



ARABIAN AEROSPACE

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

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MAROC READY TO ROLL

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Middle East and Africa
Lessor of the Year
2016

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

Regional Office
PO box: 371391
Dubai Airport Free Zone
Building 6EA, Suite 222,
Dubai
United Arab Emirates
Tel: +971 4 603 3364

Website: www.arabianaerospace.aero

Directors:

Mark Brown & Kevin Sammon

Publisher:

Mark Brown
mark.brown@arabianaerospace.aero

Display Advertising:

Nick Hutchins
nick.hutchins@arabianaerospace.aero

Dave Winship-Evans
david.evans@arabianaerospace.aero

Production Coordinator:

Ethan Cobbing
ethan.cobbing@arabianaerospace.aero

Circulation Dept:

Clare Brown
clare.brown@arabianaerospace.aero

EDITORIAL

Editor-in-chief: Alan Peaford

alan.peaford@arabianaerospace.aero

Deputy Editor: Marcelle Nethersole

ella@aeocomm.aero

Defence: Jon Lake, Alan Warnes

Air Transport: Alan Dron, Martin Rivers

Business Aviation: Liz Moscrop, David Calderwood

Cargo: Tom Pleasant

Helicopters: Paul Derby

General Aviation: Liz Moscrop

Space & Technology: Steve Nichols

Interiors: Barbara Cockburn, Marcelle Nethersole

MRO & Propulsion: Geoff Thomas

Business: Ian Sheppard

Airports: Keith Mwanalushi

Editorial Assistant: Samantha Wellard

Picture Editor: Ian Billinghurst

Photographers: Paul Merritt,
Tom Gordon, Mark Wagner

Design: Chris Murray, Allsortz Ltd

Production Editor: Rick Haden

Sub-Editor: Steve Knight

Regional Editors: Barbara Saunders (UAE)

David Calderwood (France), James Wynbrandt (USA)

Contributors: Mohammed Ali Ahli, Martin Ferguson,
Kelly Clark, Ian Goold, Claire Apthorp, David Oliver, Alan
Warnes, Terry Spruce, Jamie Hunter

Editorial head office:

Aerocomm Ltd,
Norths, Rectory Road, Orsett, Essex RM16 3JU UK.
email: info@aeocomm.aero
For news stories:
news@arabianaerospace.aero

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Demonstrating a clean break from the past

In an historic move last month, the International Civil Aviation Organization (ICAO) 191 member states agreed the first ever global agreement on carbon emissions to affect an entire industry sector.

The agreement will seek to offset all civil aviation-related CO2 emissions beyond 2020 levels, and will come into effect in 2021 in a voluntary phase involving 68 nations, including the USA and China.

The carbon offset and reduction scheme for international aviation (CORSIA) will become compulsory in 2027 and projects an estimated 80% of global emission increases being offset between 2021 and 2035.

Separately, ICAO has agreed to introduce an ambitious CO2 emissions standard for all new aircraft after 2020, and existing aircraft types from 2028.

Importantly, this is a global solution for our industry and significantly more likely to succeed than the half-baked European Union (EU) scheme proposed eight years ago.

Claiming that little progress was being made at the international level to curb the aviation sector's rising emissions, it passed a law to regulate, through its emissions trading scheme (ETS), that from 2012 all civil aircraft using airports in the European zone would be liable for the CO2 emitted during their entire flights, whether in European airspace or outside it.

But the rules proved divisive, sparking several



lawsuits, threatening to trigger an all-out trade war with the EU's largest trading partners, including the US, China, India and Russia, and leading the bloc to announce its 'stop the clock' measure. It effectively put the law on hold to give the UN's civil aviation body – the ICAO – more time to design its own agreement.

The ICAO's historic agreement to implement a market-based measure that will support airlines' efforts to stabilise emissions with carbon neutral growth is a good solution, and the EU should now finally throw out the ETS law, which, at the moment, remains merely suspended.

The fact that small nations with small airlines, and larger but still developing nations, have all signed up, shows the significance of the agreement and demonstrates the support that the industry can and will clean up its act.

At the new head of the International Air Transport Association (IATA) said while applauding the move, by itself, CORSIA will not lead to a sustainable future for aviation. He is right. Along with this global market-based measure, the industry must continue to drive its four-pillar strategy on climate change, comprising improvements in technology, operations and infrastructure, complemented by CORSIA.

Let the work begin.

Safe – and clean – landings.

