



# ARABIAN AEROSPACE

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

[www.timesaerospace.aero](http://www.timesaerospace.aero)

## IRAQ'S BRIDGE TO EUROPE

**AIRLINES STRIVE TO  
OVERTURN EASA BAN**

**- PAGE 17**



### AIR TRANSPORT

**KAM back  
in business  
with  
UAE help**

**PAGE 27**



### DEFENCE

**Turkey's  
'national  
survival  
project'**

**PAGE 44**

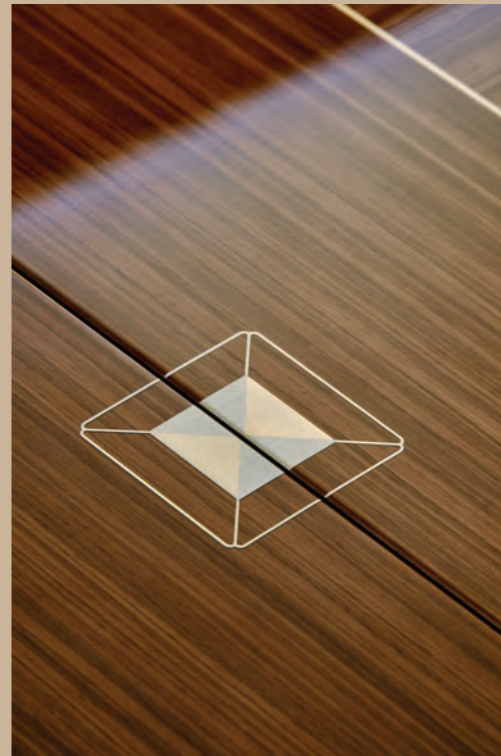


### TECHNOLOGY

**Could AI  
be in the  
driving  
seat?**

**PAGE 68**





THE PERFECT PLACE

FOR BUSINESS AIRCRAFT

AUCH • LONDON • BASEL • ZURICH • ISTANBUL • BODRUM • BEIRUT • RIYADH

**AMAC AEROSPACE**

[www.amacaerospace.com](http://www.amacaerospace.com)



Quiet the noise.  
Amplify the experience.

**BOSE A30 AVIATION HEADSET**

Less distraction. Less noise. Less pulling you away from the joys of flight. With unparalleled comfort and three selectable modes of active noise cancellation, the Bose A30 Aviation Headset enables flight the way it was intended.

**JOIN THE EXPERIENCE**  
BOSEAVIATION.AERO/A30

Published by



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

Website: [www.timesaerospace.aero](http://www.timesaerospace.aero)

**Publisher:**  
Mark Brown  
[mark.brown@timesaerospace.aero](mailto:mark.brown@timesaerospace.aero)

**Display Advertising:**  
Grant Lee  
[grant.lee@timesaerospace.aero](mailto:grant.lee@timesaerospace.aero)

**Circulation Dept:**  
Clare Brown  
[clare.brown@timesaerospace.aero](mailto:clare.brown@timesaerospace.aero)

**Editorial:**  
[news@timesaerospace.aero](mailto:news@timesaerospace.aero)

**Editor-in-chief:**  
Alan Peaford

**Deputy Editor:** Marcelle Nethersole  
[ella@aerocomm.aero](mailto:ella@aerocomm.aero)

**Consultant Editor:** Mark Pilling

**Editorial head office:**  
Aerocomm Ltd,  
Norths, Rectory Road, Orsett, Essex  
RM16 3JU UK.

**COVER:**  
Fly Baghdad  
Chief executive  
Basheer Al-Shabbani.  
PICTURE: FLY BAGHDAD.

**Advertisers**

AIME & MRO Middle East 2024	71
Airbus	16
AJW Group	62
AMAC Aerospace	IFC, 1
ArcosJet	77
Aviation India 2024	IBC
Aviation MENA 2024	73
Bahrain International Airshow 2024	36
Bestfly Flight Support	30, 31
Boeing	8
BOSE Aviation	2
CFM International	7
Chapman Freeborn Airchartering Limited	59
CTT Systems	24
Dassault Aviation	61
DC Aviation Al-Futtaim	56, 57
Egypt International Airshow 2024	52
Embraer Commercial Aviation	4
Embraer Defense & Security	39
FL Technics	67
Frequentis	20, 21
GE Aerospace	10, 11
Grob Aircraft SE	43
Jewels Doors Limited	29
JORAMCO	OBC
Kallman Worldwide, Inc.	41
L3Harris	19
LEONARDO	49
Lufthansa Consulting	55
MTU Maintenance	65
Rolls-Royce	14, 15
SAAB	47
Satcom Direct	69
Saudi Technic	26
SCYTALYS SA	74, 75
SES	13
SKYPLAN	50, 51
Times Aerospace TV	79
TF Aerospace	64
World Defense Show 2024	34, 35



**TIME TO SHOWCASE THE REGION'S PLAN**

**D**ubai Airshow was the first of the global aerospace events to reopen its doors after the pandemic. The 2021 edition was packed with industry leaders starved of face-to-face engagement as peers flocked to the UAE.

Anecdotally many leaders were surprised at what their regional vice presidents had been saying for years – this was the show to be at in order to reach the parts of the world that other shows cannot reach.

So 2021 was a triumph – but what lies in store for this year's event which takes place November 13-17?

Despite the geopolitical upheavals, Dubai remains one of the safest cities in the world and will be welcoming exhibitors and visitors from across the whole region of Middle East and Africa and beyond.

With the United Nation's annual global climate change conference, COP28, taking place in the UAE just after the show it is no surprise that the aerospace and defence companies will be taking the opportunity to showcase their latest solutions towards net zero emissions, and we expect new collaborations to be announced.

The major OEMs from engine makers to airframers will be in attendance. And no wonder. With all that is going on in the region with re-fleeting – or in the case of Saudi Arabia's latest start-up, new-fleeting – there will be plenty of innovation on display.

And when it comes to future transport, the future is now with the show having its own advanced air mobility (AAM) pavilion.

With the global market expected to be valued at \$16.81 billion in 2025, and reach \$110.02 billion in 2035, the rapid growth is seeing an influx of new inventive air freight and passenger transport solutions, along with new regulations, resources and infrastructure.

Dubai itself has confirmed air taxis will operate across the emirate by 2026. Saudi Arabia too is introducing the transport system with Volocopter as part of the Neom infrastructure.

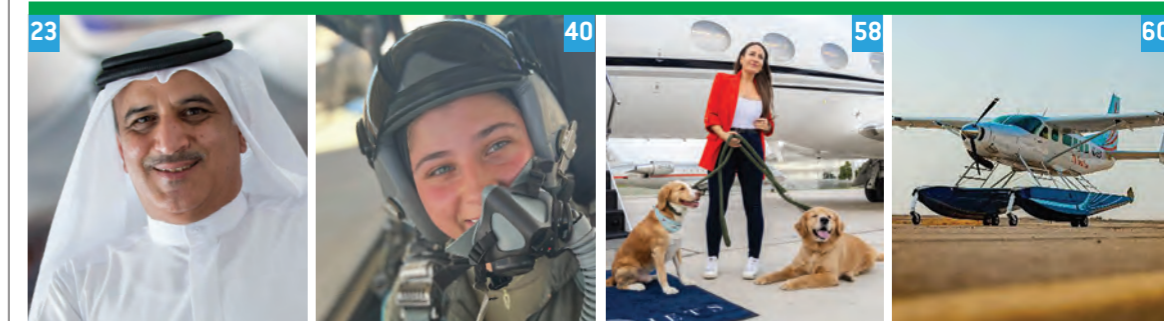
'The Future of the Aerospace Industry' is the theme of this year's show and we expect to see new ideas in the air as well as on the ground.

*Arabian Aerospace* will be at the show with our team of specialist journalists producing the award-winning daily newspaper "Show Business", which those not at the show will be able to read online each day. We will also be producing videos and online reports.

With conference sessions, networking and so much on display, I'm sure this year's event can even surpass the results of two years ago and showcase just why this region is so exciting.

See you there.

Alan Peaford, editor-in-chief



**05 Business brief:** Regional round-up

**▲ AIR TRANSPORT**

**17 COVER STORY:**

High flyer: Fly Baghdad CEO Basheer Al-Shabbani talks about the airline's plans for the future.

**22 On the up:** Iraqi Airways' fleet renewal programme.

**23 Waiting time:** Flydubai is being hit by new aircraft delays.

**25 Look east:** Kuwait Airways is following a new flightpath.

**27 Going places:** Kam Air CEO Jahed Azimi on the revival of the Afghanistan airline.

**29 Tourist de force:** Saudia on course to deliver its 2030 targets.

**32 Jumbo's back:** Why some of Etihad's Airbus A380s are returning to service.

**33: Round-up:** Bahrain and Saudi Arabia deal, and the issue of unruly passengers.

**▲ DEFENCE**

**37 Lightning strike:** Are PAC JF-17 Thunders headed for Iraq?

**38 Round-up:** Iraqi fighters, Isreal's Adirs, Lebanon female pilots, Qatar typhoons, Turkey's helicopters, Saudi tech deal.

**44 Kaan do:** Why is the Kaan Combat Aircraft so vital to Turkey's future?

**46 Looking sharp:** Edge is taking UAE drones to greater heights.

**48 Typhoon storm:** Delays continue for Saudi's new aircraft.

**▲ AIRPORTS**

**53 Opening time:** Abu Dhabi's long-awaited new terminal.

**54 Sharjah airport continues to grow.**

**▲ BUSINESS & GENERAL AVIATION**

**58 It's a dog life:** pets on board.

**60: Round-up:** UAM revolution and Saudi's seaplanes.

**▲ MRO**

**63 Weighting game:** Confusion reigns over future of freighter conversions.

**65 A giant LEAP:** Sanad engine deal.

**66 Tailor made:** A trio of niche suppliers.

**▲ TECHNOLOGY**

**68 Auto pilot:** How Artificial Intelligence can enhance the passenger experience.

**70 Wind break:** An end to turbulence?

**▲ REGULATION**

**72 Space setter:** UAE freeing up airspace.

**▲ MANUFACTURING**

**76 Round-up:** Boeing invests in future workforce; and Hexcel expansion.

**▲ SPACE**

**78 Mission statement:** UAE's next project.

**▲ PEOPLE**

**80 All in a day:** Mijdat Uludag – general manager at TCI Aircraft Interiors.



# Accelerate [Efficiency] Opportunity

**E2 Profit Hunter.** Commercial aviation is evolving rapidly and providing new and exciting opportunities. Delivering up to 25% reduction in fuel burn and the lowest level of carbon emissions, our E2 family of aircraft are enabling airlines to enter new markets and launch new routes, sustainably, profitably, and at speed.

embraercommercialaviation.com  
#AccelerateOpportunity #E2ProfitHunter



PICTURE: ZEROAVIA

## Masdar's hydrogen aviation fuel partnership

UAE's flagship renewable energy company, Masdar, and hydrogen-electric aircraft developer, ZeroAvia, have signed a partnership agreement. This is to explore hydrogen production and supply at key locations. The partnership with the UAE's flagship renewable energy company, Masdar, will focus initially on projects in North America and Europe, while also looking at the opportunity to establish clean flight operations in the UAE.

Masdar aims to be a global green hydrogen leader through a 'smart first mover' approach, by developing and investing in strategic projects and building scalable platforms in key markets. The company is targeting one million tonnes of green hydrogen production per year by 2030. The UAE aims to produce 1.4 million tonnes of hydrogen annually by 2031 and expects the figure to increase tenfold to 15 million by 2050.

## Archer's air taxi on target for UAE

Abu Dhabi Investment Office (ADIO) and Archer, along with other aviation industry leaders from across the region, will support the launch of Archer's all-electric air taxi service across the UAE, with Abu Dhabi being the launch partner by 2026.

Al Suwaidi, director general of the GCAA, said: "Our goal is to approve Archer's air taxi to fly in the UAE as soon as it is certified by the FAA, and we are very excited to collaborate with them to bring electric air taxis to the country."

## MRO agreement

DHL has renewed its aircraft MRO agreement with Joramco. The agreement will involve conducting nose-to-tail heavy maintenance checks on five Airbus A300 and one A350 freighter aircraft. The deal will commence in January 2024 and

continue until the following year. Joramco has been providing MRO services to DHL since 2017.

Fraser Currie, Joramco CEO, said: "This agreement not only strengthens our reputation as a leading aircraft maintenance provider but also showcases our competitiveness in the global market and a testament to our extensive experience in maintaining freighter aircraft and to deliver world-class MRO services."

## Turkish order

Turkish Airlines has ordered 10 additional Airbus A350-900 aircraft, taking its total for the type to 40. Christian Scherer, Airbus COO, said: "We are delighted that Turkish Airlines has decided to further enlarge its fleet with the purchase of 10 more A350-900 aircraft. With greater range capability, passenger capacity and comfort, the A350 is the perfect platform to connect Istanbul to the world. This

repeat order demonstrates the confidence for our unique new-generation aircraft that offers airlines unbeatable economics and efficiency."

## Egyptian event

The Egypt International Airshow is set to take place on September 2-5 2024 at the new El Alamein International Airport, El Dabaa, Matrouh Governorate.

The event will have key speakers from the fields of defence, military and air industries, space technology and aviation. Air marshal Mohamed Abbas Helmy, minister of civil aviation, said: "The Egyptian state's ongoing desire is to build bridges of cooperation and communication with all countries. This event presents an exceptional opportunity to explore and acknowledge the latest advancements in aircraft manufacturing and development achieved by renowned international manufacturers."



ON BOARD: Aamer Sheikh, PepsiCo Middle East CEO (left) and Essam Akhonbay, vice president of marketing and product management at Saudia. PICTURE: SAUDIA.

## Saudia signs recycling MoU with PepsiCo

Saudia and PepsiCo have signed an MoU that will collect recyclable material onboard Saudia flights and divert them from landfill, as part of a long-term sustainability plan. In partnership with Nadeera, a social enterprise that provides innovative, digitally-enabled solutions for solid waste management, Saudia and PepsiCo will collaborate to develop a strategy for collecting, recycling, and diverting recyclable waste from landfills onboard flights, in coordination with Saudia employees and partners. Essam Akhonbay, vice president of marketing and product management at Saudia, said: "The partnership with PepsiCo is one of our sustainable initiatives that shows Saudia's commitment to contributing to sustainability and is an effort to reduce our carbon footprint, particularly having launched several initiatives in the aviation industry and other sectors." Aamer Sheikh, PepsiCo Middle East CEO, added: "Through this partnership, we are committed to driving the circular economy in-line with the Kingdom's Vision 2030 and sustainability goals."

**Stream viewer**

Saudia has signed a partnership with Intigral, a digital entertainment provider in the MENA region, to stream their TV content on board its aircraft fleet.

The agreement will provide a variety of Saudi productions onboard to improve the visual experience of Saudia's guests, especially as in-flight entertainment programmes have become one of the key competitive factors among airlines.

**Pool programme**

Embraer has signed a multi-year contract with Royal Jordanian Airlines to support a total fleet of eight E190-E2 and E-195-E2 jets with the pool programme.

The agreement will provide support for a wide range of repairable components for the jets that will be added to Royal Jordanian's fleet. Currently, Embraer's Pool Programme supports more than 60 airlines worldwide.

**Pegasus' big leap**

Pegasus Airlines, the Istanbul-based low cost carrier is considering AOCs in other countries to expand its bases and grow its fleet from 100 to 170 aircraft over the next five years.

Speaking at Routes World in Istanbul, CEO Güliz Öztürk said the carrier could use its LCC experience in Turkey to set up airlines elsewhere.

"Our growth can be accelerated by looking at those opportunities," she said. "We set up a small airline in Kyrgyzstan, which we ran for about three or four years, so we know how to run a separate sister company. As long as those opportunities are there, we're ready to explore them."

"We're looking for more routes in Europe, in the Middle East and especially in the CIS countries," Öztürk said.



Emirates pays tribute to Emirati women in aviation. PICTURE: EMIRATES

**Emirati women pivotal to the UAE's aviation industry**

In August, Emirates paid tribute to the contributions of Emirati women in aviation. Women constitute nearly 40 per cent of the Emirates Group's Emirati workforce. With more than 180 women in leadership roles, they also hold decision-making power across a gamut of businesses and functions.

The Emirates Group provides mentorship and practical training programmes for Emirati female professionals, as well

as access to a host of development and leadership programmes including the Rolls-Royce leadership programme and GE aviation programme.

Emirati females in senior positions at the Emirates Group also have the opportunity to enrol in the INSEAD women leaders programme, which enables them to build powerful networks with female leaders from around the world.



Partners: Tobias Konik and Omar Hosari. PICTURE: UAS

**UAS to offer clients aviation tax and emissions solutions**

Global aviation solutions provider, UAS International Trip Support (UAS) and FCC Aviation (FCC) have entered a strategic partnership that will see UAS offer aviation taxation and emissions regulation advisory services to its global clientele of heads of state, VVIPs, Fortune Global 500 companies, and business jet operators.

"UAS is dedicated to revolutionising the flight experience and setting a new standard for sustainable aviation and committed to playing our part in the achievement of our industry's carbon-neutrality goals," said Omar Hosari, UAS co-founder and CEO.

Tobias Konik, FCC founder and CEO, said: Every year, we witness the introduction of new aviation tax schemes and amendments to existing aviation tax and emissions regulations, which pose significant challenges for airlines and business jet operators in terms of compliance. Consequently, we are thrilled to collaborate with UAS."

**Family practice**

Emirates and DXB say they are focused on improving the travel experience for neurodivergent passengers.

They now facilitate 'travel rehearsals' where children can practise their journey through the airport and onboard aircraft. They are also working directly with families.

Emirates has also been working closely with Dubai Airports to facilitate travel rehearsals for neurodiverse children, including students from the Mohammed bin Rashid Center for Special Education. The students are accompanied by family members and therapists through the airport and aircraft to simulate an authentic travel experience.

**Airport 'masterplan'**

Saudi Arabia has launched a 'masterplan' for the new Abha International Airport.

Planned to complete the first phase by 2028, compared to the current 10,500 square metres of the existing airport, this

expansion includes the construction of passenger boarding bridges, self-service facilities for streamlined travel procedures, and high-capacity parking facilities.

The airport's capacity will increase to accommodate more than 13 million passengers annually, a tenfold increase from the current 1.5 million capacity. It will also handle more than 90,000 flights per year, a significant increase from the current 30,000 flights. Additionally, the new airport will feature 20 gates, along with 41 check-in counters with seven new self-service check-ins.

**APEX award**

Qatar Airways group chief executive Akbar Al Baker has received the 'CEO lifetime achievement award' by the Airline Passenger Experience Association (APEX).

The award recognises industry leaders for their dedication, efforts and commitment to enhancing passenger experience.



**LEAP**

**LEAP turns heads in the boardroom.**

LEAP-powered aircraft are achieving the highest days flown ratio\* for their thrust class. That means fewer spare aircraft and more flights, which helps profitability climb. Another reason to say LEAP. By example. \*Compared to 83% for competition, per third-party data.

[cfmaeroengines.com](http://cfmaeroengines.com)

92% asset availability

**LEADERS  
AREN'T BORN.  
THEY'RE  
ENGINEERED.**



# Pursuing the next horizon

Through connecting people, places and ideas, together we strive to make the world a better place. **Learn more at [boeing.com/commercial](http://boeing.com/commercial)**



PICTURE: SAUDIA

## Saudia Technic upgrades first suites in Boeing B777 aircraft

Saudia Technic has initiated a project to enhance the first suites of its Boeing 777 aircraft fleet, designated for long-haul and direct Saudia flights.

The company upgraded the first suites of aircraft with plans to upgrade the remaining nine aircraft of the same model in the near future.

A team of Saudi engineers and cabin maintenance technicians at Saudia Technic led a collaborative initiative with Seat Air Systems to enhance the first suites.

Following the successful procurement and approval of all necessary materials, a state-of-the-art workshop has been established at the company's headquarters at King Abdulaziz International Airport, Jeddah.

The development was carried out under the supervision of inspectors from regulatory authorities who oversaw the issuance of required permits.

## 100th aircraft

Pegasus Airlines has taken delivery of its 100th aircraft, named Cumhuriyet ('Republic') in honour of the 100th anniversary of the Republic of Türkiye on October 29. Cumhuriyet is the ninth of the 16 new aircraft scheduled to join the Pegasus fleet in 2023, marking the 100th aircraft so far and the 75th aircraft to be delivered as part of the Airbus order signed in 2012, which through additional agreements over the years was extended to a total of 150 aircraft.

## MRO winner

MRO provider Joramco was named the Middle East and Africa 'MRO of the Year' by *Airline Economics* magazine in September.

Joramco's chief executive officer, Fraser Currie, said: "This achievement is a testament to our unwavering commitment to not just meeting – but surpassing – industry standards supported by our leadership from DAE Engineering as well as the services provided by every member of our team, our



Mohammad Abdelqader El Ramahi, chief green hydrogen officer, Masdar and Kuljit Ghata-Aura, president of Boeing Middle East, Turkiye and Africa, sign the MoU. PICTURE: BOEING

## Energy deal to accelerate SAF in the UAE

Abu Dhabi future-energy company Masdar is teaming up with Boeing to propel the sustainable aviation fuel (SAF) industry in the UAE and globally.

The partnership aims to further support the commercial aviation industry's goal of achieving net-zero emissions by 2050.

Together, Masdar and Boeing will advance and support the development and adoption of SAF policies in the UAE and beyond. The companies will also explore advancing SAF accounting principles, which could enable the SAF industry to overcome geographical barriers as it scales.

valued customers and our industry partners."

## CHOOOSE picked

Pegasus Airlines has entered a partnership with Norway-based climate tech company CHOOOSE. When travellers book a flight with Pegasus Airlines, they can visit [Flypgs.chooose](http://Flypgs.chooose) where they can estimate the carbon

impact of their flights and help address their travel emissions by supporting verified climate solutions.

Güliz Öztürk, CEO at Pegasus Airlines, said: "At Pegasus Airlines, we are very happy to have taken yet another stride towards sustainability. On climate action, we have committed to reach net zero carbon emissions by 2050."

## Paint role

Satys Aerospace has signed a new agreement with the Mohammed Bin Rashid Aerospace Hub (MBRAH) to build a new paint hangar at Dubai South – Al Maktoum International Airport (DWC). The new production facility, which will also accommodate a second paint booth, will address business aviation

markets and single-aisle commercial aviation markets. With a capacity of around 20 aircraft annually, the hangar will be operational in January 2025, bringing the number of aircraft paint bays operated by Satys to 39 in 13 countries.

## SAF success

Rolls-Royce has completed a series of tests using 100% SAF on its Pearl 15 and Pearl 10X business aviation engines. R-R sought to run a back-to-back engine test with both Jet A-1 and SAF on the same Pearl 10X engine to confirm further improvements in the environmental footprint when switching to SAF.

