today, my entire team is working from home and my foremost objective is to stay connected with them, making sure they are safe all over the region.

Also, we are in close contact with all our customers, supporting them as they look to restart operations in compliance with the new health requirements and ensuring passengers feel safe and confident when they resume flying.





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