Alan Peaford
Editor-in-chief

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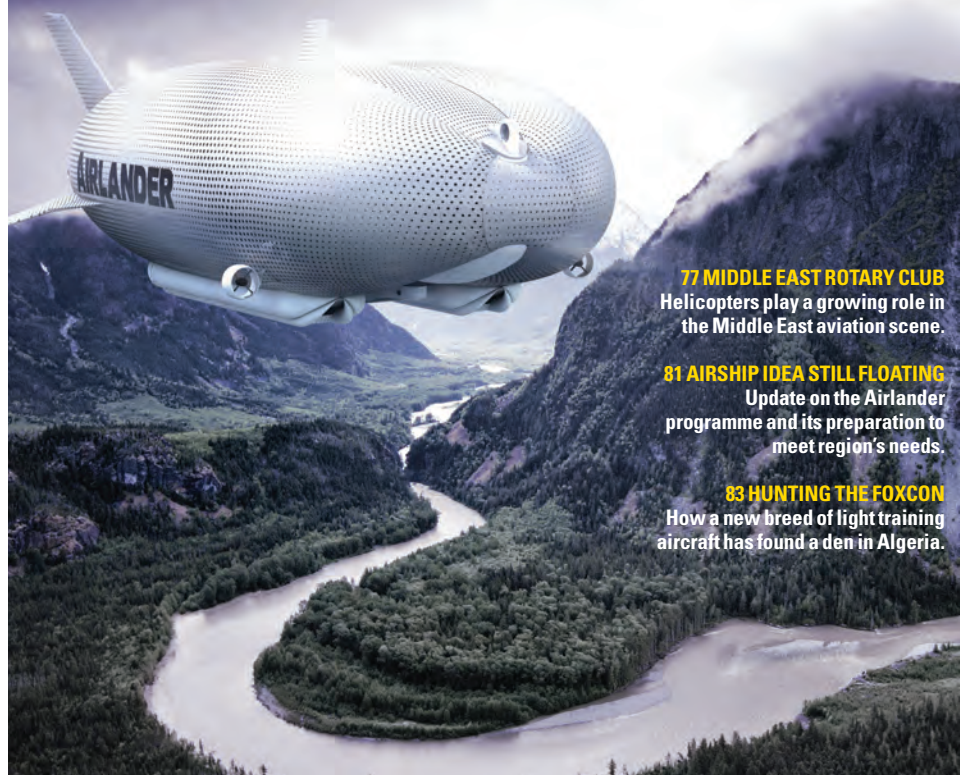
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Istanbul airport on architectural shortlist

Istanbul New Airport has made it through to the finals of this year's world architectural festival (WAF) in the category 'Future Projects – Infrastructure'.

Yusuf Akçayo lu, CEO of airport operator GA, said: "We are very proud to be nominated. Istanbul New Airport will warmly welcome acknowledgment for the innovative standards set by its

architectural design and engineering. It boasts a unique architectural design that combines contemporary and functional elements, inspired by the rich cultural heritage of Istanbul. The New Airport will make Istanbul one of the major passenger and environmentally friendly hubs in the world with its distinctive architecture."

WAF takes place in Berlin from November 16-18.



Kotil quits Turkish Airlines for TAI leadership role

Turkish Airlines CEO Dr Temel Kotil has resigned to take up a new role heading TAI – the national aerospace and technology company with a vast defence portfolio.

The airline has appointed Bilal Eksi as the new general manager to succeed Kotil. Eksi had previously been responsible for the

airline's ground operations and had enjoyed a series of successes improving the airline's on-time performances. He had previously been with the company's engineering sector, heading the overhaul workshops.

Kotil had been heading the airline for a decade after moving from the Turkish

Technik, following a career as a university professor in the United States before being called back to Turkey to effect a turnaround of the business.

Under his stewardship the Turkish airline has become a major global player and a regular award winner.

US green light for fighter deals

The White House has finally approved the long-drawn-out requests by Kuwait and Qatar to buy up to 76 Boeing F-15 and F/A-18E/F Super Hornet aircraft, worth approximately \$7 billion, as well as clearing the sale of 17 Lockheed Martin-built F-16 aircraft to Bahrain.

Qatar's huge Boeing boost

Qatar Airways gave Boeing a boost with an order for 50 Boeing 787-9s and 10 777-300ERs, and also – as suggested in *Arabian Aerospace* in September – has signed a letter of intent for up to 60 737 MAX 8s, a potential \$6.9 billion deal for the US manufacturers.

Qatar CEO, Akbar AL Baker, had grown

increasingly frustrated with the delay to the Airbus A320neo and had warned Airbus that the Doha airline may head to Seattle to feed its aircraft growth.

Al Baker said the airline's commitment to the MAX 8 did not mean Qatar was giving up on the Airbus A320neo. It has 50 on order. "For us to mitigate the risk, we had no alternative but to order the reliable 737 family of aircraft," he said.