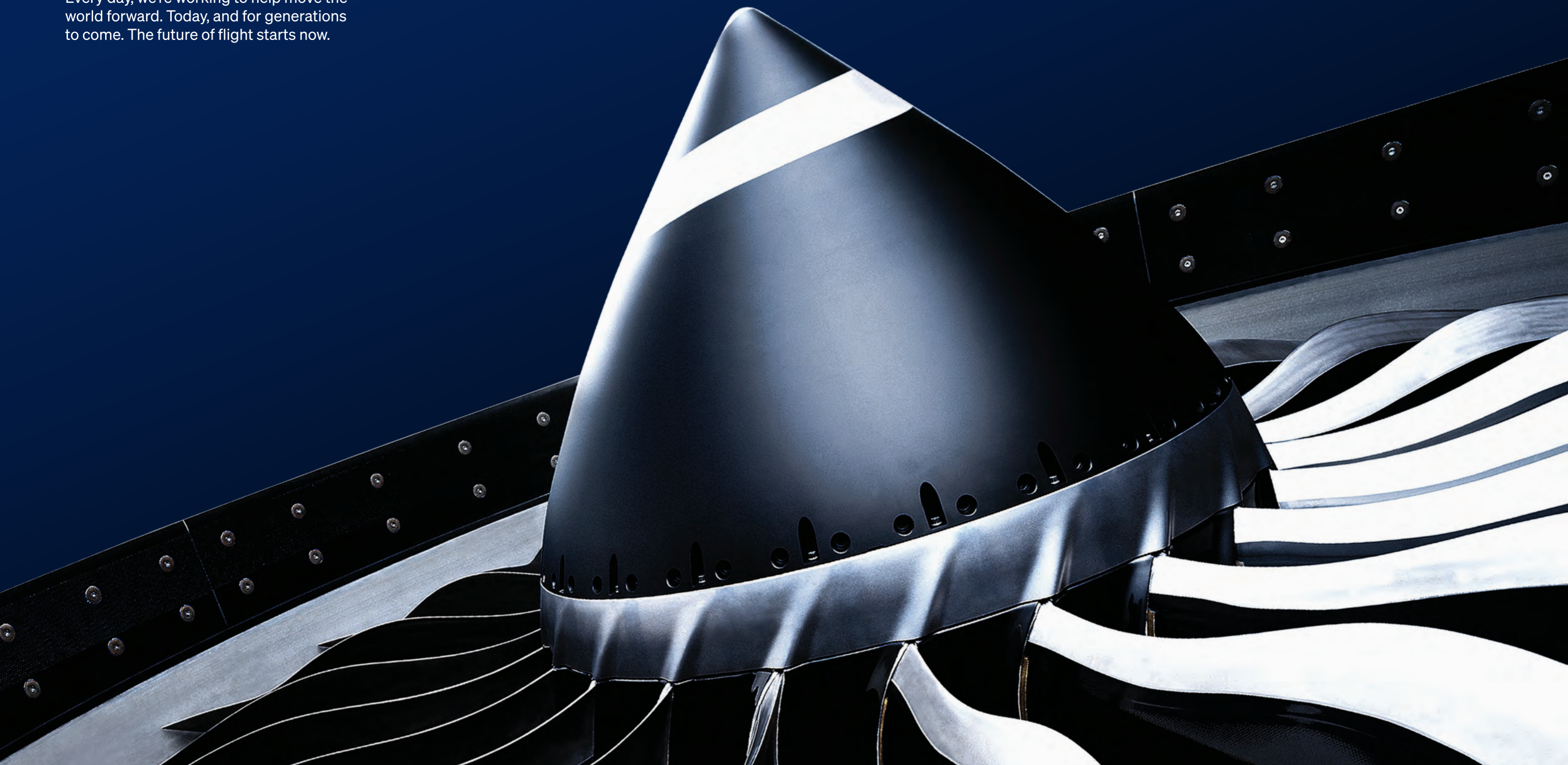
The tests, conducted with conventional fossil-based fuel and subsequently SAF, also confirmed a cleaner combustion of the sustainable fuel, with significantly lower levels of non-volatile particulate matter. In combination with the low NOx combustor technology of the Pearl 10X and its additive manufactured combustor tiles, a reduction of all emissions was achieved.

# The future is our starting point

Every day, we're working to help move the world forward. Today, and for generations to come. The future of flight starts now.



GE Aerospace



**Sustainability drive**

Oman Air has replaced the plastic used to wrap blankets and mattresses in its premium cabins with an eco-friendlier paper-based alternative, resulting in the reduction of up to 21.6 tonnes of plastic per year. The airline is continuing to work towards phasing out the use of single-use plastics on board.

Captain Nasser bin Ahmed Salmi, acting CEO, said: "We have successfully achieved another milestone in our sustainability efforts. This pivotal step aligns seamlessly with our corporate strategy to reduce waste and choose more environmentally-friendly products."

**Sustainable ware**

Jazeera Airways has introduced sustainable food service ware on all flights across its network of 64 destinations.

By changing from plastic cutlery to 100% biodegradable spoons, forks, knives and napkins, Jazeera reduces 300 kilograms of plastic on its flights each month.

The cutlery, manufactured by Dubai-based Palmade, is made from natural materials, including leaves of the date palm trees.

All of the materials are certified biodegradable and compostable. Earlier in the



**Phenom and Praetor complete SAF flight tests**

Embraer has successfully tested the Phenom 300E and Praetor 600 on 100% neat sustainable aviation fuel (SAF).

The tests, with one engine running on 100% SAF, were performed at Embraer's Melbourne facility and provided significant insight into systems' performance when utilising blends up to 100% SAF, which was provided by World Fuel.

The tests had collaboration of the engine and fuel system

suppliers Honeywell Aerospace, Parker, Pratt & Whitney Canada and Safran.

Michael Amalfitano, Embraer Executive Jets president and CEO, said: "This achievement is an important milestone in our journey towards net-zero emissions by 2050 and demonstrates our commitment to sustainability, our customers and our stakeholders."

year, Jazeera also switched from plastic stirrers to wooden ones as a part of its sustainable practices.

**RJ on target**

Royal Jordanian's reflecting, that will see the Amman airline increase from 30 to 45, will see a planned growth across the region.

CEO Samer Majali was speaking at the Routes International conference in Istanbul in October. He said the airline was on

target to break into profit this year. "We're cautiously optimistic," he said.

Majali said the introduction of the Embraer E195-E2 aircraft will play its part. "Hopefully Syria will come online in the future. Once the sanctions are off, we plan to expand our operation into Syria," Majali said. "We're also thinking about opening up Al-Ula in Saudi Arabia, which is a mirror image of

Petra in Jordan. With the tourism authority, we're working on doing tourism packages that cover Petra and Saudi Arabia.

"We have a mixture of very thin, very small routes and unique destinations, but Royal Jordanian already covers a huge amount of the globe."

**Extra link in the chain**

Etihad Cargo has boosted its cool chain capabilities in the US, expanding its

network with Worldwide Flight Services (WFS).

Etihad Cargo's customers will benefit from consistent end-to-end cargo services via the carrier's PharmaLife and FreshForward products in addition to the cargo handling facilities and services offered by WFS at Chicago O'Hare International Airport (ORD), John F. Kennedy International Airport (JFK) and Washington Dulles International Airport (IAD).

**Emirates expands collaboration with Neste for the supply of SAF**



Emirates and Neste will collaborate on the supply of more than three million gallons of blended Neste MY Sustainable Aviation Fuel in 2024 and 2025.

The SAF will be blended with conventional jet fuel, will be supplied over the course of 2024 and 2025 for Emirates' flights departing from Amsterdam Schiphol and Singapore Changi airports.

Emirates' expanded partnership with Neste represents the largest volume of SAF to be uplifted of any airline based in the Middle East and Africa to date. The blended SAF will be comprised of more than one million gallons of neat SAF. This represents a blended ratio of over 30% neat SAF combined with conventional Jet A-1 fuel.

Before the end of this year, the airline will also uplift SAF for the first time from its Dubai hub.



We're growing to keep you flying.

I believe in working with the best, but over my 10 years as CEO at SES, I've also come to appreciate the beauty and benefits of working with specialists.

Because SES are the CFM Specialist Lessor, with over 500 CFM engines strategically placed around the globe. It's a portfolio we're committed to growing, because we know that the more engines we have, the better equipped we'll be to keep you flying.

*Julie*

Julie Dickerson  
Chief Executive Officer

SES. The CFM Specialist Lessor  
[ses.ie](http://ses.ie)

SES  
Fly Certain





# CONNECTING THE WORLD THROUGH THE POWER OF TRENT

A family of engines revolutionising the way people connect. Rising to the challenge on us all, through continuous innovation.

By the end of 2023, we will have proven that all Trent engines are compatible with 100% SAF.

**#FlyNetZero #PowerOfTrent**

Search for: Power Of Trent

airbus.com f X @

PIONEERING  
SUSTAINABLE  
AEROSPACE  
FOR  
A  
SAFE AND  
UNITED WORLD



Through an unwavering commitment to decarbonisation, Airbus is pioneering sustainable aerospace for a safe and united world. Discover more about how our technological developments are shaping a brighter future for generations to come.

**AIRBUS**

As the only Iraqi member of IATA, Fly Baghdad plays an outsized role in connecting the Gulf state to the world. Chief executive Basheer Al-Shabbani tells **Martin Rivers** about the airline's plans for the future.

High hopes:  
Fly Baghdad  
aircraft set to soar.  
IMAGE: MAIK VOIGT



IMAGE: FLY BAGHDAD

## Baghdad's long haul to Europe

**B**ack in 2013, Saad Al-Khafaji, the then director general of Iraqi Airways, beamed from cheek to cheek while talking to *Arabian Aerospace* about the coming "tsunami" in Baghdad.

Unfortunately, the surge in tourism and business traffic predicted by Al-Khafaji never materialised – replaced, instead, by a brutal Daesh insurgency that would paralyse Iraq and the Middle East for years. The devastating fallout of that conflict continues to this day. But, with security now largely restored, hopes are rising once again that Baghdad will rehabilitate its image on the world stage.

And, while the flag-carrier has succeeded in doubling its fleet and rebuilding much of its pre-war network, it's the private sector that's arguably taken the biggest strides forward for civil aviation.

Fly Baghdad launched as a charter airline in 2014, hoping to share in the spoils of Iraq's economic growth after the overthrow of Saddam Hussein and the normalisation of bilateral ties around the world.

Continued  
on Page 18 ▶



▶ If we change our operation to network, I think we will have an opportunity to bring widebody aircraft. ▲  
**BASHEER AL-SHABBANI**

CONTINUED FROM PAGE 17

The airline was forced to suspend operations just two years later as its home nation teetered on the brink of civil war. But, even with Daesh holding onto territory in the north and perpetrating ever more deadly terror attacks, Fly Baghdad's owners sensed an opportunity to try again.

Prominent Iraqi businessman Ahmad Asad decided to reinvent the company as a scheduled airline – initially adopting a low-cost carrier business model – and flights resumed in February 2017.

Within 10 months, Iraqi troops had liberated the last remaining towns under Daesh control and prime minister Haider Al-Abadi had publicly declared victory over the terrorists.

The gamble, in other words, paid off.

"We are not, any more, a low-cost carrier," Basheer Al-Shabbani, Fly Baghdad's chief executive, said in an interview in June.

"The concept started as a low-cost carrier targeting people who cannot pay for luxury tickets.

"But, when I took over as CEO in 2018, I found the Iraqi people don't like the name 'low-cost'. They don't like having a ticket without having some extra service on board ... So now we are providing almost all the services free: passengers on Fly Baghdad have the meals free, first-time [booking] changes free, 25kg [checked] baggage, 7kg hand luggage. So it's similar to Iraqi Airways.

"Indeed, you can call us a low-fare carrier. We depend on the high density of seats to give us the opportunity to sell a low ticket [price] to get the revenue."

□□□□□

Despite its relative youth, Fly Baghdad has quickly become the second largest airline in Iraq with 10 aircraft on its registry: five Boeing 737-800s, two 737-900ERs, one 737-700, one Bombardier CRJ200 and one CRJ900.

A third 737-900ER was expected to join the fleet by the end of the summer, Al-Shabbani confirmed, pending the completion of a C-check in Cairo.

By way of comparison, Iraqi Airways has 37 aircraft on its registry – including three widebodies – though only about half of the planes are currently in service. The flag-carrier took delivery of its first Boeing 787 Dreamliner in June, with nine more on order.

Eager to attract more corporate travellers, Fly Baghdad has installed business class cabins on two of its Boeing 737-800s – currently deployed on the Dubai and Beirut routes – as well as on the newly-inducted Bombardier CRJ900.

Other points in the route network include Ahmedabad and Mumbai (India); Aleppo and Damascus (Syria); Amman (Jordan); Cairo (Egypt); Isfahan, Mashhad and Tehran (Iran); Istanbul (Turkey); Karachi and Lahore (Pakistan); Medina (Saudi Arabia); Tunis (Tunisia); and Yerevan (Armenia).

## The battle to build bridges with EASA

In 2015, Iraqi Airways received the disappointing news that it was no longer permitted to fly to the European Union. The European Union Aviation Safety Agency (EASA) justified its ban on the basis of "credible and specific safety reports containing examples of alleged failures to comply with applicable international (ICAO) safety standards by Iraqi Airways and the Iraqi CAA" (Civil Aviation Authority). It also said that repeated requests for documentary evidence had been ignored.

Iraqi officials described the situation as a misunderstanding and confidently predicted a lifting of the ban. But, eight years on, the flag-carrier remains blacklisted. Wet-leasing aircraft from foreign operators is the only means by which it can now access Europe.

For Fly Baghdad, the apparent failure of Iraq's flag-carrier to maintain international safety standards might seem like an open goal – but Al-Shabbani is in no mood to take shots at his rival.

"There is not really a big doubt here that Iraqi Airways or some other airlines who got banned by EASA is very safe," he insisted.

"Iraqi Airways are maintaining safe operations since long ago. Sometimes [airlines] get banned not because they are not safe, [but] because their documents are not up to the standards of EASA ... EASA are very precise in the [requirements for] documentation – how to write the wording; how to provide the evidence to convince the people who are sitting in offices. While, in fact, the airline, the pilot, the engineer – they will not let any aircraft take off if it is not safe or airworthy."

□□□□□

From its own perspective, Fly Baghdad also held discussions with EASA in 2018 to secure third country operator (TCO) status – a precursor to launching European flights – but the regulator denied its request, citing ongoing concerns about Iraq's CAA.

Having now completed multiple IATA operational safety audits (IOSA) – the industry gold standard for safety certification – Fly Baghdad is hopeful of a second hearing.

But Al-Shabbani isn't counting his chickens. "They have some concerns, and we are providing documentation," he shrugged. "I don't estimate or predict what will happen."

However long it takes, both Fly Baghdad and Iraqi Airways are determined to build bridges with Europe – and not just for business travellers or members of the diaspora.

"Today maybe five per cent [of our traffic is] inbound tourism. Still the tourists don't believe in Iraq," Al-Shabbani complained. "I'm sure, if I get the TCO and if I start operating to Europe, I will be able to show Iraq to the world – show that this is a very safe country. People can come enjoy it, and they can see the origins of human civilisation." ▲

Most flights depart from Baghdad, though several point-to-point services are operated from secondary bases Erbil and Najaf. There are also less frequent flights from Kirkuk and Basrah.

Plans for a Moscow route have now been dropped, Al-Shabbani confirmed, while Dammam in Saudi Arabia is lined up to be the next regional addition.

Asked about the prospects of further expansion, the chief executive said Fly Baghdad's narrowbody fleet needs to grow "at least 30%" to satisfy existing demand. That includes the planned introduction of a 737 converted freighter for regional deployment.

But a bigger prize awaits the airline if it can tap into longer-haul markets.

"If we get access to Europe, we are going to transfer [our model] from point-to-point to network airline," he confirmed.

"And if we change our operation to network, I think we will have an opportunity to bring widebody aircraft – especially for long-haul like Malaysia or Far Asia. And we can use it also for Hajj and Umrah."

Frankfurt and Amsterdam are the first European targets, potentially followed later on by Paris and London.

The entire continent is within reach of Fly Baghdad's 737-900ERs.

Not so for the Asia Pacific network, however, which would also include Indonesia and Thailand. Management has, therefore, set their sights on a pair of Airbus A330s: "One as a backup [aircraft] in case we have some operational issues, and one to be operated."

□□□□□

Several caveats are attached to the project.

Fly Baghdad's primary target in Asia, Kuala Lumpur, has long been on the company's wishlist, but efforts to secure a designation on the bilateral agreement between Iraq and Malaysia have, so far, been fruitless.

Even if the widebody operation proves successful, Al-Shabbani downplays the prospect of Baghdad International Airport competing for transfer traffic with the Gulf mega-hubs – something Al-Khafaji had wanted to see happen.

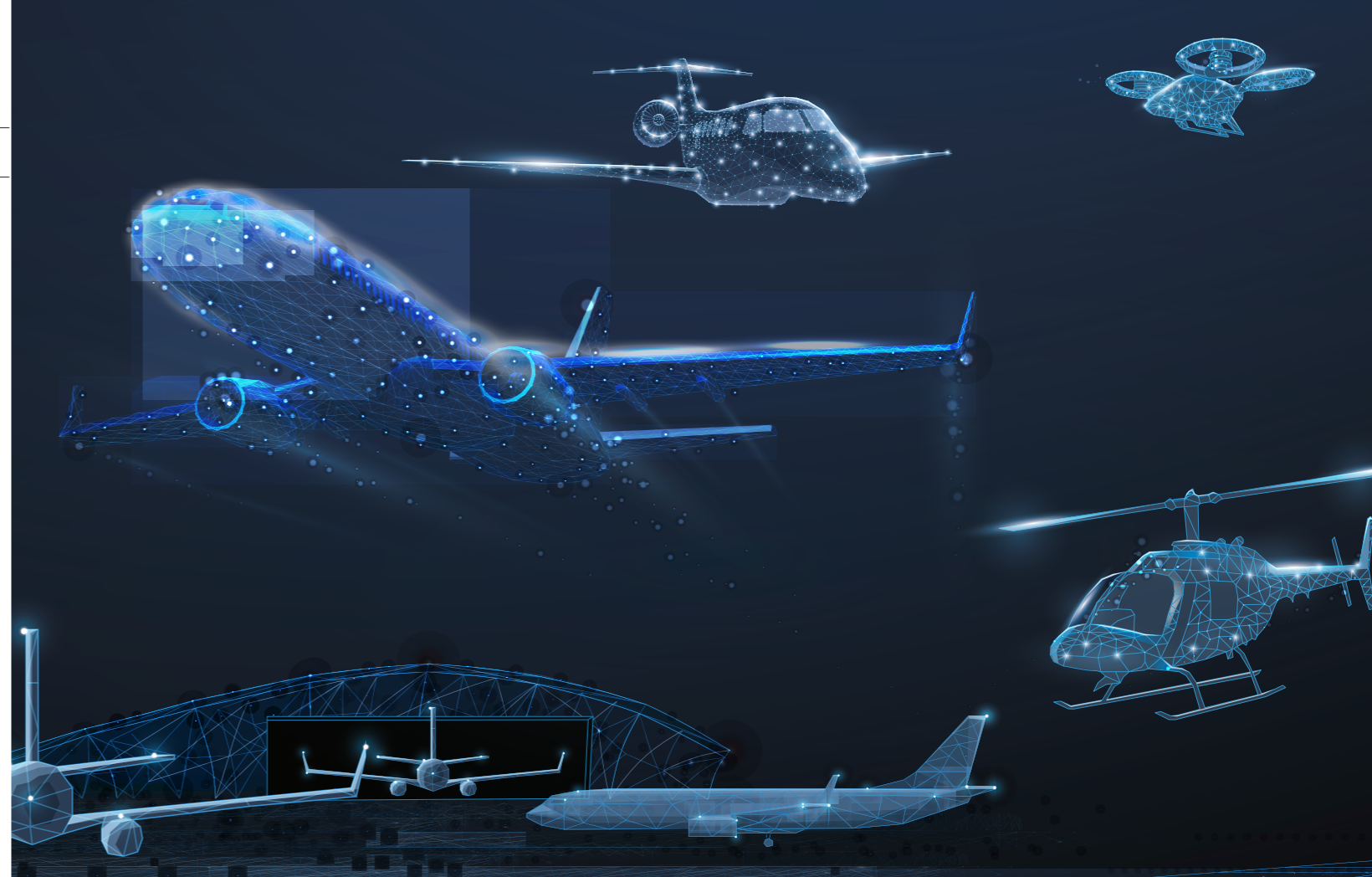
Fly Baghdad also isn't keen on abandoning point-to-point services in order to funnel traffic through its home base – an approach deemed necessary by many network carriers.

"I will keep [the Najaf and Erbil bases] because the passengers have a desire to travel from their own airport," Al-Shabbani insisted.

The cost and complexity of securing visas is yet another hurdle on the path to long-haul expansion.

"Still the visa is the main burden for the Iraqi people," he said. "It's not easy. Iraqis are limited where they can travel, and that has limited our capacity for growth."

By far the biggest challenge, though, is gaining access to Europe in the first place. ▲



# MODERNIZE, MAXIMIZE AND EXTEND AIRCRAFT LIFECYCLES

L3Harris fuses a multitude of integrated offerings to increase pilot situational awareness and operational efficiency. End-to-end solutions include a portfolio of pilot training services, advanced flight simulation technologies, next-generation avionics and flight data intelligence solutions.

- > Cutting-edge TCAS & ADS-B Surveillance Solutions
- > Industry Leading Voice & Flight Data Recorders
- > State-of-the-art Pilot Training Systems & Services
- > Actionable Flight Data Analytics
- > Global Aftermarket, AOG and Repair Centers

L3Harris is actively investing in new technologies, services and programs to help aircraft operations increase efficiency while reducing aircraft lifetime ownership costs.

Learn more at [L3Harris.com/commercialaviation](http://L3Harris.com/commercialaviation)



# Accelerated drone management

Drone markets are reshaping the airspace, increasing its complexity. **Thomas Pilsl Frequentis Vice President New Market Solutions** explains why new technologies should be adopted to ensure safety, situational awareness, and compliance.

The ability to manage crewed and uncrewed traffic in the shared airspace is becoming increasingly complex thanks to the rapid growth in drone use cases, from emergency or disaster intelligence to agriculture or industry monitoring, and parcel delivery.

The primary concern is the safe integration of drones with civil airspace users. Important is the seamless information exchange between all stakeholders and procedures to ensure safe separation between drones and manned aircraft. For this, organisations must enhance their technological capabilities so that they can introduce drones both safely and efficiently. This has required the development of new technologies, which I want to talk a little about.

## The technology

Both the aviation industry and drone users must adopt innovative technologies to ensure safe and fair access to the skies. To successfully operate drones, an organisation will need systems for voice and data communications, and uncrewed traffic management (UTM).

Frequentis has created a UTM suite of systems that support

secure data exchange and access to UTM services. It facilitates a common information services (CIS) environment for all uncrewed aviation stakeholders.

The Frequentis UTM suite is available as a user-friendly and interactive mobile app and web portal, consisting of the UTM Operation Manager and the UTM Airspace Manager applications. UTM Operation Manager caters to both business and private drone operators, providing a comprehensive suite of features designed to enhance airspace safety, and efficiency. The UTM Airspace Manager is the application used by Air Traffic Controllers (ATCO) to manage drones traffic within their area of responsibility.

With a secure open protocol, seamless data exchange between all relevant stakeholders, including government authorities, entrepreneurs, ATCOs, and drone operators can be ensured. A standout feature of the system is the drone map, which provides valuable insights into permanent and temporary flight restriction zones, permitted flight altitudes, flight registrations, airspace monitoring, and the ability to request flight plan approvals and take-off clearance.

Frequentis accelerated drone management has the ability to manage crewed and uncrewed traffic in a shared airspace



Norwegian Air Ambulance (NLA) operations from their Evenes base in Northern Norway © Norwegian Air Ambulance Foundation

The interactive tools, accessible through the website and mobile app, ensure that drone operators have a comprehensive understanding of their operating environment, further enhancing safety and situational awareness.

## Who is taking the leap?

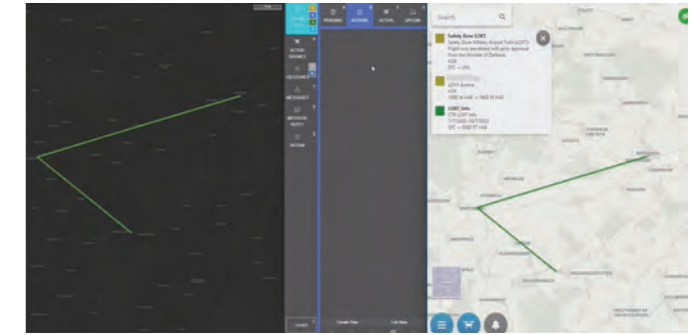
In Norway, rescue helicopters were finding it increasingly challenging to safeguard against drones before departing for an emergency due to a lack of real-time information. To solve this, we were able to implement a UTM system permitting data sharing between the drone pilot system and the helicopter emergency medical services to ensure both parties could see the other and be alerted of potential collisions. The drone warning system was first put into operation for testing in June, 2022, and was tested among selected users. In March 2023 the project was awarded the Overall Excellence ATM Award at Airspace World in Geneva. This has had a positive impact on public safety and the overall efficiency of these critical services, improving airspace visualisation for emergency helicopters as well as potentially police. It has enabled them to respond more quickly to emergencies and other high-priority tasks, without the added workload required to look for drones.