Tunisair cuts jobs

State-owned Tunisair is to shed around 1,000 jobs as part of a national austerity plan and a bid to make the airline more competitive. The job losses will affect around 12% of the full-time workforce of around 8,200.

Prime Minister Youssef Chahed has promised his new government will take

tough decisions to help the economy grow and create jobs as the country comes under pressure from international lenders to push through reforms and trim public spending.

More DCAF

Dubai-based DC Aviation Al-Futtaim (DCAF) is expanding into a second hangar at Dubai South.

Scheduled for completion by Q3 of 2017, the new hangar will add 6,800sqm of covered space to the existing DCAF business aviation terminal.

Etihad's five-star performance

Etihad Airways has received the Skytrax Certified 5-Star Airline Rating.

The rating follows a three-month audit of the airline's global product

and service offering by the London-based research consultancy.

The rating is used to certify airline products and service, and is awarded to airlines achieving the highest overall quality performance, recognising excellence in products and front-line staff service across the customer journey.

Air Arabia going far

Air Arabia is to venture further afield with a new deal to add longer-range A321neo aircraft to its fleet.

Air Arabia CEO, Adel Ali, said that he accepted that carriers had to refine their offerings to meet market requirements.

Adding the 321 to the fleet will enable the carrier to add to its medium-haul flights and increase routes to northern Europe and further into Asia.

Asia to overtake ME in passenger growth

Despite enjoying rapid growth, the Middle East will drop below Asia Pacific into second place of the world's air passenger growth, according to the 20 year forecast projected by IATA.

The Middle East will grow strongly (5.0%) and will see an extra 258 million passengers a year on routes to, from and within the region by 2035.

The UAE, Qatar and Saudi Arabia will all enjoy strong growth of 6.3%, 4.7%, and 4.1% respectively. The total market size will be 414 million passengers.

According to the IATA figures, China is the fastest growing market with 817 million new passengers for a total of 1.3 billion over the next 20 years.

Qatar increases IAG stake

Qatar Airways has increased its stake in International Airlines Group (IAG) to more than 20%.

Qatar has now confirmed it holds 20.01 per cent of IAG. In a statement the airline said: "While Qatar Airways' interest in IAG is purely financial, the increased shareholding reflects the strength of commercial and strategic ties between the companies and evidences the continued support for the on-going strategy of IAG."

Oman Air and Saudia codeshare

Oman Air and Saudi Arabian Airlines have signed a codeshare agreement covering services between Muscat and four destinations in Saudi Arabia.

Aboudy Nasser, Oman Air's senior vice president network and revenue management, said: "This partnership will deliver even greater choice and convenience for customers of both airlines. Saudi Arabian Airlines shares Oman Air's commitment to the highest standards of hospitality, service and on-board product, ensuring a consistently enjoyable passenger experience for all. It is a pleasure to be working alongside Saudi Arabian Airlines and we look forward to a long and prosperous partnership."



ADAC signs MoU for Seychelles International development

Abu Dhabi Airports Company (ADAC) has signed a Memorandum of Understanding (MoU) with the Seychelles Ministry of Foreign Affairs and Transport to explore how it will develop the country's international airport on Mahe.

The MoU was signed by ADAC chairman, Ali Majed Al Mansoori and Joel Morgan, Seychelles minister for foreign affairs and transport.

"As the Seychelles grows in popularity as a holiday destination for UAE tourists and

visitors from around the world, the need to keep up with the demands and expectations of the travel market has never been more important. Our aim is to help to deliver an updated passenger terminal operating to the highest international standards," said Al Mansoori.

The Seychelles minister said the MoU confirmed an interest by both parties to enter into talks discussing "the future and way forward of our operations at Seychelles International Airport."

Panasonic and Yahsat sign MoU

Panasonic Avionics and Yahsat have signed a memorandum of understanding (MoU) to explore new ways to offer a broadband connectivity solution serving several mobility markets in the Middle East within the next three to five years.

The MoU allows both parties to further investigate the launch of a Yahsat satellite constellation that would serve Panasonic's

general mobility needs in aviation, maritime and terrestrial transportation, and also give Yahsat the ability to use Panasonic communication-related technologies and services, where practical.

Iran eyes Japanese aircraft deal

Iran could be adding the Mitsubishi Regional Jet (MRJ) to its fleet later in the year, according to a government minister.

Asghar Fakhrieh Kashaan,

deputy minister for international affairs at the ministry of road and urban development, said the 100-seat MRJ would be purchased as part of a deal on behalf of domestic carrier, Aseman Airlines.

Honeywell on the crest of the Wave

Honeywell has achieved final certification from Inmarsat for JetWave, the company's package of exclusive hardware that will allow pilots, passengers, operators and maintenance personnel to connect to GX Aviation, the new in-flight broadband service from Inmarsat.

"This means that customers don't have to wait for a high-speed, global connectivity service. It's available and ready for installation now," said Carl Esposito, vice president Honeywell Aerospace.

SPA in agreement with Wyvern

Saudia Private Aviation (SPA) has signed a long-term agreement with Wyvern to implement a comprehensive programme, ensuring that it achieves the highest standard of safety and quality.

Wyvern will provide SPA with updated operational and technical manuals, which comply with newly implemented Saudi Arabian General Authority of Civil Aviation (GACA) regulations; assess, enhance and implement safety best practices across SPA's global operations; and provide on-going assistance that supports the company's internal systems and processes.

Indian signs good for GAA

Bahrain's Gulf Aviation Academy (GAA) has made a strategic step into the fast-growing Indian market through a partnership agreement with India's Speedjet Aviation.

The new arrangement will offer Indian students a comprehensive range of structured training programmes for all aviation personnel including pilots, cabin crew, engineers and ground staff, with sessions in GAA's training facility at Bahrain.

Captain Dharamraj Shukla, director Speedjet Aviation said: "As of now, Indian airlines are reporting increased profitability, low-cost carriers have placed heavy orders for new aircraft, there are a multitude of new airports coming up and foreign direct investment (FDI) flows into domestic airlines have surged. All these factors combined will lead to a sharp spike in demand for trained aviation personnel."

Adel Ali wins top airline CEO title



Adel Al Ali, group chief executive officer of Air Arabia, has won the 'Airline CEO of the Year' award at the 10th CEO Middle East Awards 2016.

Al Ali – who was instrumental in overseeing the launch of the first low cost carrier in the Middle East and North Africa – was recognised for his efforts in further strengthening Air Arabia's leadership position in the region and his role in delivering outstanding results for the airline.

The award was presented to Al Ali at a ceremony held at Four Seasons Resort Dubai at Jumeirah Beach.



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New training for Jordan's F-16 pilots

The Royal Jordanian Air Force (RJAF) F-16 pilots have been given a boost with a new simulation-based F-16 training environment being developed for Amman by manufacturer Lockheed Martin. The \$40million contract from the RJAF calls for a family of training systems which includes a comprehensive suite of full mission trainers and combat tactics trainers that can be networked together, aligning technologies to deliver advanced training while meeting affordability goals.

More gates for A380s at Dubai

Dubai Airports has announced it has commissioned work on a project that will expand the number of A380 contact stands at Dubai International's (DXB) Concourse C to enable the facility to accommodate Emirates' growing fleet of superjumbos. It will bring the total number of A380 gates to 47 – the most of any airport in the world.

Jetex set to handle MEBAA

Jetex Flight Support has been appointed as the official FBO and handler for the Middle East & North Africa Business Aviation Association (MEBAA) Show 2016, organised by F&E Aerospace on behalf of MEBAA at DWC, Airshow Site, from 6 to 8 December.

Accident report on EK521 released

The Air Accident Investigation Sector (AAIS) of the General Civil Aviation Authority (GCAA) has issued a



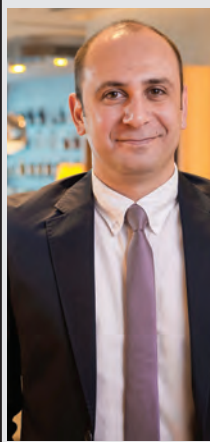
Saudia receives A330-300 Regional

Saudi Arabian Airlines took delivery in August of its first A330-300 Regional, making it the launch customer for this new member of the A330 family. Specially optimised for regional and domestic operations, Airbus said the A330-300 Regional will boost capacity on several of Saudi Arabian Airlines' most in-demand routes.

Saleh bin Nasser Al-Jasser, director

general of Saudia, said: "It is a step forward in recognising our commitment to a family of aircraft which has contributed immensely to our market growth. The advantage of operating the new regional version of such a popular aircraft with proven operational flexibility and lowest cost per seat means unbeatable economics for our business and our customers."

TAV to run Oman lounge



TAV Operation Services, a subsidiary of TAV Airports, has won the tender for the operating rights of the private passenger lounge at Muscat's New Terminal Building.

It takes the number of passenger lounges operated by the company in eight countries to 40.

TAV Operation Services general manager, Ali Bora bulan, said: "There will be suite rooms, a spa centre and a special shopping hall in Muscat Primeclass Lounge, which is going to be 3,050sqm and have a 550 seating capacity. We will serve approximately 250,000 guests annually at the lounge, which is planned to be in service next year."

preliminary report on the accident involving Emirates flight EK521 which crashed on landing at Dubai on its flight from Trivandrum International Airport, India, on August 3.