In Austria, the national railway operator, OBB, is researching the use of drones to inspect railway track, making the task more efficient as well as safer. Since November 2022 we have been researching the operational feasibility of hangar-based automated drone flights for automated track maintenance checks. This use case could benefit many other industries, like construction and agriculture, sending drones from the hanger to a certain point and back once checks have been completed. Over an initial period of one year, use cases such as incidents, checking route availability, forecasting and the effects of natural hazards, inspection activities, and shunting operations will be practised. This is a great step forward for drone use in railways, aiming to make manual tasks more efficient, while enhancing safety.

In Estonia, our UTM suite has been recently implemented for Estonian Air Navigation Services (EANS). Users now have access to up-to-date drone flight information, can register themselves as operators and securely exchange data, monitor airspace conditions, file flight plans and even apply for take-off clearance. This solution marks a significant milestone in the development of uncrewed aviation services in Estonia and will transform the drone flying experience. Important is also the system's ability to support police and military drone operations.

## The future drone ecosystem

The predicted surge in drone usage has spurred on the need for



The Frequentis platform allows drone flight plans to be filed in the UTM Operation Manager (right) and visualised by the ATCO in the UTM Airspace Manager (left). © Frequentis

innovative solutions that ensure safety, situational awareness, and compliance. As the boundaries between crewed and uncrewed traffic blur, it becomes paramount for both the aviation industry and drone users to embrace new technologies that enable harmonious coexistence in the skies.

By implementing an open, intuitive, and simple solution, ANSPs can safely and efficiently integrate drones into the shared airspace while fostering innovation and economic growth. Seamless integration and real-time data sharing is key, as well as an increasing level of automation to satisfy the steadily growing number of UAVs in a shared airspace. The convergence of ATM and UTM is a logical next step.

Prior to launching an operational drone system, organisations across all industry sectors can work with Frequentis to test and validate their use cases. Our long experience of working with ATM organisations gives us confidence that we can help other industries deploy drones without negative impact on other air traffic. Solutions are available as on-premises and cloud-hosted deployments, as best suits the requirements of each customer.

## About Thomas Pilsl

With a master's in computer sciences and economics, Thomas has over two decades of experience in the IT services industry, holding various operational and management positions. He joined Frequentis in 2016, being appointed Vice President New Market Solutions in January 2023 to further grow the Frequentis UTM suite and other innovative solutions.

## About Frequentis

With over seventy-five years of cross-industry experience, Frequentis ATM ensures the safety of 95% of the world's passengers and aircraft, helping ANSPs worldwide efficiently deliver safer and more secure capacity for airspace users. Frequentis has been working with Nordics and Baltics stakeholders on the SESAR Gulf of Finland (GOF) U-space and GOF 2 projects, exploring the safe integration of drones, trialling and validating use cases in line with U-space regulatory framework.

[www.frequentis.com](http://www.frequentis.com)

**FREQUENTIS**  
FOR A SAFER WORLD

Tom Batchelor discovers that Iraqi Airways is very firmly back in business.

# IRAQI BACK ON ITS FLEET



which was imposed after it failed to secure a third country operators certificate (TCO) from the European Aviation Safety Agency (EASA).

Reports at the time said TCO inspections had unearthed safety violations by the airline and the Iraqi Civil Aviation Authority. Iraq's president, Abdul Latif Jamal Rashid, is leading efforts to have the ban overturned. The operator was also forced to suspend services to the UK and Sweden in 2009 after it feared having its aircraft seized in the wake of a court ruling in favour of Kuwait and against Iraqi Airways that included the freezing of its assets worldwide. More recently, it has used a leased aircraft to operate flights from Baghdad and Erbil to Frankfurt and Berlin.

Now, the airline is on an upward trajectory, having put a marker in the sand with its impressive fleet modernisation plan. Iraqi Airways became the first airline to operate the Airbus A220 in the Middle East, with commercial flight

operations commencing on November 6, 2022, from Baghdad to Cairo. The narrow-body has since been used on a range of domestic and international routes including Baghdad to Amman, Beirut, Basra and Erbil.

At the same time, Iraqi Airways is dispensing with older aircraft, some of which

have been hampered by ongoing maintenance issues. Notably, over the summer the carrier announced it was auctioning off two Boeing jumbos: a B747-200CM and a B747SP; a rare, shortened, 'special performance' version of the airliner that was designed for a longer range. The pair are said to have been parked at a base in Tunisia since 1991.

With the fleet modernisation project well under way, Abdel-Monem said the new aircraft were part of a wider plan to "increase the number of destinations of the national carrier, in line with government directives to open up to various countries of the world".

Baghdad is already connected to more than 50 destinations, but this figure is expected to grow as Iraq sees increased stability and economic growth (the country's annual gross domestic product growth rate is expected to reach seven per cent by the end of 2023). The latest addition to the route network over the summer was Tbilisi in Georgia and Abdel-Monem hopes to expand further east with Muscat, Jakarta and Kuala Lumpur in his sights.

With global air traffic rebounding, Middle Eastern airlines are seeing more than a 40 per cent traffic increase compared to last year, and Iraqi Airways is making sure it can respond to this surge in demand. ▲

Iraqi Airways has entered a new chapter in 2023 as it embarks on a comprehensive fleet renewal programme across both its narrow- and wide-body fleets.

The carrier took delivery of its fifth and final Airbus A220-300 aircraft in August of this year, having placed the order for what was then the Bombardier CSeries aircraft a decade earlier.

The type is being operated by the Baghdad-based flag carrier with a dual-class cabin that seats 132 passengers; 12 in business class and 120 in economy class. In June, Iraqi Airways took delivery of a Boeing 787 Dreamliner – the first of 10 787s on order.

That widebody arrival follows delivery of new Boeing 737 MAX aircraft, four of which have been supplied to the carrier since February out of a total order of 16. An order for 10 Boeing B737-10 aircraft is also expected to be fulfilled between 2024 and 2027.

Manaf Abdel-Monem, director general of Iraqi Airways, said the deliveries would help the airline respond as "domestic and international air traffic gains momentum".

He said: "It's crucial that our Iraqi Airways fleet matches growing demand with more efficient, capable and comfortable aircraft. The 787 and 737 MAX aircraft we have received are key to our fleet renewal programme, which aims to ensure we can fly our passengers around the world in the safety and comfort they expect from a modern and efficient airline."

The carrier has had a stop-start existence in recent decades owing to protracted regional geo-political instability and a 2015 European Union ban on flights,



Above: Boeing and Iraqi Airways celebrated the delivery of the airline's first Boeing 787 Dreamliner with a special event in Baghdad to welcome the flag-carrier's super-efficient widebody jet. IMAGE: BOEING

Top: Iraqi Airways is the first airline to operate the Airbus A220 in the Middle East region. IMAGE: AIRBUS

*With passenger levels rising steadily within the Gulf, flydubai is seeking to expand – if it can only get its hands on the aircraft it has ordered.*



and as far west as Prague. Al Ghaith is on record as saying that the long-range Airbuses would not be a game-changer for Flydubai, but that they would open up a handful of interesting additional destinations.

"Dubai and the UAE are becoming so popular that, for us, almost everywhere we go, there are opportunities," he said.

Europe, Asia and Africa will continue to grow in the airline's route map, while there remain a few additional destinations to be picked up in Central Asia.

Although flydubai began life as a low-cost carrier, it has long since moved to 'hybrid' status with a business-class cabin and the carrier introduced a new business-class seat earlier this year.

"Operating in Dubai, the hub of business and commerce in the region, it was an easy decision to introduce business class, and we see this developing further."

The strategic link with Emirates Airline also means that, "business class has been an important factor to leverage those opportunities."

Tourism has always been a major part of the UAE's

## Some of our aircraft are missing...

It's a problem that many airline CEOs would love to have: welcoming so many passengers that they need to expand their fleet rapidly.

However, increasing an airline's inventory has become problematic since the pandemic, as supply chain problems hobble aircraft manufacturers' efforts to ramp up production.

It's a problem with which Ghaith Al Ghaith, CEO of flydubai, is very familiar. The airline has a current fleet of 46 Boeing 737-8s, three 737-9s and 30 older-generation 737-800s. The airline placed major orders with Boeing for more MAXs in 2014 and 2017 but, like many airlines, has experienced a drip-feed of new aircraft rather than the hoped-for flow.

"Our order book must be close to 100," Al Ghaith noted in early September. "I know, for example, this year, we still have nine aircraft to come. We will be lucky if we can get four or five."

Nor are the delivery delays likely to end soon: "Next year, and even after that, are all affected."



Flydubai said earlier this year that another large order was in the works, but the timescale for that has slipped.

The airline was initially hopeful that it would be able to announce the order at the Dubai air show. However, although discussions with the major manufacturers are ongoing, the chance of a big airshow announcement are now unlikely. "There's nothing maturing fast enough that we can tell you about," Al Ghaith said.

While Boeing has an advantage in being flydubai's incumbent aircraft provider, the presence in Airbus's product line-up of the A321LR and XLR long-range models offers flydubai the chance to extend the reach of its route network, which currently goes as far east as China



Boeing 737 MAXs are arriving to feed flydubai's expansion – but not quickly enough, says CEO Ghaith Al Ghaith (above). PICTURES: FLYDUBAI

economy, but tourist numbers throughout the region will grow rapidly in coming years as Saudi Arabia's burgeoning tourism market comes on-stream. Some resorts along the Red Sea coast will welcome their first guests this year.

Those resorts will start to pull in visitors not only from the Gulf but further beyond, so that non-Saudi carriers like flydubai will also benefit, believes Al Ghaith.

The huge growth in traffic will be helped by relaxation of Saudi Arabia's traditionally tight visa rules. For many years, only religious or business visas were available and both involved time-consuming procedures.

"In the olden days, to get a visa to go for umrah, you used to go through one agent that was authorised. The amount of time to issue one visa took days and was too expensive.

"Now, with the development of the electronic visa, someone in a village in Central Asia can tap in their details and get a visa in 24 hours. Those people who wanted to go on umrah for such a long time and never could before, can now do so. Every airline is benefitting from that; demand is so high," said Al Ghaith. ▲



**HUMIDIFIER ONBOARD+**  
PURE AIR

# AN OASIS IN THE DESERT

OPTIMIZED HUMIDITY. ZERO FUME EVENTS.

- Humidity elevated from 5-8% to ground-like 22% RH
- Reduction of VOC content up to 80% (Volatile Organic Compound - Bleed Air Gases)
- Eliminate on ground fume events by 70%, reduce concentration below odor threshold (no fuel or de-icing fluid smell)
- Ozone reduction 70-75%



On the up: Kuwait Airways is looking at fleet expansion to meet new demands. PICTURE: P PIGEYRE FOR AIRBUS.



## Another BRICS in the Kuwait wall?

The MENA region is a buoyant and competitive market and it could be getting bigger. **Anuradha Deenapanray Chappard** looks into Kuwait Airways' strategy to fit into this new diverse canvas.

The new air transport landscape is seeing its centre move further east in the MENA region.

The decision of founder countries of the BRICS to welcome six new nations including Egypt, Iran, Saudi Arabia and the United Arab Emirates, can potentially boost these economies - if the members can accept their major differences and capitalise on their strengths, to grow together.

State-owned Kuwait Airways is getting prepared to capture its share within this market. It has crafted an ambitious strategic plan until 2030 with emboldened underpinnings regarding fleet and route development, digital transformation to enhance services, passenger experience and sustainability.

The airline, which reduced its losses by 50 per cent in 2022, plans to increase its fleet from 30 to 50 aircraft by 2030.

According to Kuwait Airways chairman, captain Ali Al-Dukhan: "Kuwait Airways achieved highly-positive results that we didn't expect in 2022".

Total passenger revenues increased by 11 per cent, while the number of passengers rose by two per cent, reaching 3.5 million.



Al-Dukhan emphasised Kuwait Airways' relentless endeavour to implement its strategy according to objectives set by the board of directors and its vision for 2030. Its goal is to enhance the company's entire system, achieve profit and reduce costs.

The airline is adapting its fleet with roughly a 50 per cent mix of wide and narrow bodies to focus on its point-to-point and transit markets and capitalise more efficiently on the capacity between east and west destinations.

Kuwait Airways recently announced a few intercontinental changes to the airline's route network for the IATA winter 2023 season from 30 October.

These include suspension of flights to Kuala Lumpur

(due to commercial reasons); increased frequencies from three weekly to daily, offering convenient connections via Kuwait to/from Europe; a new three-weekly non-stop service to Barcelona (with a potential to get feeder traffic from the Indian sub continent/Iran region); and new Washington DC flights scheduled for mid-December.

Kuwait Airways has also focused on new ideas, namely putting the 'customer first', enabling it to win the "World's most improved airline 2023" from Skytrax.

According to Khalid Al-Bustan, director of corporate communication and public relations, the airline strives to evaluate its customers' experience. This includes booking their ticket, their check-in and completing their travel procedures, to boarding the aircraft and enjoying the numerous services on board, assisted by members of the cabin crew.



"All of the above services are based on systematic research to achieve complete customer satisfaction with the quality of services we provide to customers," he said.

The other factors that have contributed include the launch of platinum cards for Oasis Club members, a home check-in service, complimentary limousines, E-boarding passes, a "just upgrade" feature to upgrade to travel class, plus developing and launching new menus on board. It also provides new services like the BlueFi inflight wifi, and the Elite lounge at terminal four, Kuwait Airport.

Alongside its digital transformation plan, the airline is carving the way to a more sustainable and responsible future.

"As we look to the future, we remain committed to our environment, social, governance strategy, prioritising sustainability and social responsibility.

"By maintaining these pillars, the company will achieve its objectives of reaching extensive horizons of excellence, continuous success and achievements and contribute significantly to its eminent position," said CEO Maen Razouqi.

Through active monitoring and initiatives to increase its assets, utilisation and network improvements, Kuwait Airways has also reduced carbon emissions per passenger year-on-year by more than 30 per cent. ▲

■ **BRICS is the acronym denoting the emerging national economies of Brazil, Russia, India, China and South Africa.**



*Afghanistan's isolation on the global stage hasn't stopped Kam Air chief executive Jahed Azimi raising standards and planning for the future – with a little help from the UAE. Martin Rivers talked to the aviation veteran.*

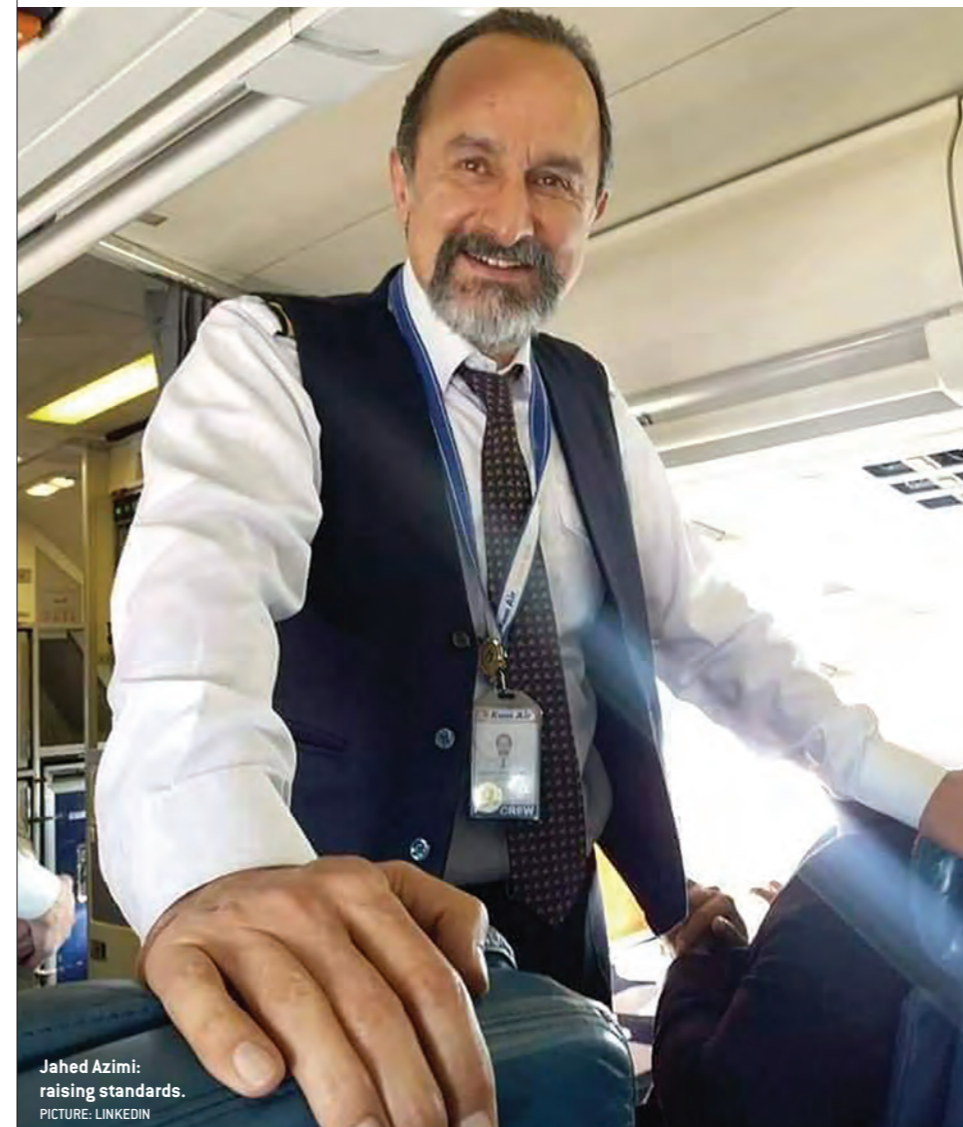
# KAM TOGETHER



**Your MRO Partner of Choice**  
Saudia Technic



@saudiatechnic



Jahed Azimi: raising standards. PICTURE: LINKEDIN

**O**n August 26 2021, as US forces scrambled to escape from Kabul amid a sweeping return to power for the Taliban, Hamid Karzai International Airport became the scene of one of Afghanistan's worst atrocities in recent memory.

At least 170 Afghan civilians and 13 US military personnel were killed in a Daesh-orchestrated suicide bombing of the international gateway.

Despite widespread fears of a return to civil war, it took the newly-reinstated Taliban authorities just one month to declare their (now renamed) airport "fully operational" and open again for business.

The hope was that former partners like Emirates Airline, Flydubai, Turkish Airlines, Air India and Pakistan International Airlines would flock back to the country.

Two years on, however, only Flydubai has accepted the invitation.



Notwithstanding ad hoc flights by some Iranian carriers, every other foreign airline still considers Afghanistan off-limits.

The situation is emblematic of the near impossible challenge facing the Taliban: how to rebuild its war-torn nation while being treated as a pariah by the international community. No country anywhere in the world recognises the Islamist group as the legitimate government of Afghanistan. Many still designate it a terrorist organisation, imposing financial sanctions on anyone doing official business in the country. Small wonder that the state-owned foreign airlines that previously served Afghanistan don't feel able to return.

For the country's two domestic carriers, though – privately-owned Kam Air and state-owned

**Continued on Page 28** ▶

**Kam Air takes off with help from the UAE.**  
PICTURE: WIKIMEDIA /DIGITALMARKETING111



**CONTINUED FROM PAGE 27**

Ariana Afghan Airlines – steering clear of this ancient land simply isn't an option. Jahed Azimi has been on the front lines of Afghan aviation for decades. A former deputy minister for civil aviation in Karzai's government, he's served multiple stints at the helm of Kam Air as well as holding the top job at Ariana and founding two airlines – Pamir Airways and East Horizon Airlines.



Azimi's political neutrality has earned him the trust of successive Afghan governments, and he's keen to acknowledge the pragmatic approach taken by the Taliban after this latest change of power.

"I'm not a politician, okay, I'm a technical guy," the airline boss insisted.

"Whatever I saw on the ground – the realities – that's what I'm telling you. The Taliban were very cooperative. They supported us. There was no restrictions from the Taliban side with our cabin crew, cockpit crew, all the Kam Air staff. They respected us a lot, and they supported us in order to resume our operations. They were very helpful."

Aided by the local authorities, Kam Air has made significant headway in restoring its pre-2021 network.

The airline's four Airbus A340s and four Boeing 737s are deployed from Kabul on scheduled flights to Dubai, Abu Dhabi, Istanbul, Riyadh, Jeddah, Tehran, Tashkent, Islamabad and New Delhi. Domestic flights are also operated to Mazar-i-Sharif, Herat and Kandahar. Frequencies are lower than they were under the previous government – Dubai's daily service being one notable exception – but there's little Azimi can do about that for now.

"Of course we want to enrich [the network] with more frequency," he shrugged, singling out Istanbul as one candidate for expansion. "But everything depends on the market demand. We

cannot go ahead of market demand, and we can't go behind market demand."

Sanctions are, by far, the main stumbling block. Though not itself designated as a restricted entity, Kam Air, like all Afghan companies, often finds itself tangled in a web of sanctions regulation.

Moving US dollars and euros between bank accounts is one constant headache. Accessing pilot training facilities in Europe is another. Even obtaining spare parts vital for the safety of flight can be difficult.

At the macro scale, few foreign investors are willing to consider business opportunities in Afghanistan – sometimes due to concerns about ethics or security; more often because of the chilling effect of Western sanctions enforcement. That ultimately means less demand for business travel to and from Afghanistan, and stunted prospects for the post-war economy.

It's a subject that Azimi tries to avoid while standing on the political sidelines, but which he ultimately keeps coming back to.

"Sanctions are not only affecting the State," he said sombrely. "The impact is over the entire people, over the entire nation. Look at the agriculture, look at the private sector. Everybody is suffering because of sanctions. My request for all countries who have any kind of political issues [with the Taliban] is just leave them [to one side] ... We are a service provider for the people. We're a national asset for the country. And we provide service not only to Afghans, but to all foreigners, to all NGOs, to European communities, everyone."



The UAE stands out as one member of the global community listening to that argument. Although the country hasn't yet restored diplomatic ties with the Taliban – relations that had been in place during its previous rule from 1996 to 2001 – Abu Dhabi has nonetheless started helping the Islamists develop their civil aviation infrastructure.

Over the past year-and-a-half, UAE-based

GAAC Holding has signed a raft of contracts with the Taliban. The agreements include a 10-year management and operations contract for several Afghan airports; the exclusive right to provide air navigation services across the country (reversing its current classification as "Class G" uncontrolled airspace); and a sizeable investment to repair and upgrade runway, terminal and support facilities.

Strides are also being taken by the country's airlines.

Earlier this year, Kam Air completed its third successful IATA operational safety audit (IOSA), demonstrating a steadfast commitment to passenger safety despite the extraordinary challenges in its home market. "Being an IOSA-certified airline in Afghanistan is not an easy task," Azimi laughed. "Believe me that's not an easy task. But we strongly follow that path."



Raising on-board comfort is another priority for management, with Kam Air recently adding business class to its flagship Dubai route. And network expansion is constantly under review, particularly to central Asian countries like Tajikistan that are home to large Afghan populations.

Asked about the prospect of eventually bringing Western tourists to the country, Azimi can hardly hide his delight at the thought.

"Oh tourism, I would love to! Oh I would love to!" he gushed. "Because Afghanistan has very rich history, very rich culture, and to be honest it's secure now ... I hope that one day everybody comes to visit the beauty of Kabul, the Salang Pass and Badakhshan and Nuristan and Bamyan and Herat. All those beautiful areas."

But it doesn't take long, though, to bring him down to Earth: "With the existing situation in Afghanistan [progress will be] gradual ... We are doing our homework in order to get the job done."

"We are not in a rush. We are planning to be solid," Azimi concluded. ▲

# NEW LOOK SAUDIA'S AMBITIOUS PLANS FOR TOURISM

The national flag carrier of Saudi Arabia will add 20 more Airbus A321neo aircraft to its fleet by 2026 to meet the objectives of the Saudi aviation strategy (SAS) to bring around 330 million visitors to the country by 2030.

Anuradha Deenapanray Chappard reports.

Saudi Arabian Airlines has introduced a new livery featuring a green, blue, and sand colour scheme which will roll out across the fleet - and the 20 new aircraft on order.

"Our priority is to offer the best guest experience possible and to bring the world to Saudi Arabia, and we will continue to purchase state-of-the-art aircraft from the world's top manufacturers to deliver on that promise while contributing to make aviation more sustainable," said captain Ibrahim Koshy, Saudia's CEO.

The airline's performance report for the first half of 2023, following the Hajj season, shows "distinguished operating rates" during the peak of the summer travel season with an on-time-performance rate of 83.8 per cent.

The Saudi Airlines Catering Company (SACC) also played a major role during the pilgrimage season, by providing best-in class production of meals in compliance with international standards.



Smart move: Saudia orders more A321neo - how they will look in the new livery. PICTURE: SAUDIA

Saudia Private Aviation (SPA) operated 192 flights and offered competitive services in four domestic airports, including King Abdulaziz International Airport in Jeddah, King Khalid International Airport in Riyadh, King Fahd International Airport in Dammam, and Prince Mohammed Bin Abdulaziz International Airport in Medina.

Saudia said it is targeting key markets like China as part of its route development plan. Last August, the airline launched its first direct flight to Beijing, in collaboration with the air connectivity programme (ACP).

Tourism is a pillar of Saudi Vision 2030, and China is ranked among the top global sources of tourists. This new route marks a milestone towards Saudi Arabia's ambitious economic diversification agenda.

According to IATA, the air transport market in Saudi Arabia is forecast under the "current trends" scenario to grow by 126 per cent in the next 20 years. This would result in an additional 54.8m passenger journeys by 2037.

If met, this increased demand would support approximately US\$82.3bn of GDP and almost 1.2m jobs. ▲



## World Class Aircraft Hangar Doors



🌐 [jewersdoors.co.uk](http://jewersdoors.co.uk)  
✉ [sales@jewersdoors.co.uk](mailto:sales@jewersdoors.co.uk)

☎ +44 1767 317090 (UK)  
☎ +971 4 430 9002 (UAE)





VIP ground handling  
Fast and efficient National and  
International flight dispatch  
Overflight and Landing permits  
Flight planning  
Crew transfers  
Hotel reservations  
VIP Catering  
Fuelling  
Immigration  
Aircraft Management  
discover much more by  
contacting us

# BEST FLIGHT WITH BESTFLY

FBO, Aircraft Handling, Charter and Sales



NEW DAWN: Some of Etihad's Airbus A380s are enjoying a return to service following an extensive maintenance check. PICTURE: ETIHAD

## Etihad re-opens the door for the Superjumbo

After largely disappearing from the skies during the pandemic, the Airbus A380 is making a comeback, writes Alan Dron.

The Airbus A380 is an aircraft that arouses mixed emotions. Passengers love it for its sensation of internal space and for its almost unnatural quietness in the cabin. But for many airlines and their accounts departments, its four engines make it unacceptably expensive.

During the pandemic, most airlines grounded their A380s in their attempts to cut expenses. Many made it clear the aircraft would not return to service, post-pandemic.

Air France, China Southern, Thai Airways and Malaysia Airways have either stopped flying the aircraft completely, or plan to do so.

However others, such as Lufthansa and British Airways, have brought their A380 fleets partly or wholly back into service as they cope with the unexpectedly strong and sustained demand for flights.

In 2021, Etihad Airways' then-Group CEO Tony Douglas said that the airline had decided to park its 10 A380s "and it's entirely likely we will not be utilising them going forward because of the operational costs associated with them."

Etihad did not completely close the door on bringing back the European double-deck aircraft, but said that several factors, such as passenger demand, fuel prices and ticket yields, would have to align before it did so.

"The A380 is an incredible product and something that all of us would love to return from a travelling perspective, but the economics need to make sense," said a spokesman last year.

Remarkably, that moment has arrived. Etihad is returning four of its A380s to service as the carrier seeks to expand its route network.

Etihad Engineering is carrying out a heavy maintenance C-check on the aircraft, which have been in long-term ground storage since the start of the pandemic.

The four aircraft are initially being utilised on the busy Abu Dhabi-London Heathrow route.

Restoring the aircraft to service included rear spar modifications, frame modifications, plus removal, inspection and installation of all engines in Etihad

Engineering's Abu Dhabi workshops. The four aircraft are only six to seven years old – young by airline standards. Those remaining in storage are eight to nine years old. Etihad told *Arabian Aerospace* there is still no decision on whether the remaining six A380s will fly again.

Further up the Gulf, Qatar Airways has also brought its A380s back into service – but only reluctantly. Group CEO Albar Al Baker has described buying the A380 as the airline's worst mistake because of their operational costs. However, a long-running dispute with Airbus over surface degradation issues on its fleet of Airbus A350s led to the more economical twinjets being grounded. Desperate for capacity to fill the gap left by the grounding, the company brought eight of its 10 A380s back on-line.



However, Al Baker has made it clear that this will be a short reprieve, with the aircraft again being phased out over the next couple of years as the problems with the A350s are ironed out and they return to service. Of course, the one airline never to give up on the A380 is Emirates, which bought around half of the entire 252-aircraft production run.

Although most were mothballed during the pandemic, Emirates has been bringing them back into service as quickly as they can be brought out of storage and given the necessary technical checks. Indeed, many are being given an interior upgrade, an indication of the importance the Dubai-based airline places on the aircraft with which it has become synonymous. Sixty-seven of its 116 A380s will receive the refurbishment, with the most visible improvement being the installation of a premium economy cabin.

Emirates believes the A380s still have an important role to play in its operations, especially when operating into slot-constrained airports such as London Heathrow, where the 500-seater can deliver as many passengers as two smaller aircraft. It intends keeping them in service well into the 2030s.

## SAUDI MARKETING DEAL CAN BOOST BAHRAIN TOURISM

A groundbreaking agreement between Saudi Arabia and Bahrain is likely to bring greater benefits to the smaller nation.

Bahrain is to link up with Saudi Arabia to link the two Kingdoms into a single tourism destination.

The countries have signed a memorandum of understanding (MoU) to collaborate in attracting visitors, a move that is likely to mean more traffic for their respective national airlines.

Any growth in tourism to Bahrain is likely to bring benefits to national carrier Gulf Air.

The new agreement with Saudi Arabia gives it the opportunity to tap into what is expected to be a surging flow of tourists to the home of Islam in the next few years. Marketing the two countries as a single destination will give Gulf Air the opportunity to fly tourists from Saudi to Bahrain as part of two-centre holidays.

The MoU will also enable Bahrain to benefit from the huge sums that Saudi Arabia is pumping into its tourist industry in its efforts to make the Kingdom a major attraction for visitors. The agreement sets the scene for the two countries to experience an exponential surge in their respective tourism sectors.

The MoU was signed in Manama by Bahrain's tourism minister, Fatima bint Jaafar Al Sairafi and her Saudi Arabian counterpart, Ahmed Al Khateeb.

It establishes a framework for combining efforts to market and promote tourism activities and programmes in both countries and will involve coordinating joint events to attract visitors, expanding specialised sectors, and collaborating with tourism agencies and regional/international tour operators to create shared tourist destinations.

As part of the plan, Bahrain will pitch more frequently to host international conferences, concerts and sporting events. New leisure offerings will also aim to persuade business visitors to extend their stays.

However, even the new deal may not result in easy



business for Bahrain, according to international business and geopolitical consultancy, Oxford Analytica.

"Tourism development forms a key plank of Bahrain's long-term economic growth strategy," it wrote, in an analysis of the MoU.

"However, almost all its Gulf peers are pursuing the same goal, armed with often-superior cultural, natural or financial advantages. This makes a complementary approach, such as Gulf Cooperation Council (GCC)-wide visas, rather than a competing proposition, a pragmatic necessity for Manama."

TOURIST TRAP: Bahrain hopes that the new deal with Saudi Arabia will bring more tourism to the island.

PICTURE: DUBAI TOURISM

ALAN DRON

## BADLY BEHAVED PASSENGERS RUINING IT FOR EVERYONE

It appears that unruly passengers on aircraft is becoming a common problem for airlines, crew and fellow passengers.

This is an issue committed by a minority of passengers, but unruly incidents have a disproportionate impact, threatening safety, disrupting other passengers and crew and causing delays and diversions. However, due to loopholes in existing international air law, such offences often go unpunished.

In June, IATA addressed the issue at the 70th IATA AGM and the industry unanimously adopted a set of core principles for dealing with the issue of unruly passenger behaviour and IATA has developed extensive guidance and training.

The most common examples of non-compliance include alcohol abuse – and passengers consuming their own alcohol brought onboard, smoking of cigarettes, e-cigarettes, vapes and puff devices in the cabin or lavatories, failure to fasten seatbelts

when instructed, exceeding the carry-on baggage allowance or failing to store baggage when required.

Conrad Clifford, IATA's deputy director general, said: "The increasing trend of unruly passenger incidents is worrying. Passengers and crew are entitled to a safe and hassle-free experience on board."



"For that, passengers must comply with crew instructions. While our professional crews are well trained to manage unruly passenger scenarios, it is unacceptable that rules in place for everyone's safety are disobeyed by a small, but persistent minority of passengers. There is no excuse for not following the instructions of the crew."

IATA said it is also working with airports, duty-free retailers and other groups to ensure the responsible sales and marketing of alcohol to avoid unruly

passenger incidents resulting from intoxication. In addition, IATA is participating in public awareness campaigns that encourage responsible consumption of alcohol before travelling by air, such as "Fly Safely, Drink Responsibly" in Norway and "One Too Many" in the UK. It is also working with partners to highlight the types of prohibited conduct onboard flights and is supporting the #notonmyflight campaign launched by the European Union Aviation Safety Agency (EASA).

"Nobody wants to stop people having a good time when they go on holiday, but we all have a responsibility to behave with respect for other passengers and the crew."

"For the sake of the majority, we make no apology for seeking to crack down on the bad behaviour of a tiny number of travellers who can make a flight very uncomfortable for everyone else," said Clifford.



# WORLD DEFENSE SHOW

SAUDI ARABIA  
4-8 FEB 2024



FOUNDED BY

الهيئة العامة  
للصناعات العسكرية  
General Authority  
for Military Industries



## GET EQUIPPED FOR TOMORROW

World Defense Show 2024 is your destination to connect, collaborate and network with industry leaders and shape the future of security and defense. Get equipped for tomorrow and take part in this unmissable show.



SCAN TO REGISTER TODAY



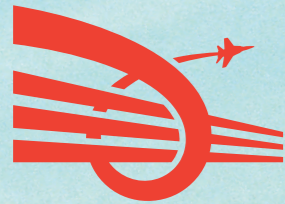
MAIN PARTNER

وزارة الدفاع  
MINISTRY OF DEFENSE



NATIONAL STRATEGIC PARTNER

SAMI



BAHRAIN INTERNATIONAL  
**AIRSHOW**  
IN ASSOCIATION WITH FARNBOROUGH INTERNATIONAL

# TAKE YOUR BUSINESS TO NEW HEIGHTS IN THE MIDDLE EAST.

Join aerospace leaders from around the world at the gateway to the Middle East for an unmissable opportunity to meet new business connections, network with high-level delegations and discuss the industry's biggest topics in a prestigious environment.

**13 – 15 November 2024**

Sakhir Airbase, Kingdom of Bahrain



Visit  
**airshow.bh**  
for more information

FOCUS ON

## DEFENCE

MILITARY

LONG SERVICE: A PAF JF-17 taxis to the end of the runway for departure. The Thunder has been serving the PAF for 15 years now.  
PICTURE: ALAN WARNES



## THUNDER STRUCK?

During July, there was a lot of speculation in the media surrounding the purchase by the Iraqi government of 12 Pakistan Aeronautical Complex (PAC) in Kamra JF-17 Thunder aircraft.

**Alan Warnes** takes a closer look.

**P**akistan and Iraq enjoy close relations, with the Iraqi Air Force having already signed a deal for 12 PAC MFI-17 Super Mushshaks in October 2021, that should have led to the aircraft being delivered two years later.

That came some five years after an initial contract had been postponed due to Iraq's budgetary constraints.

There has always been a lot of speculation that the relationship could lead to a JF-17 purchase. As a fighter, it would make a lot of sense – the block III variant comes with a cutting-edge KLJ-7A airborne electronically scanned array (AESA) radar.

While the Pakistan Air Force (PAF) will operate their JF-17s with new Chinese weapons, it is unclear whether Iraq would be permitted by China to buy them because of their close relationship with the USA.

The China Electronics Technology Group Corporation (CETC) KLJ-7A is one of several improvements over the older block I/II JF-17s. The block III houses new avionics, better electronic

warfare systems, increased payload and more sophisticated weapons. It will undoubtedly be the ultimate JF-17, and with an AESA radar, the capability to employ longer-range weapons and track multiple aircraft. Other than the AESA radar, the main difference between the block II and block III JF-17s, is a helmet-mounted display (HMD).



The PAF is working on with companies in China and Pakistan on a three-axis fly-by-wire system, which is already functioning in the two-seater JF-17B, an enhanced electronic warfare (EW) management system and a chin-mounted hard point.

With the PAF acquiring the aselsan targeting pod (known simply as the aselpod), this has allowed a much-needed boost to the jet's air-to-ground capability. The rest of the fleet was also expected to receive the Turkish system.

There is speculation that new Chinese beyond visual range air-to-air missile, like the PL-10 and PL-15 could also be

included in their future armoury, although no one at the PAF is prepared to confirm this.

In early 2021, the author was told by the then PAC Kamra chairman, air marshal Noman that only 30 of the 50 Block IIIs expected to be ordered, had actually been contracted, but the rest may come later. It is unclear if that is still the case.

The first JF-17 block III made its maiden flight at Chengdu Aerospace Corporation on December 15, 2019.

A second aircraft followed it into test and evaluation during August 2020, which led to the first serial production block III assembled at PAC Kamra to be delivered to the PAF in late 2022, after the test and evaluation work had been completed.

In March this year, reliable sources indicated the block IIIs are now operational.

The radar was built under licence at PAC Kamra's avionics production factory (APF). This facility has worked on radars in the past like the Italian FIAR (now Leonardo) grifo radars for both the

Continued  
on Page 38

## Iraq set to invest in modernised fighter force

Aside from the JF-17 fighter mooted for the past two years, Jon Lake says Iraq is also looking wider afield.

With a resurgence of ISIS activity, Iraq is hoping to enhance its defence capabilities. The commander-in-chief of Iraq's armed forces, major general Yehia Rasool, has confirmed that modernising its air force is a priority, and that the fighter force is in particular need of renewal.

Iraq regained a fast jet combat air capability in 2015 with the delivery of the first of 36 Lockheed Martin F-16s.

The Iraqi government formally requested 24 F-16C/D fighters from the US in March 2010, and outlined an eventual requirement for a total of 96 fighters. Two 18-aircraft orders were placed in 2011 and 2012.

The Iraqi F-16s were significantly downgraded, with no AIM-120 advanced medium-range air-to-air missiles (AMRAAM) capability, and the 34 aircraft delivered were heavily reliant on US contractor support. The 36 (now 34) F-16s were augmented by 12 Aero L-159s from 2015 and two KAI T-50IQ aircraft delivered from 2017.

Iraq began looking for a new fighter in 2020, and then Iraqi defence minister Juma Enad Saadoun met the French Air and Space Force chief of staff, general Philippe Lavigne, in November 2020.

The Iraqi minister watched a demonstration of the Dassault Rafale quick

reaction alert capabilities at Saint-Dizier. Saadoun confirmed Iraq's interest in the Rafale two months later.

On May 23 2023, major general Rasool hinted that France is one of the countries from which Iraq is considering purchasing "modern military equipment".

Iraq has reportedly now finalised a US\$3.2Bn contract with Dassault Aviation to purchase 14 Rafale aircraft, with a down payment of US\$240m. The Iraqi government has proposed paying for the new aircraft in oil supplies rather than currency.

Though reported as a replacement for the F-16, the relatively small Rafale purchase may

be intended to augment the F-16s, perhaps in order to provide enhanced air defence capabilities with the Rafale's MBDA Meteor armament, or perhaps to provide a heavier and longer-range air-to-ground punch.

It is by no means a given that Iraq would be allowed to purchase the Meteor, which has been withheld from Egypt as a result of pressure from Israel.

Since 2021 there have been rumours that Iraq has been negotiating for the supply of 12 block three and the Pakistan Aeronautical Complex (PAC) JF-17 Thunder aircraft from Pakistan, at a reported cost of US\$664 million. ▲

The delivery of F-16s enhanced the fleet but Iraq is now focusing on alternatives.

PICTURE:USAF



CONTINUED FROM PAGE 37

Chengdu F-7P/PG and Dassault Mirage IIIs and the original KLJ-7 in the JF-17 block I/IIIs.

With a KLJ-7A production line being created at APF, there is every likelihood the earlier block II JF-17s could be upgraded too, and even the block Is.

The KLJ-7A will eventually be retrofitted into the JF-17B too, so making it a very capable tactical trainer, which several foreign forces are currently studying.

The PAF has taken delivery of 26 dual-seat JF-17Bs, and while most are being used to train pilots on the operational conversion unit at Mianwali, most of the operational squadrons have a couple to train new pilots tactically and allow senior pilots to keep their flying currency.

Both China and Pakistan retain a joint marketing agreement, that so far has seen Myanmar (by China) acquire seven, including two dual-seats in 2018/19 and Nigeria (sold by Pakistan) has acquired three that were delivered in 2021. ▲

## Israel to acquire more F-35I 'Adir' fighters

Israel is to acquire 25 more Lockheed Martin F-35I 'Adir' aircraft to add to its existing 50-aircraft, two-squadron fleet. The F-35I is an Israel-specific version of the F-35A, with some indigenous electronics and defensive service.

The first nine F-35Is became operational with the Israeli Air Force in December 2017, and on May 22 2018, the then-Israeli Air Force commander, major general Amikam Norkin, announced that Israel had become the first country in the world to use the F-35 in combat.

The type currently serves with 140 'golden eagle' squadron and 116 'defenders of the south' squadron at 28 air base, Nevatim, in the southern part of the Negev Desert.

A training unit, 117 Squadron, has no assigned aircraft, but instead borrows aircraft from the frontline units when required. A single dedicated testbed aircraft is based with the flight test centre at Tel Nof airbase, and is used primarily to test and integrate Israeli-produced weapons and



Combative: Israel's F35I Adir Fighter. PICTURE: LOCKHEED MARTIN

electronic systems for future F-35Is. These could include radar, electronic warfare and communications systems and systems allowing independent maintenance capabilities.

On September 3, Israel's ministry of defence announced governmental approval for the acquisition of an additional 25 F-35Is to equip a third squadron, submitting a formal letter of request to the US F-35 joint program office (JPO). The new procurement is valued at around US\$3bn. The follow-on batch of aircraft is to be delivered from 2027 at a rate of three per year, and the third squadron will be fully equipped by the end of 2035. ▲

C-390 MILLENNIUM

# UNBEATABLE COMBINATION

## MISSION-READY WITH THE PORTUGUESE AIR FORCE

We're delighted to announce the Portuguese Air Force now joins the Brazilian Air Force as a C-390 Millennium operator. The first Portuguese aircraft of the newly formed 506 Squadron is now in service at Beja Air Base, with four more aircraft to be added in the near future.

A growing number of countries are choosing the C-390 Millennium (including Hungary, Netherlands, Austria and Czech Republic) attracted by its unbeatable combination of technology, speed, performance and multi-mission capabilities. Hungary will take delivery of their first C-390 Millennium in 2024 – another milestone for an incredible aircraft that has already achieved 10,000 flight hours with the Brazilian Air Force.

#C390UnbeatableCombination  
embraerds.com



CHALLENGE.  
CREATE.  
OUTPERFORM.



ROUND-UP BY JON LAKE

## Lebanon's first female fighter pilot graduates

The Lebanese Air Force is expanding the pool from which it recruits its aircrew. The Lebanese Air Force's number seven squadron, at Hamat/Wujah Al Hajar AB, operates the six Embraer A-29B Super Tucanos delivered to Lebanon from May 2018. Among its pilots is the first Lebanese female fighter pilot, second lieutenant Jana Sader, who graduated from the USAF's undergraduate pilot training (UPT) programme (a nearly two-year-long training course) on February 3 2023. Sader began her flying career on the LAF's Scottish Aviation Bulldog piston-engined training aircraft, before being selected for UPT with the USAF's 47th flying training wing at Laughlin Air Force Base in Texas, to begin her training on the Beech T-6 Texan and then the Northrop T-38 Talon.



In the hot seat: The first Lebanese female fighter pilot, second lieutenant Jana Sader. PICTURES: JON LAKE

□□□□□

The US uses the UPT enterprise as a security co-operation tool, and to build relationships and enhance interoperability. The US and Lebanon (a vital US partner on a wide range of regional security issues) are committed to working collectively towards the common goal of a stable, secure, and prosperous Middle East, and training Lebanese pilots furthers that goal. "The biggest challenge for me was learning the T-38," Sader said. "We used to fly small prop aircraft back in Lebanon. It was the first time I flew a twin-engine jet."

Having mastered the supersonic, jet-engined T-38, lieutenant Sader took a step back in performance terms, since the LAF's frontline fixed wing aircraft are the Cessna Caravan and the Embraer A-29 Super Tucano! Though she is the first female fighter pilot in the LAF, Sader flies the turboprop-powered Super Tucano, which is used for counter insurgency (COIN) missions and as an armed trainer. The Lebanese armed forces began to

open opportunities for women during the country's long-running civil war (1975-90), and in October 1991, the government decreed that 10 per cent of personnel employed in the various departments of the defence ministry must be women, following the same training as male recruits. The role of women in the army was soon expanded from administrative and support roles to taking on tasks in frontline combat units. ▲

## QATAR EMIRI AIR FORCE GETS IN THE SWING WITH TYPHOONS

While the Lebanese Air Force lacks a fast jet capability other regional air arms are improving and expanding their combat air capabilities. The Qatar Emiri Air Force may already be training for the air-to-ground role with its newly-acquired Eurofighter Typhoons. British foreign secretary James Cleverly's three-day regional tour of the Middle East in July included a visit to the Tamim Air Base at Dukhan, where the QEAf's Typhoons are stationed and where Cleverly met Qatar's deputy prime minister and minister of state for defence affairs Dr. Khalid Al Attiyah. Cleverly was interviewed in front of a 7th 'Al Thariyat' squadron Typhoon, and photographs and videos taken during the minister's interview showed that the aircraft was carrying Paveway IV laser-guided bombs (LGBs) – the same weapon that is used by RAF Typhoons on 'operation shader' – the UK part of the multinational mission against Daesh. Previous new Typhoon operators have tended to concentrate on the air-to-air role initially, before working up in the air-to-ground role, and it would

seem that the QEAf has stepped straight into 'swing role' operations, operating in the air-to-air and air-to-ground roles simultaneously. The apparently inadvertent unveiling of the QEAf Typhoon's capability came less than a year after the commander of the Al Thariyat squadron, colonel Faisal Al-Ghanim, flew the first aircraft to Dukhan, on August 27 2022. The images also showed Raytheon AIM-120 advanced medium range air-to-air missile (AMRAAM) and MBDA AIM-132 short range (ASRAAM) missiles being carried by the Typhoon, and an MBDA Meteor missile was displayed alongside it. This confirms that Qatar is one of the few Typhoon operators to have opted for ASRAAM as its short-range air-to-air missile (along with the UK and Oman) rather than the rival IRIS-T. There was no sign of the MBDA Brimstone missiles that are also known to have been ordered for the Qatari Typhoons. There have been suggestions that the Qatari

Typhoons may eventually gain an anti-ship capability using the Marte-ER missile – which is in service with Qatar's NH90 NFH helicopters. MBDA has designed a version of the weapon for use on fast-jet aircraft, with new mid-section fixed-but-foldable wings and rear control fins. A feasibility study was awarded by Leonardo in 2017 to integrate the missile on the Eurofighter Typhoon following a request from an unnamed potential foreign customer, which may have been Qatar. With Qatar's fighter fleet building to a planned strength of 24 Typhoons, 36 Dassault Rafales and 36 Lockheed Martin F-15QAs, the air force's previous fighter fleet, consisting of 12 Dassault Mirage 2000-5 fighters (nine single-seat Mirage 5EDAs, and three two-seat Mirage 5DDAs), has been sold to Indonesia at a reported cost of €733m (US\$793m). Indonesia may also be considering the acquisition of further second-hand Mirage 2000s from the United Arab Emirates (UAE), though there are competing demands on these aircraft, with reports of a buyback by France for donation to Ukraine. ▲

# USA PARTNERSHIP PAVILION

DUBAI AIRSHOW 2023

2500+ TOTAL SQUARE METERS

21 EXHIBITORS NEW-TO-SHOW  
8 EXHIBITORS NEW-TO-MARKET

75 U.S. EXHIBITORS

# 21 STATES REPRESENTED

2 STATE PAVILIONS  
ARIZONA  
WASHINGTON

ARIZONA  
ARKANSAS  
CALIFORNIA  
CONNECTICUT  
FLORIDA  
GEORGIA  
MARYLAND

MASSACHUSETTS  
NEW HAMPSHIRE  
NEW JERSEY  
NEW YORK  
NORTH DAKOTA  
OHIO  
OREGON

PENNSYLVANIA  
RHODE ISLAND  
SOUTH CAROLINA  
TEXAS  
VIRGINIA  
WASHINGTON  
WISCONSIN

562+ SQM OF CUSTOM BUILDS BY KALLMAN CREATIVE SERVICES

NEW SME ZONE

11 CUSTOM BUILDS BY KALLMAN CREATIVE SERVICES

AS OF 10/18/23

VISIT TEAM USA AT THE DUBAI AIRSHOW OR ONLINE AT SOURCEHERE.COM!