The Boeing 777-300 aircraft, registration A6-EMW, was destroyed following impact with the runway and subsequent fire.

The report states that following an attempted go-around, the aircraft sank from a height of approximately 85 feet back onto the runway and slid along the runway for approximately 800 metres before coming to rest. All of the 300 passengers and crew evacuated the aircraft safely before a fire consumed the cabin.

Drone closes DXB – again

Dubai International Airport (DXB), was forced to ground flights for half an hour on 28 September due to a drone flying in the area. Airspace around the airport was closed just after 0800 local time, arrivals resumed at 0835, with full operations restarting by 0907.

A Dubai Airports statement said the operator was "working closely with its stakeholders to minimise customer inconvenience. Safety is our top priority and Dubai Airports reminds all UAV operators that any and all activities are not permitted unless authorised by regulatory authorities and are strictly prohibited in restricted areas including within five kilometres of any airport or landing area," it said.

On June 12 a similar incident saw DXB close for 69 minutes.

First outing for Airbus tanker

Airbus Defence and Space successfully completed the maiden flight of the first new standard A330 MRTT Multi Role Tanker Transport at the end of September. This model incorporates a number of enhancements introduced on the basic A330 as well as upgraded military systems as part of a continuous product improvement programme.

GCAA partners SJU to improve air traffic management.

The UAE General Civil Aviation Authority (GCAA) and SESAR Joint Undertaking (SJU) have announced a new partnership aimed at improving the overall efficiency of air traffic management (ATM), optimising air traffic capacity and minimising air traffic delays.

Egypt's China delight

Egypt and China have signed a MoU to expand their air services agreement. Under the updated agreement, direct and non-limited services will be allowed from Xian, Yinchuan, Urumqi and Shenyang to eight points in Egypt, including Hurghada, Aswan and Sharm el-Sheikh.

Double delight for DAE

Dubai Aerospace Enterprise (DAE) was named at the inaugural Airline Economics Growth Frontiers Dubai conference, as the Middle East and Africa 'Lessor of the Year'. At the same time DAE's CEO Firoz Tarapore who has led the company's recent resurgence was recognised for his contribution and received the Middle East and Africa 'CEO of the Year' award at the same event.

FAI wins Tunisian air ambulance deal

German special mission operator FAI rent-a-jet has been awarded a one-year public tendered contract to operate two Learjet 60s out of Algiers.

The aircraft will be used for multi-purpose missions including both passenger transport and medevac services. This latest win, in a new territory for FAI, underlines the company's capabilities on the African continent which has already included operations with aircraft based in Sudan, South Sudan, Nigeria, Ivory Coast, Senegal and Mali.

Triple alliance

EgyptAir, Boeing, and Dubai Aerospace Enterprise (DAE) signed a cooperation agreement which adds eight new Boeing Next-Generation 737s to the fleet. Delivery of the first aircraft is expected in February 2017.

Novus expands

Dubai-based global aircraft leasing platform, Novus Aviation Capital, has launched a UK subsidiary in an effort to grow its global footprint.

Novus Aviation Capital (UK), based in London, is headed up by Mamoun Kuzbari, managing director at Novus Aviation Capital.



Dr. Saeed Al Dhaheri, Chairman of Smartworld, Abdulqader Ali, CEO of Smartworld, Dr. Mounes Kayyali, CEO of The Kernel and Dr Saif Al Ketbi, CIO of Abu Dhabi Airports Company, addressing the press conference to announce the launch of UAE's first-of-its-kind 'Cyber Security Centre'.

UAE cyber security centre launched

Smartworld and The Kernel have launched the UAE's first-of-its-kind cyber security centre. The facility will train UAE nationals in cyber security and provide round-the-clock advanced security monitoring, along with cyber threat management, to organisations across government and the private sector in the UAE.

The initiative is in line with the vision and development strategies of the UAE and Dubai, especially toward technological advancements in all areas.

Dr Saeed Al Dhaheri, chairman of Smartworld, said: "With this initiative, we reaffirm our commitment to support the UAE leadership's vision to excel in every sphere."

Air Europa and Turkish in codeshare

Air Europa and Turkish Airlines have begun a code-sharing partnership, which enables both carriers to tap into new markets and offer their passengers more travel options.

During the initial stage of their cooperation, Air Europa will place its marketing code on the Istanbul-Madrid route operated by Turkish Airlines, while Turkish will place its marketing code on Madrid-Las

Palmas/Ibiza/Palma de Mallorca and Madrid-Havana/Santo Domingo/Lima flights operated by Air Europa.

Dnata service centre

Dnata's new customer service centre for export cargo customers was officially inaugurated by Sheikh Ahmed bin Saeed Al Maktoum, chairman and chief executive of Emirates Airline and group.