# DEFENCE

ROUND-UP BY JON LAKE

Blade runner: Turkish Aerospace is making new ground with its T-925, here on show at the Paris Airshow. PICTURE: TAI



While Turkish UAVs are already starting to dominate the market (see below), Turkish Aerospace is hoping that its new helicopters will enjoy similar success in the global rotorcraft marketplace.

The TAI T129 ATAK attack helicopter, an improved version of the Italian Agusta A129 Mangusta, has proved extremely successful in Turkish service, and has attracted significant interest on the export market, even if orders have been slower to materialise. The T129 has provided invaluable helicopter manufacturing experience, which has been put to good use in the Turkish Utility Helicopter Programme, under which some 190 Sikorsky S-70i International Blackhawk helicopters will be built locally as the T-70i.

In November 2019, Turkish Aerospace unveiled the first locally assembled T-70i, and the first example (of 109 ordered for Turkish military and para-public operators) was delivered to the Turkish Gendarmerie General Command in December 2022.

A new firefighting variant of the T-70i, named 'Nefes' ('breath' in Turkish) by president Recep Tayyip Erdogan, has now

## T-TIME FOR TURKEY HELOS

been delivered to the Turkish Forestry Directorate (Orman Genel Mudurlugu) in the country's southwestern Mu la province. The Nefes is able to drop up to 2.5 tonnes of water and is equipped for search-and-rescue as well as firefighting.

Not content with license building other people's designs, Turkish Aerospace has embarked on a number of indigenous designs. Four prototypes of the T625 medium twin have now been flown, and the TAI T929 ATAK 2 twin-engine, heavy attack helicopter made its maiden flight on 28 April 2023.

Another new Turkish Aerospace helicopter under development is the T925, announced on the second day of the 2023 Paris Air Show at Le Bourget, and shown there in mock-up form. The T925 (also known as the general purpose II, and

previously known simply as the multirole utility helicopter) is a new heavy utility helicopter previously thought to be intended for the Turkish armed forces. Roles were said to include troop and equipment transport, VIP transport, search and rescue, firefighting, and medical transport.

Early computer-generated images (CGIs) were reminiscent of a twin-engine, scaled down Agusta Westland AW101 Merlin, but the mock-up displayed at Paris was shown in a civil configuration, with a more streamlined nose than previous CGIs, and with no military sensors, defensive aids systems, etc. There will still be military variants, including a navalised T925 with folding rotors and tail and with a corrosion resistant structure.

The helicopter will be powered by a pair of 3,000 shp turboshaft engines, probably supplied by Ukraine's Motor Sich – if the conflict in Ukraine permits, and will use indigenous composite rotor blades which have already been developed.

The T925 is expected to make its first flight in 2024 and be delivered from 2026. ▲

## BAKYAR TECH DRONE DEAL DENTS CHINESE DOMINANCE

Combat air is increasingly provided by a mix of traditional manned fast jets and uncrewed platforms, and Middle Eastern air forces are starting to acquire more versatile and capable UAVs and uncrewed combat aerial vehicles (UCAVs).

On 18 July, 2023, Saudi Arabia announced an order for the Baykar Tech Bayraktar Akinci armed uncrewed aerial vehicle (UAV) during Turkish president Recep Tayyip Erdogan's visit to the Kingdom, and Saudi Arabia and Turkey signed the estimated \$3bn agreement on August 7. The Akinci UAVs will be operated by both the Royal Saudi Air Force and Royal Saudi Navy.

Baykar CEO Haluk Bayraktar described the deal, which will include training, technical support, and logistics services as "the biggest defence and aviation export contract in the history of the Republic of Turkey".

The agreement includes technology



transfer and joint production "in order to advance the high-technology development capability of the two countries".

Saudi Arabia hopes to achieve a 70 per cent 'localisation rate' on Akinci production, including in-country manufacturing, assembly and flight testing, and with repairs and maintenance and the integration of new

Baykar and SAMI sign a major localisation agreement in Riyadh.

PICTURE: BAYKAR

sensors and payloads by Saudi industry.

Three MoUs were signed on August 6 2023. Baykar signed one with Saudi Arabian Military Industries (SAMI) for local production of the medium-altitude, long-endurance Akinci platform, while Aselsan and Roketsan signed similar MoUs with the Saudi National Company for Mechanical Systems (NCMS) for local production of sensors and weapons.

The Saudi Arabian order forms part of a growing regional trend towards the acquisition of Turkish UAV systems, with Kuwait, Qatar and the United Arab Emirates, all having purchased the smaller Bayraktar TB2 platform. This seems to mark a further erosion of China's previously dominant position in the regional UAV market, perhaps due to the unreliability of Chinese systems, poor support, and the poor fidelity of their electro-optical systems. ▲



H3 GROB AIRCRAFT



G 120TP

We have not only achieved perfection in our training aircraft but also advanced the frontiers of military pilot training.

## H3 TRAINING SYSTEM & SIMULATION

Innovating Military Pilot Training through Immersive Technology Advancements



### PILOT SELECTION & EVALUATION SYSTEM PSES

An integrated combination of tests to check the basic flying, operational and psychomotor aptitude of prospective student pilots. Previous aptitude tests with pen and paper have had their day. PSES is the modern solution for fast and cost-effective applicant assessments.

Using the latest and best immersive technology, we provide in-house developed virtual and mixed reality simulators. With a focus on innovation, we continually strive to push the boundaries of immersive technology in order to create unique and transformative military pilot training.



### VIRTUAL FLIGHT SIMULATOR

Previously known as the TF-X, Turkey's new indigenous fifth-generation Kaan National Combat Aircraft (Milli Muharip Uçak, or MMU) has assumed a new importance in recent years. **Jon Lake** takes a closer look.

# KAAN'S KINGDOM...

Despite the tragic Turkish earthquakes in early February, TAI did taxi its MMU prototype on March 16, prior to a relatively low-key ceremonial rollout, which took place as planned, on March 18.

This date is celebrated in Turkey as victory day, commemorating the battle of Çanakkale, (also known as Gallipoli). The date had a particular resonance this year, since 2023 is the 100th anniversary of the founding of modern Turkey by Kemal Atatürk. Planned first flights of the Hürjet advanced trainer and ATAK-2 attack helicopter were not achieved that day.

The fact that the MMU taxied as planned reflects the importance placed on the programme, and its priority status. The Turkish air force always planned to base its future force structure around a high/low mix of fighter aircraft types. About 100 Lockheed Martin F-35s were originally to have provided the 'high end' element – accounting for about 25 per cent of the force, and replacing the 30 or so McDonnell Douglas F-4E-2020 Phantoms and those Lockheed Martin F-16s tasked with the strike/attack role.

□□□□□

The new MMU was intended to be the cheaper, less-capable element in the high/low mix, replacing the remainder of the air force's 258 F-16C/Ds.

With the termination of the F-35 – triggered by Ankara's procurement of the Russian S-400 air defence missile system – plans changed, and the Turkish ministry of defence was forced to chart a new course.

The F-4E is now likely to serve a little longer, and the MMU will now form the 'high end' element in the future force, with the F-16 being upgraded and retained beyond the originally planned 2030 OSD (for the Block 30 and 40) to operate alongside the MMU.

What would have been an all-stealth force (F-35 and MMU) will now be an all-AESA force with the MMU and F-16 (Özgür, Block 70 and F-16V).

Upgrading the F-16 should fulfil Turkish air defence requirements in the short-to-medium term, though it is unclear as to how well the MMU will meet the high-end



platform requirement, and whether it will adequately replace the F-35A.

There is no real alternative for Turkey, however, and the MMU programme has now been designated as a "national survival project."

Some 250 of these stealthy tactical fighter aircraft are due to be procured between 2029-2040, for service from the 2030s out to the 2070s, in a three-phase programme.

Phase one, stage one began in 2018 and included the system requirements review (SRR), which saw the air force's operational requirements being translated into objective, measurable plans. Phase one also included a system functional review (SFR) which broke down the requirements at a system level and identified and set the key user requirements (KURs). It also included the preliminary design review which finalised the aircraft's detailed preliminary design in terms of its shape, sensors and sub-systems.

Stage two of the first phase is now under way, the challenging timelines so far having been facilitated through the use of a 'digital twin', using the Dassault Systemes' 3DEXperience product lifecycle management (PLM) platform.

▼ **The MMU programme has now been designated as a "national survival project."** ▲

**On the blocks: 250 of these stealthy tactical fighter aircraft are due to be procured between 2029-2040.**

PICTURES: TURKISH AEROSPACE

Stage two includes detailed design work and qualification of the design through the use of three block '0' development aircraft (or seven 'prototypes' according to some company sources).

The first of these, known as GTU-0, is the aircraft that was rolled out on March 18 2023, and is a technology demonstrator, lacking operational systems, and unrepresentative of the planned production configuration. The aircraft undertook its first taxi trial on March 17, at speeds of up to 15 kts.

□□□□□

The aircraft made a public appearance on May 1, when it was named Kaan ('ruler' or 'king of kings') by Turkish president Recep Tayyip Erdogan during a "century of the future" event at the Turkish Aerospace Industries (TAI) Ankara headquarters.

It is now expected to fly by the end of 2023, after the expected high-speed taxi trials planned for November. This first flight was once planned for 2026, showing how much the programme has been accelerated.

The three block '0' development aircraft will be powered by two General Electric F110 engines, although later aircraft are expected to use indigenous engines.

The second prototype (known as P1) is due to fly in 2025, and will be more representative of the planned production



aircraft, and will cover the entire envelope. The third aircraft is expected to fly in 2026.

Phase two will begin in late 2028 and will include the delivery of 10 block one aircraft to the Turkish Air Force between 2030-2033. The delivery rate will rise to two aircraft per month by 2029.

Phase three will begin in 2034 with follow-on blocks being delivered that year and into the future. The block 20 MMU will be a true fifth generation fighter, with LO-appropriate materials, coatings, sensors and systems, and with super-cruise capabilities. The definitive production MMU aircraft will use an advanced carbon composite fuselage for the TF-X, using new lighter carbon composite thermoplastic materials developed by TAI's advanced carbon composites fuselage facility, which was previously tasked with producing F-35 fuselages.

The MMU is equipped with a highly-integrated and domestically-developed sensor suite, including a new active electronically-scanned array (AESA) radar being developed by Aselsan using the latest gallium nitride (GaN) technology, an integrated electro-optical system (IEOS) includes a dedicated infrared search and track (IRST) sensor and an electro-optical targeting system (EOTS) and a new electronic warfare (EW) and self-protection system.

Indigenous content is a vital part of the

MMU. Professor Dr Temel Kotil, the CEO of Turkish Aerospace Industries, has highlighted and emphasised the involvement of Turkish companies in the design and development of all aspects of the MMU, which he insists will ensure the operational sovereignty of the aircraft. He said: "We have Aselsan for avionics and computer hardware, we have Havelsan for software, and TAI also has its software team." The aircraft will also use indigenous weapons where possible.

□□□□□

The MMU is optimised as an air superiority fighter, but will also have a robust secondary ground-attack capability. In the air-to-air role, the aircraft's armament options will include the MBDA Meteor and MICA, and Raytheon's AIM-120 advanced medium-range air-to-air missile (AMRAAM), as well as the indigenous Gökdoğru an missile, while short-range weapons will include AIM-9X, advanced short-range air-to-air missile (ASRAAM), and the Turkish Bozdoğan an missile. In the longer term, MMU is likely to incorporate directed energy and electromagnetic pulse weapons.

The MMU's air-to-ground weapons options, will include a newly-developed reconnaissance pod. In low observability (LO) configuration, the MMU will have only a modest internal 1,000lb weapon

**The Kaan do attitude: Turkish Aerospace's new kid off the blocks.**  
PICTURES: TURKISH AEROSPACE

load, primarily using small precision-guided munitions (PGMs) like Aselsan's new Tolun, an INS/GPS-guided winged munition with a stand-off range of 60 miles. The aircraft can also carry the compressed carriage TÜBİTAK SAGE SOM-J cruise missile, which was originally designed for internal carriage by the F-35A, with folding control surfaces and a booster.

In a non-stealthy configuration, the aircraft has six external hardpoints, and will carry a much heavier bomb load, including other variants of the SOM (Satha Atılan Orta Menzilli Mühimmat) next-generation cruise missile, including the SOM-B1 with infrared terminal matching, and the SOM-B2 with a two-stage penetrator warhead.

Like other new fighters in development, including the US next-generation air dominance (NGAD), the Anglo-Italian-Japanese global combat air programme (GCAP) Tempest and the Franco-German-Spanish future combat air system (FCAS), the MMU manned fighter will form part of a system of systems, augmented by an array of adjuncts and effectors, with encrypted datalinks that will allow it to control accompanying loyal wingmen and swarming drones.

These are likely to include the new MİUS (Muharip İnsansız Uçak Sistemi) unmanned combat aircraft system, a requirement that could be fulfilled by Baykar's Kızılelma, or by TAI's own Anka 5. ▲





UAVs

Mohammed Bin Zayed Al Nahyan, president of the United Arab Emirates (UAE), created Edge in 2019. Now a defence mammoth with 6,000 employees and more than 25 subsidiaries, in 2020 Edge became the 22nd biggest arms seller with US\$4.75bn in sales. **David Oliver** investigates.

One of its subsidiaries is Adasi (Abu Dhabi Autonomous Systems Investments), which designs, manufactures, and maintains next-generation unmanned systems for air, land and sea, that are capable of performing in a diverse range of demanding environments.

With the United States reluctance to supply the UAE with advanced armed unmanned aerial systems, such as the General Atomics' MQ-9A Reaper, Adasi is producing a range of indigenous UAVs for the Emirates' armed forces and for potential exports.

These include the Air Truck, a powerful logistics UAV with a 500kg payload capacity that can operate via a pre-programmed mission or live operator, making it ideal for higher-risk or more dangerous missions. Suitable for military, and civilian deployment, cargo can be transported via a custom-designed air box that ensures rapid cargo loading and unloading.



The Garmoosha is a VTOL UAV designed to carry payloads of approximately 120kg with an endurance of eight hours and 150km (81nm) range. Designed for surveillance capabilities, it is powered by a low-consumption fuel engine.

The QX-4 is a VTOL mini-UAV for advanced intelligence, surveillance and reconnaissance (ISR) missions, featuring an extended endurance of up to 13 hours. With advanced autopilot and communication systems, the QX-4 can carry payloads of up to seven kilograms, is easily transportable by a light vehicle and delivers a stand-off range of 150km (81nm).

Another addition to the QX range, the QX6-50 is developed for logistics purposes for military and civilian applications. Capable of carrying a 50kg payload for up to 200km (108nm), the rotary-wing UAV can operate autonomously and is highly modular with other QX variants for ease of maintenance.

Adasi has also designed and marketed a series of loitering munitions with the manufacturer Halcon, including the QX-1, which provides military forces with an effective small-footprint tool to make discreet, targeted attacks with accuracy and effectiveness. Easy to carry, this kamikaze system features multiple fuse options to meet any mission requirement.



Air force: The Hunter 2-S is a tube-launched swarming drone. PICTURES: EDGE

## UAE'S DRONES GIVES IT THE EDGE

The quad-rotor kamikaze VTOL mini-drone provides operators with an onboard video feed, fast-flight attack speed, a range of 10km (5.4nm) and a 500-gramme payload.

The Shadow 25 is a fixed-wing smart loitering munitions system that provides defence forces with a jet-powered, rapid-strike kamikaze munition capable of delivering a precision strike against fixed targets. Featuring advanced guidance capabilities and onboard video navigation, the system has a cruising speed of 400 km/hr (216 kts), creating new opportunities to swiftly neutralise stationary enemy targets with a powerful 25kg payload up to a range of 295km (159nm) away.

The advanced Shadow 50-P provides defence forces with a powerful, long-endurance, loitering munition that delivers precision strike capabilities against fixed targets. Its advanced guidance capabilities and onboard video navigation, enables the rapid delivery of large payloads.

In February, 2023 Adasi announced that it has signed a US\$362 million contract to supply an undisclosed number of



Eye in the sky: The Garmoosha VTOL tactical UAV.

Shadow 25 and Shadow 50 UAVs to the UAE Armed Forces.

Other systems in production include the Hunter soldier portable (SP) UAV, the tube-launched Hunter 2-S swarming UAV system equipped with advanced AI-technology, which has been also supplied to the UAE Armed Forces, and the Reach-S armed UAS which is undergoing flight trials.

A mockup of the Adasi Jeniah low-observable unmanned combat air vehicle (UCAV) was displayed at IDEX 2023 in Abu Dhabi. The Jeniah is 10.5-metres long and is fitted with trapezoidal wings with a 6.5-metre span and a V-shaped tail-plane. Maximum take-off mass is stated to be in excess of 4,000kg, carrying a weapons payload of 480kg. All of its weapon load is designed to be carried within the weapons bay, to ensure maximum stealthiness. Propulsion is provided by an unspecified jet engine, which will ensure a maximum speed in excess of 1,000 km/h (540 kts), and a cruising speed of Mach 0.8.

Although there is no confirmation of when the Jeniah will be built and flight tested, it is an indication of Edge's ambition to become a global leader in advanced autonomous systems. ▲



SAAB SURVEILLANCE SOLUTIONS  
**Stay ahead**

At Dubai Airshow 2023, discover Saab's renowned surveillance solutions, including **GlobalEye** – the world's most modern and advanced AEW&C platform – and a selection of our **Giraffe radar systems** which provide leading-edge sensor capabilities. Also featured, products from Saab's traffic management portfolio including **Deployable Digital Tower**, and the UAE-developed security and communications system, **DeployNet**.

Visit Saab at the Dubai Airshow on stand 965.



An RSAF Typhoon on show at the Bahrain International Air Show lasts year. PICTURE: BIAS

## GERMANY STALLS SAUDI TYPHOONS

Saudi Arabia has long had a requirement for another batch of Eurofighter Typhoons to augment the 72 aircraft delivered from 2009 to 2017. But chancellor Olaf Scholz's coalition is blocking the deal. **Jon Lake** reports.

Talks for a second batch of 48-72 Typhoons were reported in October 2016, and a memorandum of intent for an additional 48 Typhoons was signed on March 9 2018, during Saudi crown prince Mohammed bin Salman's visit to the United Kingdom. These additional Typhoons would replace the Royal Saudi Air Force's (RSAF's) remaining legacy Boeing F-15C Eagle air defence aircraft.

Signing a contract for these aircraft was delayed by the Saudi military intervention in Yemen (which led to a German refusal to support the proposed sale), and by a Royal Saudi Air Force determination that the new batch should be equipped with the Eurofighter common radar system (ECRS) mark two radar and a large area cockpit display, once the development and integration of these items had been completed and they were on order for the UK Royal Air Force.

With these enhancements incorporated, there were even suggestions that the Typhoon requirement could be expanded to more than 100 aircraft, perhaps becoming a replacement for the RSAF's remaining 70 or so Panavia Tornado interceptors.

On Wednesday July 12 2023, it was announced that the German government had agreed to soften its position on arms exports to Saudi Arabia – but would continue to block Eurofighter Typhoon

deliveries. Though the pro-business Free Democratic Party (FDP) urged the coalition government of chancellor Olaf Scholz to reconsider exporting Typhoons to Saudi Arabia, the Greens, another of the coalition partners (alongside Scholz's Social Democrats, and the FDP) were firmly opposed.

Though Scholz did reach agreement with the Greens and FDP to allow weapon exports to Saudi Arabia "in specific individual cases," these weapons were not to be employed in Yemen, nor to support potential violations of human rights.



Scholz himself told journalists that the agreement did not change Berlin's position on Eurofighter deliveries to Saudi Arabia, which thus remained blocked.

"I can tell you that a decision on a Eurofighter delivery to Saudi Arabia is not on the agenda for the foreseeable future," Scholz said during his closing press conference at the NATO summit in Vilnius.

Government officials subsequently clarified that this meant that there would be no authorisation to export Eurofighters to Saudi Arabia in the current legislative period, which runs until late 2025.

In December last year, France's *La Tribune* financial newspaper reported that Saudi Arabia was considering the acquisition of 100-200 Dassault Rafale

fighters. This was widely assumed to be as an alternative to the Kingdom's stalled Typhoon deal, but this may not be the case. Instead, the Rafale may be under consideration as a replacement for the RSAF's 154 advanced Boeing F-15SAs and F-15SRs. Though deliveries of refurbished F-15SR aircraft are still ongoing, Saudi Arabia is understood to believe that the type will soon need to be replaced.

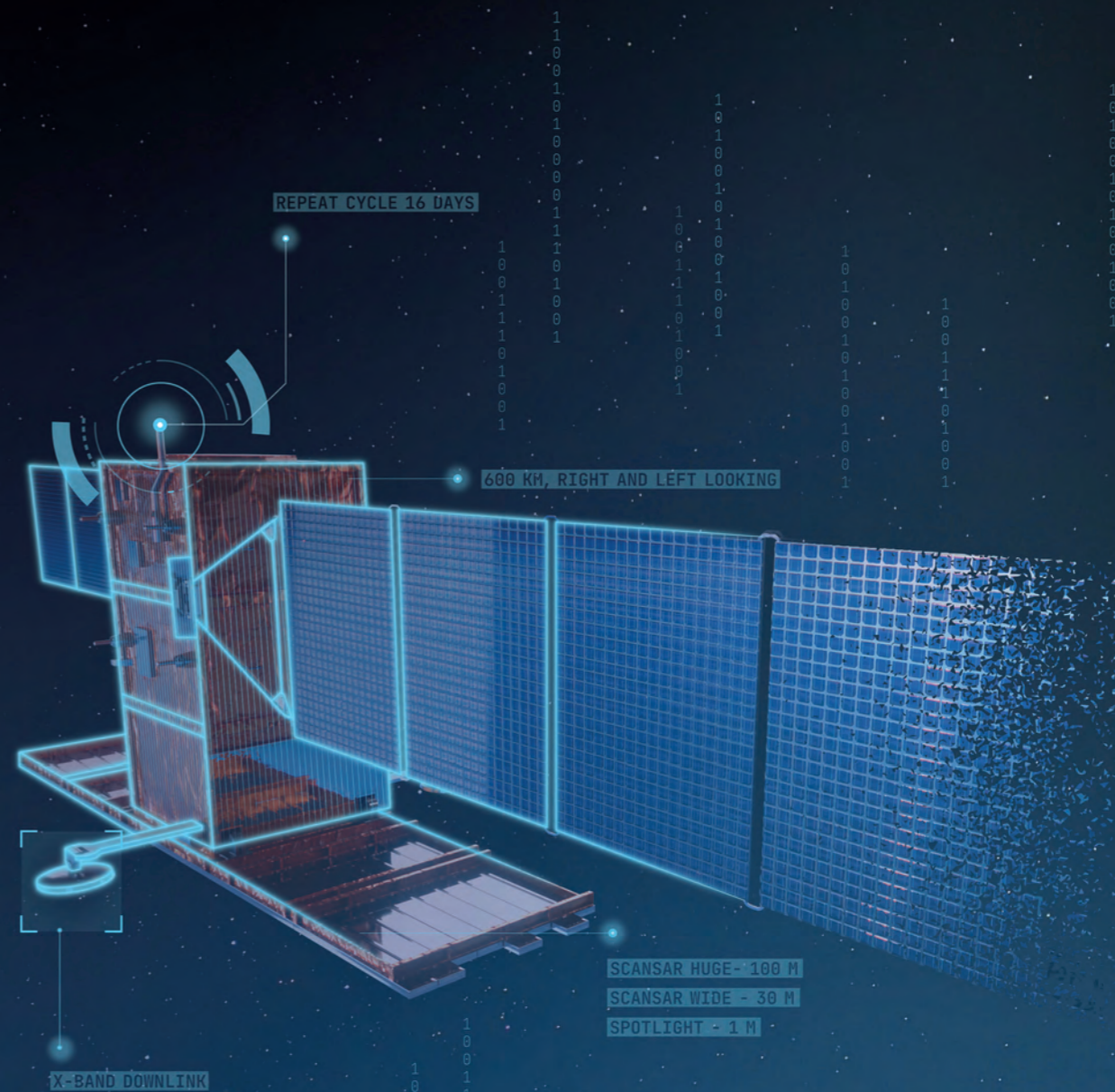
Saudi Arabia is understood to aspire to operating the Lockheed Martin F-35A Joint Strike Fighter, whose fifth generation characteristics of LO (stealth) and connectivity would revolutionise RSAF capabilities.

But although Saudi attempts to acquire the F-35 are ongoing (with reports that Khaled Al Biyari, has been in Washington arguing Mohammed bin Salman's case for F-35 procurement) there may be an acceptance that any such procurement remains many years away, if it is possible at all. There is a significant opposition in Washington, and a belief that an F-35 deal would risk eroding Israel's congressionally-mandated 'qualitative military edge', even if Saudi Arabia were to sign the Abraham Accords and normalise relations with Israel.

Any loosening of Saudi Arabia's defence relationship with the US would threaten the 'dual track' procurement approach that the RSAF has followed up to now, splitting its purchases between the USA and the UK, and a Rafale acquisition might allow a degree of diversity of supply, without requiring the Kingdom to embrace Chinese or Russian military aircraft.

▼ I can tell you that a decision on a Eurofighter delivery to Saudi Arabia is not on the agenda for the foreseeable future. ▲  
CHANCELLOR OLAF SCHOLZ

## TECHNOLOGY EVOLVES HERE.



### Leonardo builds a sustainable future through industrial capability, investing in strategic skills

Leonardo is home to the sustainable future thanks to its long-term vision, consisting of engineering expertise, knowledge and skills. It exploits the digital to enhance its legacy businesses, accelerating technological evolution.

Visit us at DUBAI AIRSHOW, Chalet A10



leonardo.com





## WHERE PLANS COME TOGETHER

Empowering your journey in the skies with Skyplan, a trusted partner in flight planning and dispatch systems. With Skyplan's AURORA 2.0, we're setting the standard for operational efficiency and flexibility.

Our advanced optimization engine allows for the creation of optimized flight plans that significantly reduce operational costs and minimize potential disruptions. Trusted by leading commercial and business aviation operators worldwide, Skyplan is more than a service provider - we're your co-pilot in every journey, ensuring smooth and efficient operations from takeoff to landing.

Call us at: +971 4 2999316  
or visit: [www.skyplan.com](http://www.skyplan.com)  
for more information.

**EGYPT**  
INTERNATIONAL  
**AIRSHOW** | 2-5  
SEPT  
2024

El Alamein International Airport

DEFENCE | SPACE | COMMERCIAL

# THE GATEWAY TO AEROSPACE IN AFRICA & THE MIDDLE EAST

**2-5 September 2024**  
El Alamein  
International Airport

DISCUSS YOUR PARTICIPATION:  
sales@arabianworldevents.com

Officially Supported by:

Ministry of Defence  
Egypt Air Force  
وزارة الطيران المدني  
Ministry of Civil Aviation  
AFRICAN AEROSPACE  
Arabian World Events

Media Partner

Organised by:

@egyptairshow  
www.egypt-air-show.com

Mission possible: The X-shaped structure features an undulating roof and expansive windows flooding the terminal with natural light.  
PICTURE: ABU DHABI AIRPORTS



## THE A-TIME

ABU DHABI'S GATEWAY TO A SEAMLESS PASSENGER JOURNEY

*The long-anticipated Terminal A at Abu Dhabi International Airport will finally open to the public this month.*  
**Chloe Greenbank** reports.

**H**ollywood filmstar Tom Cruise might have shone the spotlight on Abu Dhabi Airport's new terminal back in June, when he landed there to promote the latest instalment of the "Mission: Impossible" films. But at the time the new facility, which originally had a price tag set at \$3 billion, was yet to open for business. That's all set to change this November however, when the airport is scheduled to celebrate the long-awaited opening of its Terminal A.

Marking a milestone for Abu Dhabi's aviation landscape, construction of Terminal A – known previously as the midfield terminal building – originally began more than a decade ago in 2012. While cost overruns and the pandemic have been blamed for delaying the original completion date in 2017, the airport is now finally set to open its doors with all flights, including those operated by Etihad Airways, Wizz Air, Abu Dhabi and Air Arabia Abu Dhabi, expected to transfer over to the new facility from 14 November.

Spanning an impressive 742,000 sq. m. and with the capacity to handle up to 45 million passengers per year, the terminal has been described as a "visual masterpiece" that redefines airport design and functionality.

Designed by Kohn Pederson Fox, the imposing X-shaped structure features a 50m high space in the departures hall with long-span leaning arches, an undulating roof and expansive windows flooding the terminal with natural light. At night the building's illuminated interior creates a transparent structure visible over 1,500m away.

Describing the new terminal as a "gateway to the world," His Excellency Sheikh Mohammed bin Hamad bin Tahnoon Al Nahyan, chairman of Abu Dhabi Airports said: "The opening of the new facility, which is on par with the largest and grandest on our planet, turns over a new page in Abu Dhabi's 55-year aviation history. A beacon of modernity and sophistication, it will be a pivotal driver for our emirate's growth by spurring tourism and trade."

He also noted that "terminal A embodies Abu Dhabi Airports' commitment to support the emirate's sustainable

and economic development." In line with the UAE's sustainability targets, the building features energy-efficient lighting, advanced heating, ventilation and air-conditioning (HVAC) systems and has incorporated sustainable materials into its construction. Meanwhile, a fully-integrated solar photovoltaic (PV) system has been installed on the roof of the car park. This powers a three-megawatt solar PV plant saving nearly 5,300 tonnes of CO2 annually.

Inside, the terminal features world-class amenities, including luxury lounges and relaxation zones. Passengers will also be able to make the most of the 163 retail and food and beverage outlets.



Key commercial partners appointed under the contracting process in 2016 include Lagardère Travel Retail, Emirates Leisure Retail and SSP, while JC Decaux has been awarded a 10-year exclusive advertising concession for the new terminal. As part of this agreement JC Decaux will roll out a unique media platform, including four media walls, to offer an immersive experience for passengers.

To ensure a seamless passenger experience, the terminal will also be equipped with the latest passenger-processing technologies, including a range of interconnected biometric systems. In addition, self-service kiosks, streamlined security checkpoints and the world's most extensive baggage handling system (according to construction firm Turner & Townsend) will help the airport process up to 11,000 passengers per hour. When fully operational, Abu Dhabi Airports says the terminal will be the only one globally to offer all nine touchpoints in the biometric journey, paving the way for a travel experience tailored to individual passengers.

Elena Sorlini, managing director and interim CEO, Abu Dhabi Airports, said: "Through leveraging the latest technologies, Abu Dhabi's reimagined airport experience will offer a seamless passenger journey, fostering connectivity, interactions, business, trade and tourism." ▲

Sharjah Airport Authority has been continuously deploying smart and advanced solutions to offer enhanced passenger services and a seamless travel experience. Extension works will increase its handling capacity from eight to 20 million passengers per year by 2025. **Anuradha Deenapanray Chappard** reports.

# SHARJAH ON THE CHARGE...



optimistic that the addition of more destinations will provide us with more travel and logistics opportunities," he said.

Sharjah Airport will be extended to increase its capacity from eight to 20m people per year within the next two years. The new infrastructure, estimated at roughly US\$410m, will provide state-of-the-art facilities, streamlined check-in and registration procedures and cutting-edge technologies.

The project involves the construction of a new building and a terminal for arrivals.

The authority's development strategy aims to strengthen Sharjah Airport's leading position and achieve sustainable growth in the aviation and cargo sectors.

Sharjah Airport passenger traffic soared by more than 24 per cent in the first half of 2023. The airport also achieved substantial growth in cargo operations. It handled more than 70,000 tonnes of cargo, including 6,000 tonnes of sea-air cargo.

These figures highlight the airport's vital role in facilitating trade and logistics operations, thereby strengthening its position as a reliable and efficient cargo hub in the region.

Salim Al Midfa, chairman of Sharjah Airport Authority, said that the current achievements depict the efforts of the Authority "to exceed expectations of passengers and enhance their travelling experience, as well as elevate Sharjah Airport's status to become one of the top five regional airports that offer an exceptional travel experience."



Six new flight and three cargo destinations have been added to Sharjah's network to meet growing demand from around the world. The new destinations include Kuala Lumpur in Malaysia, Ufa City and Samara City in Russia, Lar in Iran, Indore in India, and Bangkok in Thailand. The newly-added air cargo destinations are Houston in the U.S., Kigali in Rwanda, and Nashik in India. This move is in line with the authority's aim of boosting commercial ties and contributing to the economic expansion of Sharjah and the UAE as well as improving connection with the world through sustainable growth, enhancing the infrastructure and service offerings.

"We are constantly extending Sharjah Airport's network in order to deliver exceptional customer experiences in accordance with best international standards. We are

**The road to sustainability: Sharjah Taxi started testing its first electric vehicles at Sharjah International Airport last June. The fleet of limousines leads the route towards environmentally-friendly transportation, with the ultimate goal of achieving carbon-free public transportation by 2050.**

PICTURE: SHARJAH AIRPORT

The airport's exterior will mirror the wing of a plane, resulting in an open book shape structure. New aircraft hardstands, with 12 remote aircraft hardstand apron pads, will be created and connected to the existing building, while the roads leading to the airport will be developed.

The expansion also includes the renovation of the existing building and construction of a new departures terminal, two passport control areas to ease passenger flow, a new VIP lounge and a new ground support equipment (GSE) vehicle maintenance facility.

Sharjah Airport launched a summer campaign under the slogan 'Summer at Sharjah Airport', focusing on providing passengers with enhanced and seamless travel experiences, with special attention to enriching the journey for children.



Sharjah Airport is pursuing its sustainability vision three years after obtaining the ACI level 3+ neutrality accreditation for successfully managing its carbon imprint.

Sharjah Taxi, a part of Osool Transport Solutions, started testing its first electric vehicles at Sharjah International Airport last June. The fleet of limousines leads the route towards environmentally-friendly transportation, with the ultimate goal of achieving carbon-free public transportation by 2050.

Sharjah Taxi is expanding the number of electric charging stations across the emirate to cater for various electric vehicles, ensuring compatibility and convenience for users.

Sharjah is adding new chapters to its history as a vital trading hub and important sheikhdom in the 18th century under the Al Qasimi dynasty.

Aviation is clearly a growth lever for its economy, which grew by 5.2 per cent in 2022, and Sharjah Airport is indisputably a major airfreight hub in cargo tonnage in the Middle East and global powerhouse for air connectivity. ▲

# Expert aviation solutions for sustainable growth

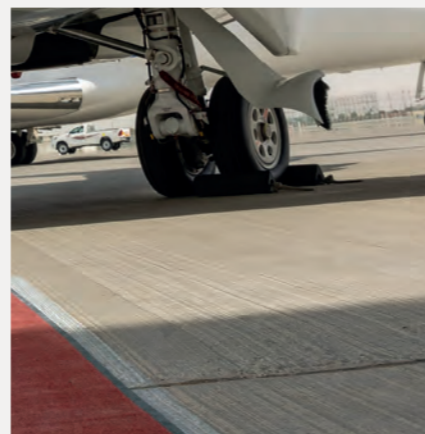
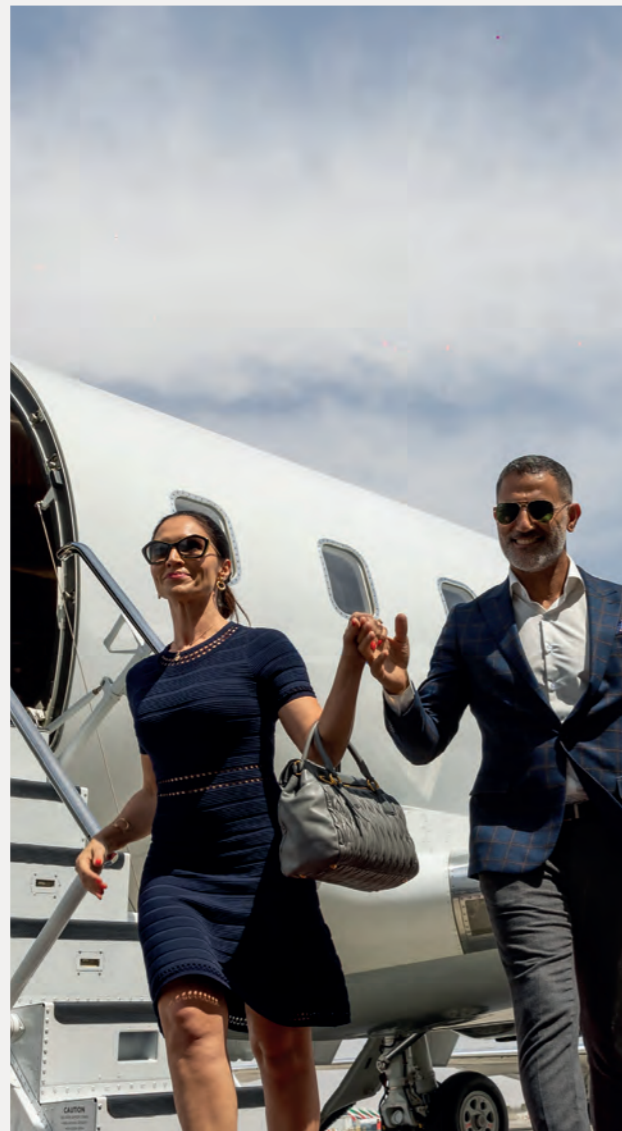
The aviation business needs to focus on efficiency, profitability and growth

Benefit from our comprehensive consultancy services

Let's get started:  
MiddleEast@LHConsulting.com



Lufthansa Consulting



# An Unrivalled Aircraft Management Service...

Is proudly offered by DC Aviation Al-Futtaim

Operational in Dubai since 2013, we have been a consistent centre of excellence for quality business aviation operations in the Middle East. Managed by a senior team of business aviation executives, DC Aviation Al-Futtaim operates and manages aircraft, providing an exceptional range of capability, performance, and the satisfaction that comes with unmatched levels of customer service.

Get in touch with our team today to experience our passion for excellence.



Since September, instead of cargo crates, pets can sit comfortably with their owners on plane journeys between Dubai and London, serviced by K9 Jets.

**Anuradha Deenapanray Chappard** tells us how this pet-friendly tale started.

## PET SET IN A DOG FLIGHT

**K**9 Jets' pay-per-seat private jet charter service is making the owner-pet travel experience more serene and enjoyable. This service came as a relief to travellers "frustrated with the inflexible regulations set by commercial airlines for travelling with pets".

K9 Jets was founded by a Birmingham-based couple, executive assistant Kirsty Golder and private pilot Adam Golder.

The expertise gained within their boutique private jet brokerage G6 Aviation has been the springboard for the new venture, enabling a new service dedicated to pet owners to be tailored within the charter market.

It promises to deliver the same high level of customer service already committed to the G6 client base.

Adam Golder said: "Our mission is provide a global network of pet-friendly pay-per-seat travel and provide an alternative method to travel with your pets."

The company flies domestic pets, dogs, cats and sometimes rabbits.

□□□□□

Passengers can book a seat for themselves and their pet on the aircraft, who can sit on their lap or by their side in the cabin.

"We always use private terminals to depart and arrive into to make the experience stress free for pets and passengers alike.

"The majority of airports can accept pets, however, they may not expect 10 pups on one flight!"

From \$9,925, pet owners can travel with their furry companions on-board a private jet. Full prices are available on their website.

Since its launch, flights have been mostly transatlantic and operated by Pegasus Elite Aviation or another licensed U.S. air carrier as the public charter company is not a direct air carrier and does not own or operate any aircraft.

All of their summer charters were sold out. K9 Jets aims to charter 700 pet-inclusive flights by the end of the year.

The UK-based company launched its first Dubai-London service in September, driven by demand in the region. In fact, there have been many requests and phone calls from Dubai. Some passengers even booked seats only a few hours after pre-bookings became available.

"Dubai has a high proportion of expats and many have pets. We want to provide a service



It's a dog's life - but passengers were keen to join the first flight to London from Dubai. PICTURE: K9 JETS

so they can travel back home at Christmas, escape the heat of the summer, or relocate back home without having to worry about the thought of using cargo. We are looking to expand into Asia and into Australia next year with details to be announced soon," added Golder.

The company underlines that for financial viability, it needs to sell around 15 seats on the Dubai-London service. Additional flights might be added on this route if there's a demand.

□□□□□

But why pet chartering?

The adventure started in 2021 when the couple launched G6 Aviation, a boutique private jet brokerage targeting high net worth individuals that traditionally fly first class when they travel for leisure or business. In the first 12 months, a large number of pets were already flying with its passengers.

"In February 2022, we received an enquiry requiring a jet for 10 adults and 10 dogs to travel across the Atlantic - highly unusual!

"We were introduced to a Facebook group they were part of where people get together to share the cost of the jet," recalled Kirsty and Adam.

In 2022, the company flew more than 150 passengers and 180 pups who had met on Facebook. However, everyone that flew like this said that there should be a service dedicated to passengers and pups without joining a Facebook group, but by just simply booking a seat.

"So we did just that. We started work on the concept in June 22 with our web team, plus legal team in the US and UK and our operator."

A simple request finally turned out to be a golden opportunity in this niche market.

"As far as we know, we are the world's first official pet-friendly pay-per-seat public charter operator. Our passengers can only fly with their own dogs, all paperwork is checked by the relevant authorities before we fly," said Kirsty and Adam.

The seating plan is based on the pets' temperament.

"Our staff or our operators' crews have not received official pet training. Passengers are responsible for the health of their own pets, however, this is an area we want to invest in." ▲



Providing  
end to end  
ACMI solutions  
worldwide

Chapman Freeborn is exceptionally placed to provide capacity for all aircraft leasing needs to airlines worldwide through our dedicated inter-airline ACMI leasing division.

Whether you require a last minute ACMI sub charter or are seeking additional lift to fulfil peak season demand, our experienced team of experts offer a wide scope of options for airlines looking for ACMI solutions.

Find out more: [chapmanfreeborn.aero](http://chapmanfreeborn.aero)



ROUND-UP

## UAM REVOLUTION GAINS MOMENTUM

The eVTOL segment is emerging in the Middle East, with a growing appetite for this sustainable urban air mobility (UAM), especially in congested cities.

For the first time a Volocopter eVTOL aircraft performed safe and successful test flights in Saudi Arabia at the end of August.

Volocopter, the pioneer of UAM, and Saudi regulator, the General Authority of Civil Aviation (GACA), plan to implement and scale an electric UAM ecosystem and testbed in Neom, the smart and sustainable regional development in northwest Saudi Arabia.



The partners worked closely to ensure full regulatory compliance and safety ahead of the test campaign.

Abdulaziz Al Duailej, president of GACA, said: "This represents an important milestone for the Saudi aviation sector and another steady step towards achieving its strategy, through innovation and employing emerging technologies to create new industries".

Nadhmi Al-Nasr, CEO of Neom, added: "Driving the development of smart, sustainable, and safe mobility systems will improve livability and connectivity in cities around the world and reduce carbon emissions, creating a cleaner future for all."



Evolution: Volocopter's first test flight takes off at Neom experience centre. PICTURE:VOLOCOPTER

The test campaign focused on the flight performance of the Volocopter aircraft in local climate and environmental conditions, as well as testing its integration into the local unmanned aircraft system traffic management (UTM) system.

During the Paris Air Show, Volocopter and Groupe ADP, alongside the French Civil Aviation Authority and Paris region, stressed

that Paris will be the first European city to offer eVTOL services in summer 2024, most certainly for the Paris Olympic Games.

Dirk Hoke, CEO of Volocopter, said: "We are counting down the days to making electric air taxis a reality. Together with our French partners, we will take command in decarbonising aviation, slowly but surely." ▲

## SAUDI ARABIA LAUNCHES ITS FIRST SEAPLANE COMPANY

MAKING WAVES: The Cessna Caravan will soon be transporting guests to the Red Sea resorts in Saudi. PICTURE: RED SEA GLOBAL



Saudi Arabia has launched its first seaplane company, Fly Red Sea. The company was created to transport guests across The Red Sea's island resorts, including St Regis Red Sea resort and Nujuma, a Ritz Carlton resort.

It will initially use a fleet of four Cessna 208 Caravans, all equipped with boutique, luxury interiors, to transport tourists to The Red Sea and Amaala tourism resort developments along the country's west coast.

The fleet will expand in line with the destination's development phases, growing to nine seaplanes by 2028 and is expected to increase to more than 20 by 2030.

"As a pilot myself, I was deeply invested in the efforts to build Fly Red Sea. Our goal was to create a company that would allow us to maintain high standards across

every guest touchpoint, that would give us the platform to explore technologies to reduce the aviation industry's carbon footprint, and which would prioritise giving skilled, rewarding career opportunities to the Saudi people. Fly Red Sea achieves this on every level," said John Pagano, group chief executive of Red Sea Global.



Each aircraft can accommodate a pilot and up to six guests with luggage for guest transfers to water-based resorts, or up to nine guests for scenic tours across the entire destination.

At Red Sea International Airport - the homebase of

Fly Red Sea - a dedicated seaplane runway runs in parallel to the main terminal and eventually will encompass a dedicated seaplane terminal.

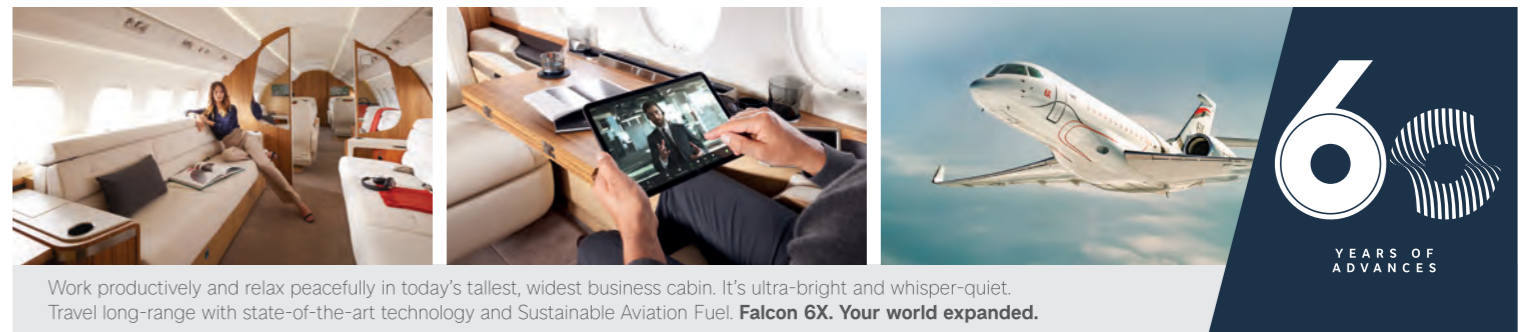
Pagano said that sustainability is at the core of Fly Red Sea, so it has chosen to fuel its fleet of seaplanes using sustainable aviation fuel (SAF).

It is also exploring the possibility of fully electric seaplanes and is continuing to work closely with ZeroAvia to trial retrofitting Cessna Caravan Seaplanes with hydrogen-electric propulsion technology.