Located in Dubai Airport Free Zone, the new export centre spans more than 5,000 sqm with 50

dedicated staff, the centre is expected to serve approximately 700 customers a day and handle 25,000 tons of export cargo per month.

Saudia IFE launch

Saudi Arabian Airlines (Saudia) is the launch customer for a new in-flight entertainment (IFE) offering from KID-Systeme. The SKYfi Club wireless platform is being installed on its A320 and A330 fleets.

The system, which allows passengers to access content such as movies, magazines and books from their own devices, was installed on the first A330 in mid August.

Sharklets add bite

Comlux The Aviation Group has become the first to retrofit an ACJ319 with sharklets, which bring a fuel-saving of up to 4% and a corresponding range improvement.

The retrofit, carried out by TAP Maintenance and Engineering, is also the first on any version of the A319 airliner.

Qatar eases visa restrictions

The Qatar Tourism Authority, Qatar Airways and the country's Ministry of Interior have made a revised tourism visa scheme available to passengers transiting through Doha in a move to promote it as a world-class stopover destination.

The new visa allows passengers with a minimum transit time of five hours in Hamad International Airport, to stay in Qatar for up to 96 hours (four days), without the requirement to apply ahead of time for an entry visa.

Gulfstream sells last G150

Gulfstream Aerospace has sold the last Gulfstream G150, marking the end of the mid-size aircraft's more than 10-year production run. The final G150 will be delivered to a customer in mid-2017.

Skype call by Gulf Air

Gulf Air has announced the roll-out of a company-wide project to deploy Skype for Business across its world-wide offices. It should enhance internal communication, productivity and efficiency, and reduce communication costs, while affording the airline's workforce access to a more convenient and cost-effective communication solution.

Dr Jassim Haji, director information technology, Gulf Air, said: "Skype for Business allows us to streamline our services with enhanced mobility and collaboration between our staff worldwide. Moreover, in the future, this will allow our front-liners to get closer to our customers through a rich choice of communication channels, anywhere and at any time."

MEA sticks with SITA Connect-ions



MEA Chairman Mohamed El-Hout, and SITA CEO Barbara Dalibard

Middle East Airlines-Air Liban (MEA) has signed a new five-year master agreement with global communications provider SITA to introduce new, faster connectivity across the airline's network.

The contract marks a continuation of the strong relationship between the two organisations, which dates back more than 60 years to February 1956 when MEA first became a SITA member.

The agreement includes SITA Connect which ensures that MEA can maintain fast, effective links with its 26 outstations across the globe, providing a headquarters-like experience across its vast network.

MEA have also extended its use of SITA's community messaging service, allowing the airline to share operational messaging across the airline's global network of offices and outstations.

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Embraer sustaining improvement

Embraer has been listed on the Dow Jones sustainability index for the seventh consecutive year.

Embraer's score increased from 70 points in 2014 to 73 last year and 78 now. It is awarded to all three dimensions – economic, environmental and social – and grew in 13 of the 19 criteria analysed.

According to this year's list, Embraer is the benchmark in its segment in three items: innovation management, supply chain management and attraction and retention of talent, in which the company obtained the highest scores.

Stratajet books Jetex

Private jet booking platform, Stratajet, has expanded its service offering by bringing fixed-base operation (FBO) Jetex on to its system.

Adel Mardini, CEO and president of Jetex Flight Support, said: "At Jetex, we pride ourselves on understanding the requirements of our customers, while offering professional support based on flexibility and reliability. This resonates perfectly with Stratajet's vision to give control back to private jet travellers, and we look



Third E190-E2 takes to the skies

An E190-E2 took off on its maiden flight on August 27 from Embraer's facility in São José dos Campos. The new E-Jet is the third of four prototypes to join the E190-E2 certification programme. The prototype will be used primarily to test flying qualities and evaluate how the aircraft handles in icing conditions.

The fourth prototype is scheduled to take flight by early next year. It will feature a production-series, full-cabin interior and will measure comfort and internal noise levels. It will also be used to conduct specific tests, such as cabin evacuation.

forward to offering their customers the quality services for which we have become renowned."

Flight choice boost

Qatar Airways and British Airways' parent company, International Airlines Group (IAG), has announced a joint business agreement, which was due to come into effect as *Arabian Aerospace* was going to press.

Customers should benefit from a wider choice of flights, an enhanced network, greater choice of fares and superior benefits for members of their frequent flyer programmes.

A bigger pool...

Turkish Technic and Onur

Air have extended their Airbus A320/A321 component pooling contract to 2021.

Components are supplied from the Istanbul main base and Turkish Technic pooling stations worldwide. Repair work will be completed at Turkish Technic's new state-of-art facility in Sabiha Gokcen Airport.

Centre trains to gain

EgyptAir Training Centre hopes to expand its capabilities on the African continent by cooperating with RwandAir.

The centre has been in discussions with the airline to discuss mutual cooperation and how best to meet RwandAir's training

needs in the field of engineers, pilots and cabin crew, air cargo and security.

Algavia simulator

Alsim has announced the sale of an AL250 simulator to the Algavia flight training organisation (FTO) based in Oran, Algeria.

The Federal Aviation Administration and European Aviation Safety Agency-qualified simulator answers first phases training needs: private pilot licence (PPL), commercial pilot's licence (CPL) and instrument rating/multi-engine (IR/ME). This simulator is reconfigurable for single-engine piston and multi-engine piston (SEP/MEP) and also offers

Jobs for the boys (and girls)

Airways Aviation, which provides crews to the Middle East, is launching CREW, a comprehensive global aviation recruitment, screening and training programme to support the industry as it tackles the increasingly challenging task of pilot recruitment and retention.

Ian Cooper, CEO Airways Aviation, said: "We firmly believe that aviation careers and recruitment can be better managed and we are determined to deliver a new, truly global service, which benefits the individual and the industry."

It's good to share

Turkish and Saudi Arabian low-cost carriers, Pegasus and Flynas, have signed a codeshare agreement for Pegasus to offer flights to Riyadh and Jeddah that are operated by Flynas.

Lion roars on

Novus Aviation Capital, the Dubai-based global aircraft leasing platform, has acquired three Boeing 737-900ER aircraft from PT Lion Mentari Airlines (Lion Air), which have been placed on long operating leases with the Indonesian low-cost carrier.

RJ banks on 'My Miles' card

The Bank of Palestine has sealed an agreement with Royal Jordanian (RJ) to launch a co-branded MasterCard called 'My Miles' as part of the airline's endeavour to enhance its market share and commercial existence in the Palestinian market and to encourage bank customers to use credit cards.

The agreement grants MasterCard-holders miles for purchases made through the 'My Miles' card. They will earn one 'Royal plus' mile against each dollar spent using the card locally or abroad, whether the purchase is performed in the market or online.





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ABDELHAMID ADDOU



MAROC AND ITS FUTURE ROLE...

Emboldened by Royal Air Maroc's successful restructuring programme, new boss Abdelhamid Addou is plotting a return to growth for the flag-carrier.

Martin Rivers reports from Casablanca.

When King Mohammed VI appointed Abdelhamid Addou as chairman and chief executive of Royal Air Maroc in February, he fired the starting gun for a new era of growth at the flag-carrier after five tough years of restructuring.

The exact nature of that growth has not yet been finalised – management are promising to unveil a new vision in early 2017 – but, as Casablanca prepares to host the 49th annual meeting of the Arab Air Carriers' Organisation in November, it is clear that Morocco's flag-carrier is once again in the ascendance.

“The idea today is based on the new health of the company,” Addou said during an interview at Casablanca's old Anfa Airport, where Royal Air Maroc is headquartered.

“We had to make big sacrifices [during the restructuring] in terms of routes, in order to make the business more sustainable from a financial standpoint. The results are very good. So now we have to decide how we can build the company of the future.

“First we are going to launch a study and this will help us to assess the potential of the market; which type of customers from which areas in the world; what could be our positioning in terms of brand etc.

“From a logical standpoint, there should be capacity growth. But expansion is not only a matter of volume! It's also a matter of quality of experience. We need to be much more innovative and much more creative towards the customer.”

Continued
on Page 20

CONTINUED FROM PAGE 19

Royal Air Maroc today serves 34 destinations in Europe, 30 in Africa, six in the Middle East, three in North America, and two in South America with a fleet of 55 mostly Boeing aircraft. Eight out of ten flights originate or land in Casablanca's Mohammed V International Airport, which serves as a bridging point for West Africa and the rest of the world.

Much like Turkey, however, Morocco's aviation sector is about more than just sixth-freedom connectivity.

The flag-carrier flies to 17 domestic airports besides Casablanca, including major tourism markets like Marrakesh, Agadir, Tangier and Fez.

Point-to-point operations from these secondary airports were slashed by Royal Air Maroc after the government signed an open-skies treaty with Europe in 2006 – opening the floodgates to European low-cost competition.

As a consequence of the liberalisation, Royal Air Maroc now provides just 12% of capacity in Marrakesh, significantly trailing market-leaders Ryanair (27%) and EasyJet (18%).

Strengthening its Casablanca hub at the expense of point-to-point connectivity was a prudent strategy, especially when complemented by cost-cutting measures to boost productivity and reduce wastage. After losing \$435 million between 2009-12, Royal Air Maroc has now been in the black for three consecutive years. Its passenger revenues have remained broadly flat since the first year of losses, despite the workforce almost halving in size.