The Red Sea will welcome its first guests this year. Red Sea International Airport is now operational, receiving its first flights last month, and the first two hotels are taking bookings. ▲

# YOUR WORLD IS ABOUT TO EXPAND.

EASA/FAA Certified August 2023



Work productively and relax peacefully in today's tallest, widest business cabin. It's ultra-bright and whisper-quiet. Travel long-range with state-of-the-art technology and Sustainable Aviation Fuel. Falcon 6X. Your world expanded.



## Falcon 6X

WWW.DASSAULTFALCON.COM | FRANCE: +33 1 47 11 88 68 | DUBAI: +971 4 299 3950





# Complex Supply Chain?

We are your nose to tail solutions provider



AJW Group is the world-leading, independent, parts, repair, lease, engine, flight hour programme and supply chain solution integrator, transforming efficiency in commercial, business and defence aviation.

With hubs and offices on every continent - including AJW Technique, a state-of-the-art component MRO facility in Montreal - nose to tail, we have you covered.

[ajw-group.com](http://ajw-group.com)

# AJW®

Will there or won't there be a downturn in the Boeing 737 passenger-to-freighter (P2F) conversion business? It depends who you speak to, as **Chuck Grieve** discovers.

Room to grow: Preparatory work is under way on a new maintenance hangar at Queen Alia International Airport.

PICTURE: JORAMCO



## What is the freight expectation?

**W**hile the “voices of doom” in the aerospace industry are predicting stormy weather ahead for P2F conversions, notably B737-800 programmes, those converting airframes are not just getting on with the work – their numbers are expanding.

It came as no surprise when Joramco, the engineering arm of Dubai Aerospace Enterprise (DAE), became Boeing’s newest 737 conversion centre under an agreement signed in August. Boeing clearly believes in the viability of the Boeing converted freighter (BCF) programme and adding to its strengths, the location of Amman-based Joramco at the crossroads of Asia, Europe, and Africa makes it a key partner.

Despite warnings from global consultants IBA suggesting potential overheating in the conversion market, specifically the 737-800BCF segment, Boeing remains bullish.

The Seattle airframer predicts growth of 65 per cent in the global freighter fleet, to more than 3,700 aircraft in 2042. It said this expansion will need about 1,300 P2F conversions such as the 737-800BCF.

□□□□

In the Middle-East and Africa, the all-freighter market is expected to register a compound annual growth rate (CAGR) of more than four per cent up to 2028.

Jeff Wilkinson, chief executive of DAE Engineering, said the group had a longstanding interest in the cargo conversion market, ever since the acquisition of Joramco in 2016. A key factor behind this move was northern hemisphere MRO seasonality and strategies to keep Joramco’s Amman hangars full year-round. Entering the P2F conversion business alongside providing widebody maintenance services for southern hemisphere operators, global flag-carriers, and cargo customers was a clear and strategic choice for Joramco.

After extensive talks with both major OEMs, Joramco announced the deal with Boeing and started preparatory work on the site of a new wide body maintenance hangar at Queen Alia International Airport. Wilkinson said: “Joramco is currently working with Boeing on the project readiness

and if all goes to plan, we will be ready by Q3 of 2024 with end-of-year 2024 rollout,” Wilkinson said.

Wilkinson believes that there is a room for growth in the converted freighter market. Factors include the growing proportion of aircraft in the current cargo fleet approaching 30 years of age, the number of narrowbody conversions delivered to date, and the growth in e-commerce.

He told *Arabian Aerospace*: “I strongly predict that the 737 [P2F] market will be very successful for Boeing and Joramco. We are actively seeking potential partners, with a particular focus on other lessors who are the primary customers for BCFs within the industry.”

□□□□

Bahrain-based cargo airline Texel Air appears to agree. Introducing the 737-800BCF to its fleet in 2022 brought new markets into play. Chief operating officer Patrick Fennell was quoted at the time as saying: “It puts Central Asia, Africa, Indian subcontinent and the edges of Europe within our reach. It has great operating economics, and is tried and tested in the passenger space.”

“Feedstock remains the biggest challenge to the project,” said Wilkinson. Expectations that the uptake of the 737MAX had been expected to leave behind large numbers of 737NGs at the age and valuations that make freight conversions attractive. However, ongoing uncertainties surrounding the MAX have impacted deliveries, with the result that operators and lessors are reluctant to leave themselves exposed by earmarking active passenger aircraft for conversion.

As for any potential B757 and B767 P2F projects, Joramco has no interest in that direction; for one thing, it does not have these types in its portfolio.

However, should Boeing announce plans for a 777BCF – a market Joramco has been closely monitoring – Wilkinson said: “I guarantee we would be knocking on the door asking for partnership as I truly believe a 777BCF would be an absolutely dream product for the customers who already own the ageing airframes. For Joramco as a leading MRO, we would love to be involved.” ▲



PICTURE: JORAMCO

▼ If all goes to plan, we will be ready by Q3 of 2024 with end-of-year 2024 rollout. ▲  
**JEFF WILKINSON**

# SIMPLICITY FOR THE WIN



WHEELS AND BRAKES  
IT'S THAT SIMPLE

## SANAD MAKES LEAP TO EXTEND PARTNERSHIPS

Global aerospace engineering and leasing solutions company Sanad signed a landmark agreement with GE Aerospace and Safran Aircraft Engines during the Paris Airshow to expand its MRO services offerings for LEAP-1A and LEAP-1B engines. Anuradha Deenapanray Chappard reports.

Sanad, the global industrial services leader wholly-owned by Mubadala Investment Company PJSC, is the largest engine MRO in the Middle East. According to Mubadala, this partnership further enhances Sanad's position as an integral player in the global MRO supply chain due to its established partnerships with major OEMs.

With this agreement with GE and Safran, Sanad becomes the first certified LEAP MRO service provider in the region, supporting the global LEAP MRO supply chain from its state-of-the-art facility in Abu Dhabi.

Mansoor Janahi, Sanad Aerotec managing director and group CEO, said: "This agreement brings latest engine technology to Sanad, enabling us to support a wider range of engines and to contribute to the UAE's position as leading global aviation hub. We are committed to delivering exceptional MRO services and looking forward to creating new opportunities for growth and innovation."

The deal provides for LEAP engine shop visits for both GE Aerospace and Safran Aircraft Engines. This covers two new-generation engines designed to



Sanad signs the deal with GE for LEAP MRO provision.  
PICTURE: SANAD

meet the challenge of decarbonising air transport with enhanced performance in terms of improved fuel consumption and reduced CO2 emissions.

According to Sanad, the popularity of the LEAP engine continues to soar, with LEAP-1A engines currently propelling the majority of Airbus A320neo aircraft in the Middle East.

Last year, Sanad had launched its new industrial services strategy to expand its business beyond the aerospace sector and drive the UAE's sustainable industrial future by leveraging synergies with international partners.

Sanad and Triumph Group, a US-based aerospace manufacturer and MRO provider, signed a MoU, last May, to collaborate on the provision of next-generation engine MRO capabilities in the UAE.

The partnership would advance Sanad's service offerings beyond engine overhauls while simultaneously providing Triumph with an immediate footprint in the Middle East and Africa.

Both parties plan to set up a "centre of excellence" in Abu Dhabi and intend to provide MRO solutions for V2500, CFM and GE90 engine accessory repairs and overhauls.

Sanad also signed an agreement with Thales to explore areas of collaboration in the fast-developing fields of industrial services for airport security, air traffic and avionics systems. ▲



**Partnership counts**

If you need assistance, even beyond normal support services – we are here to help! +

### More than just on-site services



Whenever, wherever and whatever. Our ON-SITE<sup>plus</sup> global engine experts provide an extensive spectrum of services and are available 24/7 to travel to you. You benefit from our intelligent, customized solutions and our years of experience as a major MRO industry player, lessor and asset manager. We repair on-wing wherever possible and are supported by a global network of maintenance facilities. As a result, we minimize disruption, reduce cost and maximize usage.

Contact us and find your solution today.

*Innovative suppliers are finding opportunities by identifying niche MRO needs and tailoring their services accordingly. **Chuck Grieve** looks at three such innovators.*

## NICHE WORK IF YOU CAN GET IT

Outsourcing discrete tasks, an established part of the MRO ecosystem, has grown in scope as base maintenance establishments look for ways to control costs without compromising safety and quality.

They are finding them in unexpected areas such as rental of engine stand, body damage surveys, and on-the-spot repairs of luxury interior fittings.

In 2016, EngineStands24 was founded by the Magnetic Group of Estonia as a global, digitalised one-stop solution for transportation and storage of aerospace engine stands. Though neither the first, nor the only company to see promise in this niche area, the Tallinn-based company claims the honour as the first e-platform for leasing, purchasing and transporting engine stands.

Company head Daiva Zemaite, a regular visitor to Dubai – one of its six global sites – said the uptake of the EngineStands24 offer had been patchy in the region until the Covid-19 pressure on airline cash flow forced major financial reconsiderations.

“In those conditions, it did not make sense to have capital tied up in assets like engine stands that often – in our experience – sit in a corner of the workshop most of the time gathering dust when you can lease them on demand,” Zemaite said.



The company holds certified engine stands for the most common engine types at sites around the world, from Miami to Melbourne, ready for dispatch immediately to where they’re needed. Its ‘one-click’ service covers all needs, from AOG to long-term leasing and outright purchase.

Since Covid, said Zemaite, leasing demand has picked up in the Middle East, where traditionally asset ownership has been the default. EngineStands24 now counts a number of airlines and MROs as regular customers.

Elsewhere, fledgling service provider G-Lux Solutions is going places with its innovation of restoring and maintaining aircraft interiors in the field. In September, it signed a partnership agreement with Falcon Aviation Services, hard on the heels of starting a major project in Sharjah.

Mohamed El Khamlichi, Falcon’s project manager MRO, FBO and aircraft management, said: “Our cooperation with G-Lux adds to the extensive portfolio of services on offer to our customers at Al Bateen executive airport and Al Maktoum International airport.”

Ayrat Gilmutdinov, G-Lux vice-president strategy and business development, said the company, which was founded in Dubai at the start of 2023, has deployed its craftsmen to Sharjah airport where – supported by Gama Aviation – they are refurbishing a Boeing 737 BBJ for a UAE charter and aviation services company.



**Top marks: Samer Karadsheh founder of VSAS expects to offer DentCheck's innovative technology as a service throughout the region.**  
PICTURE: DENTCHECK

G-Lux operates mainly in the business aviation and luxury yacht markets with its innovative mobile units taking the company’s specialised range of capabilities to where the aircraft or yacht is parked.

Gilmutdinov said G-Lux is currently assessing the Saudi Arabian market, which could be “huge for us”, with a potential partner.

Meanwhile, VS Aviation Services (VSAS) has become a certified partner of metrology supplier 8tree to offer its DentCheck dent-mapping technology as a service in the Middle East and Africa.



Samer Karadsheh, founder and chief executive of VSAS, said the first DentCheck unit had arrived in Jordan in August, and was being introduced on site in Joramco’s hangars at Queen Alia International Airport to validate its capabilities.

Karadsheh, a certified test flight engineer, said the tool is well-known for automating the time-consuming manual process of mapping dents and imperfections on an aircraft’s skin and control surfaces that affect its performance and fuel consumption.

“It’s a solution that addresses a major problem we have in the industry,” he said. Globally DentCheck-as-a-service has been used to map more than 10,000 dents on wide and narrowbody aircraft in the last 18 months.

VSAS hopes to roll out DentCheck-as-a-service across the region, where the company already provides engineering services to some of the largest fleets and MROs.

“Ultimately,” he said, “the whole Gulf would be our target market. The region is ripe for such a service.” ▲

# FLTECHNICS

The rest is flight

## GLOBAL INDEPENDENT MRO

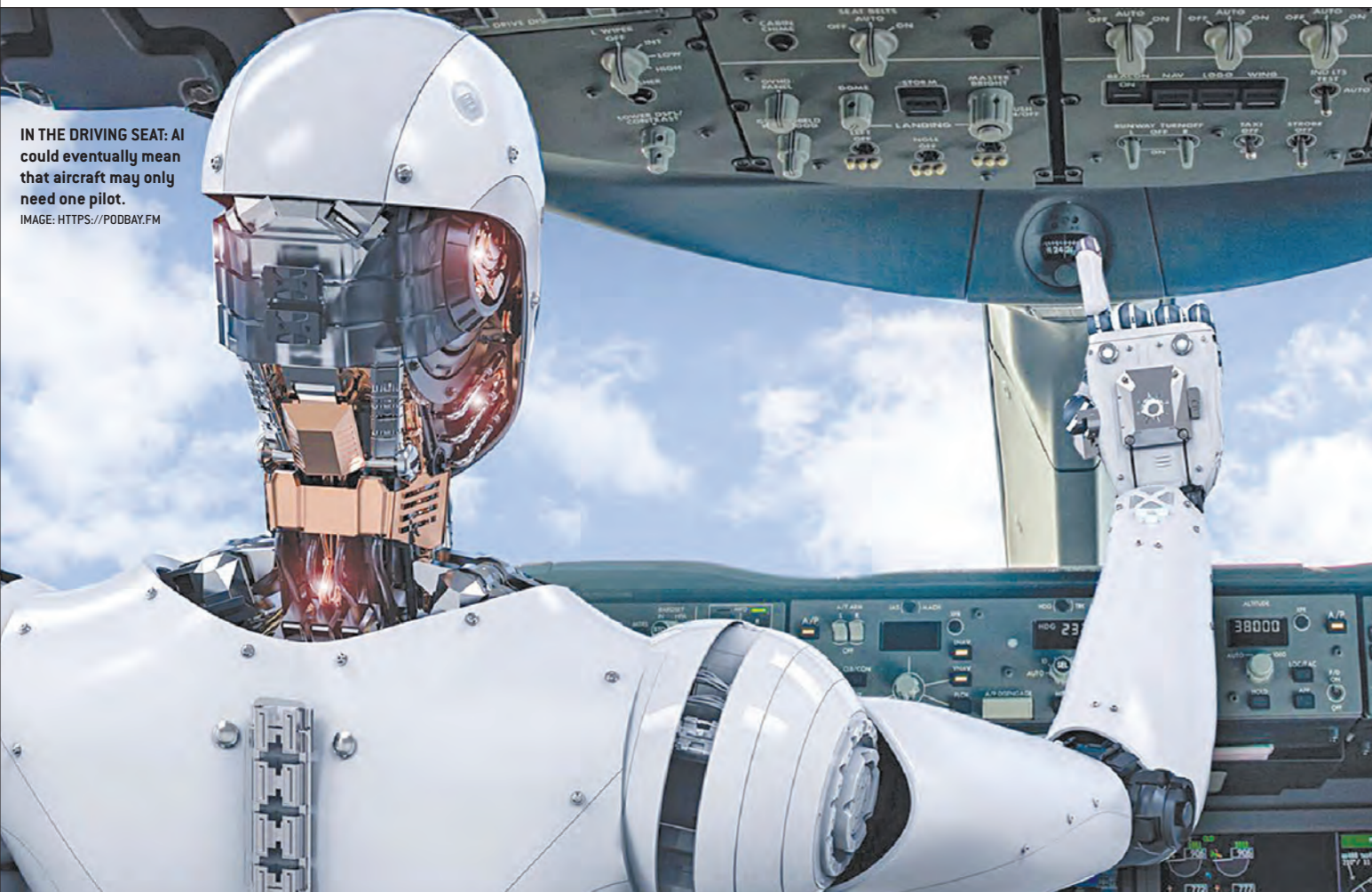
PROVIDING EASA, FAA, AND GCAA CERTIFIED SOLUTIONS

- Base Maintenance
- Line Maintenance
- Engine, Airframe and Materials Services
- Aircraft Engineering
- Design & Production
- Technical Trainings
- Logistics
- Wheels & Brakes Solutions
- Engine Repair Services



Discover FL Technics global network

fltechnics.com



IN THE DRIVING SEAT: AI could eventually mean that aircraft may only need one pilot.  
IMAGE: [HTTPS://PODBAY.FM](https://podbay.fm)

## Passenger announcement: You've nothing to fear from AI

*You can't read any publication nowadays without coming across the term artificial intelligence (AI). The IT world seems to see AI as the next "big thing", but how is it affecting the passenger experience?*

**Steve Nichols** investigates.

**A**I uses the ability of machines to perform tasks typically associated with human intelligence, such as learning and problem-solving. AI was actually developed in the 1950s, but has had a recent new lease of life as computing power has increased.

AI in the aviation market is said to be growing at a compound annual growth rate (CAGR) of around 46%, according to research by Markets & Markets.

For the airline passenger, AI benefits start in the airport. AI can help travellers find their way around an airport more easily and consequently save time. In addition, AI is able to display real-time information on flight delays and boarding gates, which can have a positive impact on the passenger experience.

AI systems can monitor queues and prevent overcrowding in security areas.

Automatic passenger counting uses sensors and cameras to collect data on the number of

passengers flowing through an airport; this data, says a report by Acorel, is processed by machine learning algorithms to estimate the number of passengers entering and leaving the airport, or at strategic points in the terminals.

Machine learning can then analyse this data, allocate resources at security checkpoints in real time, and predict the busiest times for airport retailers.



With the demand for air travel expected to double by 2040, anything that can speed up the airport process will be welcome. IATA's 2022 Global Passenger Survey found that 75% of passengers would be willing to use biometrics instead of passports or boarding passes to improve airport processes.

A Thales report said recent studies have confirmed that

**Continued on Page 70** ▶

**Cyber threats are on the rise. Are you protected?**



Security is a cornerstone of our business. Our robust infrastructure combined with our multipoint solutions approach to cybersecurity and certified experts give you confidence that the airborne network and passenger data are safe, no matter when or where you are flying.

- Connecting You Beyond All Expectations -

[satcomdirect.com](http://satcomdirect.com) | +1 321.777.3000

CONTINUED FROM PAGE 68

time savings of the order of 80% can be made thanks to automated check-in and security procedures.

Philippe Keryer, executive vice-president, strategy, research and technology, at Thales, said: "With our expertise in new technologies such as AI, deep learning and biometrics, boosted by the acquisition of Gemalto in 2019, Thales is in a position to provide airports and their ecosystems with new ways to increase operational efficiency, better protect the health and safety of passengers and enhance the travel experience."

Once in the air, AI has a part to play in the IFE side of the passenger experience. For example, Panasonic Avionics' Insight system analyses data from the IFE systems on all its flights to spot trends and popularity of particular video content. This gives airlines the ability to add new releases or remove underperforming content without waiting for the next cycle update. To passengers, this can mean getting access to the latest episodes of popular television programmes.

AI also gives airlines the ability to personalise content and advertising. Panasonic Avionics found that 92% of passengers can recall an ad shown during a flight, and 49% have changed their minds about a product after seeing an ad.



Qatar Airways recently unveiled a deal with Google Cloud that will enable it to enhance the travel experience for passengers, providing them with offerings personalised to their individual needs, travel trends, and past travel history.

A T Srinivasan, Qatar's chief information officer, said: "Google Cloud brings us the opportunity to build elasticity and scalability on demand, as we increasingly look to leverage both structured and unstructured data to personalise customer and employee experience."

From a maintenance point of view, generative AI can analyse data from aircraft sensors, maintenance records, and flight reports to predict future repairs. This can help teams proactively schedule maintenance to avoid unexpected downtime and reduce operational disruptions.

Engine prime GE says each of its aircraft engines produces around one terabyte of data per flight – that's information from 5,000 data points per second.

An Airbus A380 is fitted with as many as 25,000 sensors. But AI can break this data down, looking for outliers – data points that don't appear to be normal – and so highlighting only potential problems. Inflight connectivity systems can relay this information to the ground automatically, so preparing ground crews before the aircraft has even landed.

Emirates president Tim Clark told CNBC that he believes AI could eventually mean that aircraft may only need one pilot. The airline industry should embrace AI. "Harness it, use it. Don't fear it," he said. ▲

## IATA TURBULENCE PLATFORM DELIVERS SAFER FLIGHTS

*IATA is seeing strong growth in its turbulence aware platform.*

**Marcelle Nethersole** speaks to **Charles de Gheldere**, IATA director digital and data.

Experiencing turbulence on an aircraft can be stressful, particularly for anxious passengers, and the challenge of managing turbulence is expected to grow as climate change continues to impact weather patterns.

This has implications for both safety and efficiency of flight.

In 2018 IATA launched "turbulence aware", a platform which helps airlines mitigate the impact of turbulence, which is a leading cause of passenger and crew injuries and higher fuel costs each year.

Charles de Gheldere, IATA director digital and data, said: "The platform pools anonymised turbulence data from thousands of flights operated by participating airlines. The real-time accurate information enables pilots and dispatchers to choose optimal flight paths, avoiding turbulence and flying at optimum levels to maximise fuel efficiency and thereby reduce CO2 carbon emissions."



The software, developed by the National Centre of Atmospheric Research (NCAR), is installed in the avionics system of the aircraft - some of the newer type of aircraft, such as the Airbus A350, Boeing 737 MAX and Boeing 787 come with this software pre-installed. Airlines also have the option of an in-house implementation - as long as they have the technical capability.

IATA said it is also speaking to other OEMs, including Embraer, about getting involved in the programme.

De Gheldere said the platform is easy to use.

"An aircraft will be able to generate smooth air reports every 15 to 30 minutes in case of areas with nil turbulence, and, once a certain intensity threshold is crossed, the frequency of the reports will increase to one per minute," he said.

"Turbulence aware receives the existing airline data from the airlines' ground servers, performs quality control, deidentifies data, and provides the data back to airlines via a ground-to-ground, system-to-system connection."

Airlines with inflight connectivity display the turbulence reports in real time through an integrated weather tool running on their electronic flight bags (EFB).

The turbulence aware integration with the EFBs eliminates the need for additional screens in the cockpit and in the operational control centre. Airlines without connectivity will have



IMAGE: ISTOCK/PUKRUFUS

their dispatchers send aircraft communications addressing and reporting system (ACARS) messages to pilots warning them about near turbulence.

Both pilots and dispatchers have access to the IATA turbulence aware MET viewer, an IATA web-based application which can be accessed from a tablet, a laptop and even a phone with a larger screen.

De Gheldere said: "With access to real-time turbulence data through turbulence aware, pilots, dispatchers and cabin crew can now know where turbulence is exactly located, and this information can help them take better operational decisions."

"There is a very good coverage over areas such as North America, Europe, and the Middle East."

Currently more than 1,900 individual aircraft from 21 different airlines are taking part in the programme, including Qatar Airways and Saudia. It's not just commercial aircraft, but also business jet operators.

"The more contributors we have, the more everyone benefits. At the end of the day, safety is number one. We want to make sure that everybody is safe in the sky, and indeed on the ground," said de Gheldere.

"Also, the fuel consumption and the fuel optimisation is another factor for airlines to take into consideration, as well as maintenance of an aircraft. "From an airline's perspective, the less turbulence an aircraft is going through, the less time it has to stay in maintenance, which automatically means that you're spending money to keep the aircraft grounded."

Ideally, we would like to get to the point where any airline can have the solution available for their type of aircraft," he concluded. ▲



▼ Pilots, dispatchers and cabin crew can now know where turbulence is exactly located. ▲

CHARLES DE GHELDERE

PICTURE: BILLYPIX



ORGANISED BY

AVIATION WEEK NETWORK

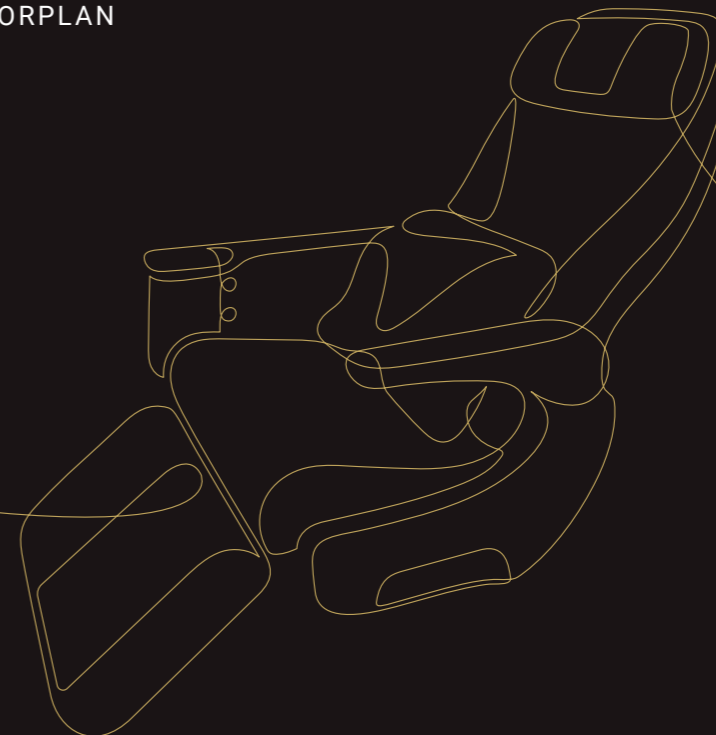
TARSUS AEROSPACE

#MROME

# Connecting the airline supply chain

**BOOTHS AT LIMITED AVAILABILITY!**

VISIT [MROMIDDLEEAST.AVIATIONWEEK.COM](http://MROMIDDLEEAST.AVIATIONWEEK.COM) FOR THE LATEST FLOORPLAN



#AIME

**AIME**  
AIRCRAFT INTERIORS MIDDLE EAST

The UAE is aiming to increase air traffic efficiency by introducing a 'free airspace' scheme.

Alan Dron explains.

# DIRECT FLIGHTS CAN HELP EASE CONGESTION

**T**he UAE's aviation regulator, the General Civil Aviation Authority (GCAA), has launched the UAE Free Airspace Project (FAP). The GCAA describes the FAP as a "transformative initiative" that aims to keep the UAE in the vanguard of the Middle East's aviation sector, improving air transport efficiency as well as cutting emissions of greenhouse gases.

This is in keeping with the UAE's designation of 2023 as the Year of Sustainability.

The FAP seeks to improve the efficiency of air navigation by allowing aircraft to fly the most direct routes between two points. This can reduce congestion around airports, an important consideration at busy locations such as Dubai and Abu Dhabi.



Easing congestion is an increasingly important consideration, as UAE air traffic in 2022 is expected to exceed pre-pandemic levels.

As its name suggests, FAP aims to provide aircraft with freedom of movement, without the constraints of traditional air routes.

Free Route Airspace (FRA) has been available to aircraft using the Emirates Flight Information Region at Flight Level 355 (35,500ft/10,820m) and above since July, giving aircraft freedom to plan flights freely between known and published entry and exit points.

The GCAA anticipates that the project could benefit as many as 150 flights a day, leading to savings of more than 30 million kg of aviation fuel over the course of a year.

Ahmed Ibrahim Al Jallaf, assistant general-director of Dubai's Air Navigation Services, noted that average air traffic flows exceeded 2,500 flights per day in June 2023 and that the UAE is one of the first countries where air



With increased air traffic planned, the UAE aims to increase efficiency with its 'free airspace' scheme. IMAGE: FLIGHT RADAR 24

traffic has been restored to pre-pandemic levels.

He expects this growth in air traffic to account for nearly 900,000 flights by the end of the year, an increase of more than 10% above 2019 levels.

FAP project manager, Saqr Obeid Al Merashdah said that the measure in the UAE FIR was the first step in a plan to apply free airspace more widely: "The maximum benefit of this concept will be achieved when this transformative project is applied on a larger scale by connecting with the Gulf and regional navigation network."

The GCAA said that numerous simulation sessions were conducted to assess and evaluate the FRA concept, with the objective of reducing ATC workload.

## WHY AIRCRAFT DON'T ALWAYS TAKE THE SHORTEST ROUTE

Aircraft traversing the globe do not always take the shortest route available to them.

In many cases – notably in Europe, where there is a jigsaw of national air traffic control boundaries – aircraft have to follow prescribed paths in the sky to get to their destinations. These are often not the shortest routes between two points.

Allowing airlines to take more direct routes could have a significant effect in reducing fuel consumption, and the resulting emissions, from airline traffic.

Indeed, in Europe, the Single European Sky (SES) project has for more than 20 years tried to achieve this.

It is calculated that those savings could give a 10%-15% reduction in CO<sub>2</sub> emission. This is a saving that would really 'move the needle', experts say in reducing the airline industry's environmental impact.

In Europe, however, the pace of progress of SES has been glacially slow.

This has been due to several factors, including states fearing a loss of sovereignty over their airspace, air traffic controllers' trade unions fearing that greater efficiency would result in job cuts among their members and the issue failing to gather sufficient importance in national governments' policy priority lists. ▲

Feedback from the simulation sessions has improved the FRA's design: "General consensus that the final concept of FRA is enhancing the efficiency of air traffic flow in the Emirates FIR," the GCAA said.

Several familiarisation workshops are planned for airspace users to give them familiarity with the concept developed by the UAE and to ensure the smooth operation of the FRA. ▲



Organised in association with the Saudi Aviation Association



# EXPLORING NEW HORIZONS

Beyond vision to mission – MENA strategies to achieve new targets

## SAVE THE DATE AND JOIN US IN RIYADH

To find out more please contact **Mark Brown**: E: mark.brown@aviationmena.aero  
T: + 44 (0) 1702 530 000 | M: + 44 (0) 7889 100 987

# MIMS AIRBORNE by SCYTALYS

Interoperability Systems

## A versatile Mission System for Multi-Mission Airborne platforms. Designed by operators for operators.

**SCYTALYS SA** is a leading defence software development and integration company, founded in 1993, specializing in design, development, installation, and testing. Over the past 30 years the company through its long history of engineering innovation, reliability, efficiency, and quality of service, has managed to become the preferred partner of multinational companies and organizations in the Aerospace, Defence and Security sectors, providing quality-driven solutions.

**MIMS Airborne** is a state-of-the-art fielded mission software & hardware suite that provides key features to enable **Maritime Situational Awareness**.

A modern mission system should be able to address multiple challenges apart from integrating the aircraft's sensors. Each aircraft is unique, as is each operating organization. **MIMS Airborne** can meet those challenges by its design principles such as modularity, scalability, user interface intuitiveness to name a few.

To meet the various law enforcement and military needs, numerous functions can be easily added or removed contributing to the mission system's scalability in both software and hardware. It is modular by nature as each main function is a separate software element, integral to the core mission system, that communicates with the rest of the system. If selecting a different radar for example, it is as easy as only modifying the specific software element thus minimizing or eliminating the impact to the rest of the system. **MIMS Airborne** can be integrated in various airborne platforms ranging from light Air Policing, Jet or Turboprop platforms, to highly missionized, defence oriented assets, covering all three levels of a Maritime Patrol Aircraft (MPA). The same core system comes in **3** levels of functionality, depending on mission needs.

What makes **MIMS Airborne** unique:

- Different levels of functionality according to platform and mission needs.
- Tailor-made to end users' specific operational needs and budget.
- Agile development and short delivery time, upholding close collaboration with end users to adapt the system accordingly and to overcome operational challenges.
- After sales support and responsive to any changes needed.
- Enhanced communication capabilities through flexible connectivity with Tactical Data Links, wideband radios and SATCOM.



Designed as a modular, scalable and open architecture Mission System, it is developed with technologies that enable its interface with a large variety of sensors and systems.

**MIMS Airborne** goes well beyond displaying data received and performing correlation checks. It builds upon the data coming from the sensors, creates new information and automates actions allowing the operators to focus their actions on high importance tasks.

**SCYTALYS MIMS Airborne** Mission System belongs to a constantly evolving product line allowing it to always be in the forefront of emerging CONOPS.

Contact us and allow us to navigate you to the immense capabilities of MIMS Airborne. *This year SCYTALYS will be present at Dubai Airshow, Booth 305, showcasing MIMS Airborne.*

### MARITIME SURVEILLANCE (MS)

- Exclusive Economic Zone Monitoring
- Search & Rescue SAR
- Drug Trafficking
- Pollution detection
- Illegal immigration
- Anti smuggling control
- Fishery control

LEVEL I

### ANTI SURFACE WARFARE (ASUW)

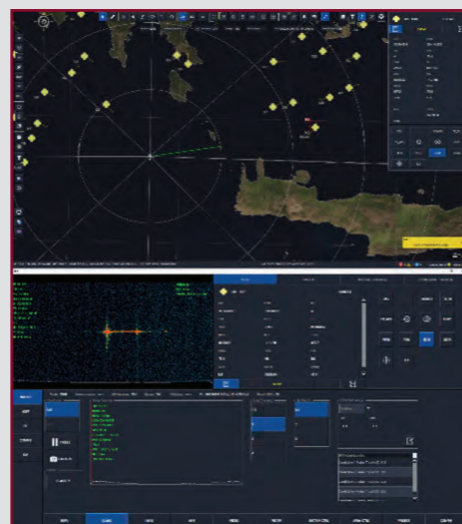
- Surface Picture Compilation
- TacPlans Execution
- Network Centric Node
- Comms Relay
- Third Party Targeting
- Battle Damage Assessment

LEVEL II

### ANTI SUBMARINE WARFARE (ASW)

- ASW tactics
- Multi sensor association
- Long Range Force Protection
- HVU Screening
- Lost Contact procedures
- Submarine Prosecution

LEVEL III



# MIMS AIRBORNE

A versatile Mission System for Multi-Mission Airborne platforms  
Designed by operators for operators



[www.scytalys.com](http://www.scytalys.com) | Follow SCYTALYS S.A.

Saba 1 Tower, Cluster E, Office 1406 JLT PO Box 337488, Dubai – UAE. | **Phone:** +971 (0)4 5706219

# Connecting to the future

Boeing sees its longstanding connections with universities in the region as a means of attracting new talent into the aerospace sector, writes **Alan Dron**.

**A**viation companies have longstanding relationships with universities and colleges in the countries where they operate. The relationships make good sense as the companies' engagement with the local community has the potential bonus of attracting talented students into the aerospace industry.

That industry's workforce is ageing, with millions of new recruits needed worldwide over the next 20 years, both to replace retiring staff and to – hopefully – increase the numbers needed to cope with the growth of aviation.

In February this year, Boeing and Amideast/UAE, a US non-profit organisation that promotes education, training, and development activities in the Middle East and North Africa announced two new initiatives.



These aim to expand opportunities for young people in the UAE to benefit from science, technology, engineering and maths (STEM) education. One initiative will establish a lab to serve as a hub for STEM educational activities in the country, and the STEM ambassadors programme for 14 to 18-year-old students.

The programme will equip them with theoretical knowledge and practical skills in aerospace engineering and sustainable aviation, preparing them for STEM courses at university.

Boeing partners with 16 universities in the Middle East, Turkey and Africa.

"The majority, if not all, of our partnerships are STEM-



**Kuljit Ghata-Aura: "We're working not only to bring people through on internships but also work with non-governmental organisations across the region focused on employability programmes."**

PICTURE: BOEING

related," said Kuljit Ghata-Aura, president, Boeing Middle East, Turkey and Africa

That, he said, was consistent with Boeing's global engagement strategy of creating a 'cradle-to-career' pathway, particularly for communities that are under-represented in the STEM fields, such as young women.

"When we invest, we're investing in the engineering talent pipeline.



The nature of Boeing's investments varies, depending on the national vision or requirements of an individual country. In the UAE, for example, it provided a wind tunnel at Emirates Aviation University, while in Ethiopia, it supported the development of a UAV that was programmed to detect threats to crops such as wheat rust and locust swarms, said Ghata-Aura.

"The next step is people coming to work for us. We're working not only to bring people through on internships but also work with non-governmental organisations across the region focused on employability programmes." The third leg of the Boeing programme is then to link up these establishments and students with industry and the chance of real jobs for students.

"When I talk to young people, you get to see their excitement about aerospace and you say 'There are real opportunities with real jobs in this area.'

"If we can get that interest going at a young age and through university and into the job market, that's really where we want to get to," he said. ▲

## HEXCEL CORPORATION EXPANDS CAPACITY IN MOROCCO

Hexcel Corporation, a manufacturer of advanced composite materials, has extended its production site for machined honeycombs in Casablanca. **Anuradha Deenapanray Chappard** reports.

The aerospace industry is constantly booming in Morocco with the ramp up of OEM activities worldwide as well as the financial support and business incentives from the authorities.

The latest event was the grand opening of an expansion of its engineered core operations at the Hexcel plant in Casablanca. It will meet the growing demand for lightweight advanced composite materials for the aerospace industry.

The new 13,000 square metre addition brings the total area of the site to 24,000 square metres and the number of employees to 400 by 2026. Estimated at \$30m, it is part of Hexcel's global investment programme to diversify and secure its supply chain around the world.

Ryad Mezzour, Morocco's industry and commerce minister, said: "Hexcel's decision to expand its presence at Midparc is a testament to the aerospace industry's resilience, competitiveness, and worldwide reputation. Through the adoption of advanced technology and a decarbonised, circular industrial base, we aim to further strengthen Morocco's competitiveness in the global market."

Like many players evolving within the aviation ecosystem in the country, Hexcel is committed to sustainability. It plans to install solar panels on site to cover more than 20 per cent of the plant's annual electricity consumption. ▲



**OPENING TIME: The Hexcel plant in Casablanca celebrates the expansion of its engineered core operations . PICTURE: HEXCEL**



# Building radically better ways of moving



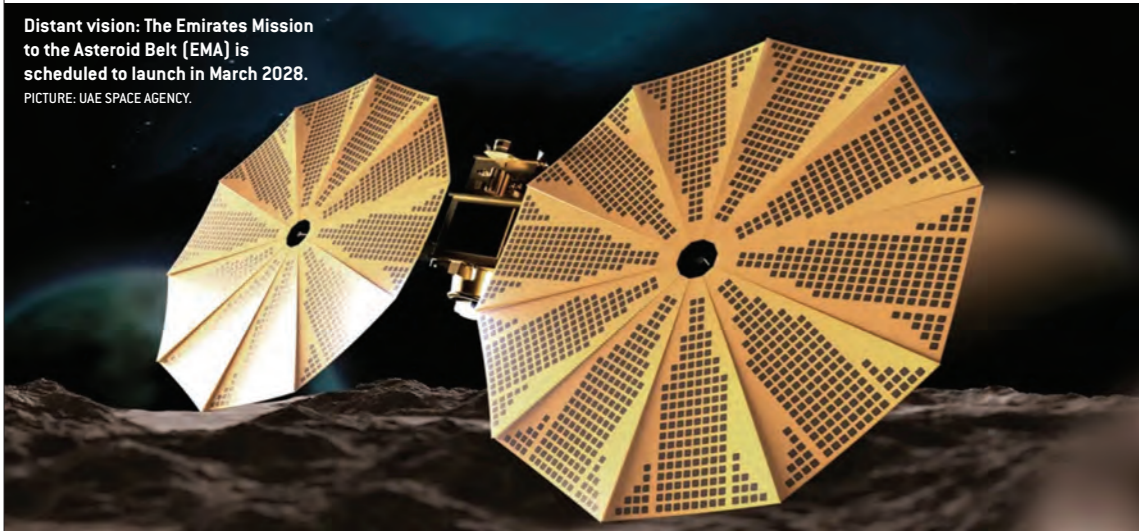
[lilium.arcosjet.com](http://lilium.arcosjet.com)

ArcosJet is the exclusive authorized dealer for private sales for the Lilium Jet in the United Arab Emirates (UAE), Israel, and Republic of Cyprus



Following on from the success of its Hope Mars mission, the UAE Space Agency has set its sights on a more distant target: the asteroid belt. **Steve Nichols** reports.

Distant vision: The Emirates Mission to the Asteroid Belt (EMA) is scheduled to launch in March 2028. PICTURE: UAE SPACE AGENCY.



In May it launched a call for private sector participation in the EMA mission to the asteroid belt.

Mohsen Al Awadhi, EMA programme director, said: "From software development to mission control, we are committed to a private sector first approach to developing the Emirates mission to the asteroid belt."

"This campaign to recruit businesses to the mission forms part of a long-term commitment to driving an ambitious, vibrant and fast-growing private space sector in

## UAE FASTENS ITS FOCUS ON THE BELT

The United Arab Emirates (UAE) has announced that its next big space mission will investigate the asteroid belt located between the orbits of Mars and Jupiter.

The UAE Space Agency said its Emirates Mission to the Asteroid Belt (EMA) is scheduled to launch in March 2028 and will fly past six asteroids in the main asteroid belt before arriving at a seventh in 2034 where it will release a lander to touch down on the surface.

Called the MBR Explorer, the 2,300kg spacecraft has been named after HH Sheikh Mohammed bin Rashid Al Maktoum, vice-president of the UAE and ruler of Dubai.

Sarah Al Amiri, chair of the UAE Space Agency and minister for advanced technology, said in a statement: "EMA is a key component of the UAE national space strategy and has one overriding goal: the creation of viable and rewarding employment opportunities for young Emiratis for generations to come."

EMA will have a narrow launch period of just three weeks in March 2028. It will fly a tortuous route via Venus in July 2028 and Earth in May 2029, before going by the main belt asteroids Westerwald, Chimaera and Rockox between February 2030 and January 2031.

After covering a total distance of five billion kilometres (around three billion miles), the spacecraft will eventually reach its destination.

A Mars gravity assist in September 2031 will set up three more asteroid flybys, of 2000 VA28, 1998 RC76 and 1999 SG6, between July 2032 and August 2033.

The spacecraft will then rendezvous with a seventh main-belt asteroid, Justitia, in October 2034, where it will remain at least until May 2035.

The lander which will touch down on the surface will come from "an Emirati private space sector startup," the UAE Space Agency said.

▼ The lander which will touch down on the surface will come from "an Emirati private space sector startup". ▲  
UAE SPACE AGENCY

the Emirates. The opportunities are truly endless, from software and hardware systems design and delivery through to subsystem assembly, solar power and other electrical systems development to mission operations and management."

EMA will drive significant economic opportunities, including new start-ups, international partnerships and inward investment to the UAE space sector, creating new commercial opportunities to accelerate the growth of innovation and advanced technology companies in the Emirates.

The Space Means Business campaign will build outreach to academia, potential start-ups, existing global space sector players and companies with the potential to pivot existing R&D and operations to meet the needs of the space sector.



Sarah Al Amiri said: "Through our work with the Ministry of Industry and Advanced Technology, we are able to identify a number of technologically-advanced companies operating in the Emirates today which can make commercially viable contributions to EMA and to benefit from the wider UAE space sector opportunity."

"Our core goal here is to drive new business opportunities based around sustainable innovation and the development of heritage that will open up new opportunities in the \$1tr global space industry."

The UAE held a Space Means Business workshop in May to help UAE-based businesses identify the immediate commercial opportunities offered by the EMA mission.

It was also an opportunity to share a roadmap for the ongoing support and development of research, innovation and valuable heritage to offer participants in the fast-growing global space market.

The UAE Space Agency said the EMA mission will build a greater understanding of asteroid characteristics, origins, formation and evolution.

It said: "It has the potential to open new windows into our understanding of the formation of our solar system, as well as to investigate the potential of water-rich asteroids as a usable resource and evaluate the presence of volatile and organic compounds in the asteroid belt – the building blocks of life on Earth." ▲



## Bringing vision to emerging markets

Times Aerospace TV (TATV) continues to bring news, views and events happening in the world's fastest emerging markets of Africa, the Middle East and West Asia.

Backed by the team that brings award-winning magazines Arabian Aerospace and African Aerospace as well as podcasts and vital industry events in sub-Saharan Africa, MENA and India, our channel has plenty to offer.



**SPECIAL INSIGHT/ SPOTLIGHT PROGRAMMES**  
Be part of our in-depth insight/spotlight programmes – where we dig deep into your organisation or a particular subject.

Follow Times Aerospace on LinkedIn and Twitter and watch TATV news on Youtube/Times Aerospace TV. Subscribe to receive our **FREE** newsletter at [www.timesaerospace.aero](http://www.timesaerospace.aero) and receive our news programmes direct to your inbox as soon as they broadcast.

To sponsor any of our TATV programmes, please contact: [mark.brown@timesaerospace.aero](mailto:mark.brown@timesaerospace.aero) | [grant.lee@timesaerospace.aero](mailto:grant.lee@timesaerospace.aero) | [alfie.bailey@dubai.aero](mailto:alfie.bailey@dubai.aero)

## ▲ ALL IN A DAY

# Müjdat Uludag

Marcelle Nethersole talks to the general manager at TCI Aircraft Interiors.

### What do TCI Aircraft interiors do?

We are dedicated to provide the best value to the aviation industry by developing and improving products such as IFEC, galleys, lavatories, business and economy-class seats for widebody and narrowbody aircraft types.

We are also working on trolley, cargo container and in-seat power systems. With our design, engineering, manufacturing and R&D capabilities at production facilities in Istanbul, Türkiye and Seattle, USA, we continue to serve multiple aircraft types.

### The company has recently merged. Can you tell me about that?

TCI Cabin Interior and TSI Seats had a history of more than 10 years, while Cornea had five years.

The new company, TCI Aircraft Interiors, entered the sector from February 2023.

More than 20 new programmes have been launched and we plan to increase the number of employees to more than 500 by the end of the year.

Together with Turkish Technic, we are able to provide STC support to our customers, which allows us to offer a wider and faster solution in the retrofit market.

### Who do your customers include?

We currently have customers from nine different countries. Customers include Turkish Airlines, SpiceJet, and Akasa Airlines, and many more airlines and lessors.

We recently signed a 32-shipset agreement with 9Air for their B737-8 aircraft.

The first topic we focused on was seat development.

Milligram, our ultra-light composite seat developed for low-cost airlines offers a great advantage for airlines' sustainability policies with its weight of 8.5 kg. We are currently working on two separate seat projects for economy class. The new seats will be lighter, more comfortable and more innovative.

In addition to our economy class seats, our Royalux narrow-body business class seat will also be installed on aircraft from the middle of next year.

We have also started the full-flat seat project we developed for long-haul flights. In 2 years our FLF seat will be effective for 350-787-777-777-330 model aircrafts.



PICTURE: TCI AIRCRAFT INTERIORS

### How does the company incorporate sustainability into its products?

The global aviation industry produces around three per cent of all human-induced CO<sub>2</sub> emissions and aviation is responsible for 12 per cent of CO<sub>2</sub> emissions from all transport sources.

While designing our Milligram seat, we focused on minimising scrap and waste to improve efficiency, the parts are consolidated and simplified to minimise the number of components, features of the seat facilitates efficient maintenance and minimise downtime and reduces operational costs.

We are working with academics to develop materials that can be recyclable, such as thermoplastics, and processes suitable for them.

### How do you see the future of cabin interiors?

I see the future of cabin interiors as very bright.

The aircraft cabin interiors refers to the industry involved in designing, manufacturing, and installing various components and systems.

These components contribute to the comfort,

safety, and overall passenger experience.

Airlines are constantly striving to increase the number of aircraft in their fleet and to accommodate more passengers by equipping existing aircraft with a new configuration. This requires new and improved cabin interiors incorporating the latest technologies.

### What does a typical day involve for you in your role?

Due to the merging of three companies, we are making a serious effort to harmonise the business culture, and we have increased the number of employees by 50 per cent in the last eight months. We are in constant contact with the employees both for the adaptation of the newcomers to the job and for the maturation of the organisational structure of the company.

We are also working hard to ensure that the 20 new programmes we launched after the merger are defined correctly in terms of architecture and that the business model is established.

The most enjoyable times of the day are in the evenings when we have dinner at the end of the day with the friends we have worked with for a long time and analyse the issues in a relaxed atmosphere.



## NEW INDIA RISING

How India's aviation renaissance can achieve global ambitions

## SAVE THE DATE & JOIN US IN NEW DELHI

To find out more please contact **Mark Brown**: E: mark.brown@aviationindia.aero  
T: + 44 (0) 1702 530 000 | M: + 44 (0) 7889 100 987

# Your Global Trusted MRO Partner

Joramco offers world-class MRO and technical aviation services

**EASA Part 145**

**25+ Additional National Approvals**

**17+ Parallel Lines of Wide-Bodies & Narrow-Bodies Across 5 Hangars**

## Aircraft Capabilities

### AIRBUS

A300-600      A320neo  
 A310          A330  
 A320 Family    A340

### BOEING

B737 (Classic, NG and MAX)  
 B787-8/9  
 B777-200/300

### EMBRAER

E170      E190  
 E175      E195