Last strategy

"So we have ended the last strategy that was implemented by my predecessor, which brought a much healthier situation," Addou affirmed. "Today the company is in better shape. And now we need to develop it.

"I have my feelings [about how best to do this]. The team have their experience. But, still, I would like to go from the studies – from the data that we will get from the studies – before deciding any vision and strategy. Clearly, Casablanca is a strong hub and needs to be strengthened. For sure we will capitalise on all the good results that we have had over the last five years. But there are so many other opportunities that we need to address as well."

The chief executive cited tourism as one attractive growth avenue – unsurprisingly, perhaps, given his prior role as managing director of the Moroccan National Tourist Office.

Under Morocco's Vision 2020 strategy, the Government has set an official target of 20 million international tourists per year by the end of the decade. That is beginning to look like wishful thinking, with just 10.2 million foreigners coming to the country in 2015 – a modest reduction on the previous year. The World Travel and Tourism Council gives a much more conservative forecast of 13.2 million tourists by 2025.

Rising terrorist activity across Europe, North



Africa and the Middle East has undoubtedly played a part in warding off tourists, despite Morocco's well-established reputation as one of the Arab world's safest countries.

Though by no means immune to jihadist violence – a bombing killed 17 people, mostly tourists, in Marrakesh in 2011 – the country has so far not experienced a successful attack by Daesh-inspired militants. That contrasts markedly with other badly affected tourism hotspots like France, Turkey and Tunisia.

"Unfortunately, when any terrorism happens somewhere in Europe, it has a huge impact on our region – even though we are in a very safe region," Addou said.

"This impact brings figures that are not positive for us. However, when you look at our results since the beginning of the year, we are still seeing double-digit growth. This means we were able to limit the impact and gain market share from our competitors. It shows the dynamism of the team and the spirit around the brand. And it makes us very positive about building more capacity and more business."

The chief executive pointed to growth of 14% in Africa and 11% in Europe, defying broader stagnation in the market. Even in France – the European country worst affected by the rise of Daesh – Royal Air Maroc has expanded by 5%.

As management look to build on this success, cooperation with the Tourism Ministry, under the banner of Vision 2020, is a foregone conclusion.

"Once the strategy is ready, I strongly believe we will be asked to come back again in tourism. It's a strong pillar in our economy," Addou affirmed. "You cannot do it at any cost, of course. We need to check at what cost we can do it. But, definitely we will be asked to partner with tourism [authorities]. We will definitely launch new point-to-point routes."

Royal Air Maroc has already begun modifying its schedules to better accommodate holidaymakers. Several early morning flights from Marrakesh have been pushed back until later in the day, for example, in order to minimise inconvenience.

"If you have to wake-up at four o'clock in the morning you lose one day," the chief executive noted. "I'd rather give a good experience to these tourists; [let them] have a flight later in the day, so that they enjoy their morning, have a good breakfast, and go back to their European cities without being hassled by the timing."

Asked whether the airline will consider establishing its own low-cost carrier, Addou struck a cautious tone. "I'm not sure it's in our DNA to launch that type of product," he admitted, recalling the airline's difficult experiences with Atlas Blue, a Marrakesh-based subsidiary that was set up in 2004 but quickly absorbed back into the mainline operation. "Still, when the strategy is ready, we will see what are the needs and then we can decide."

Create a hub

Tourism is not the only sector on Addou's watchlist. He also talks up the new strategy being developed by the Ministry of Industry and Commerce, suggesting that any move to create a hub for automobile construction would require significant airlift for both cargo and passengers.

Likewise, the 'green Morocco plan', developed by the Ministry of Agriculture and Fisheries, will drive up demand for perishable exports from both Morocco and Africa.

"All these strategies – tourism, agriculture, industry – will be studied," he said. "There will be a real focus on this to see if we can be a partner to these strategies. We will build our new vision around the market, but also on the strategies that are being implemented by Morocco."

If one strand unites the disparate and, as-yet, hypothetical drivers of the business plan, it is Addou's unbridled enthusiasm for improving customer service. He admits the flag-carrier has not always met expectations when it comes to the passenger experience but believes this will change with new in-flight menus and a possible roll-out of WiFi streaming for handheld devices. The introduction of self-service kiosks in Casablanca has already cut queues by 35%, he noted.

"This is just the beginning. We need to be much more innovative and customer-centric. The customer is the one who chooses an airline – not the other way around!"

Turning to reports about a possible investment by Qatar Airways, Addou kept his cards close to his chest. Akbar Al Baker, the Doha-based carrier's chief executive, has repeatedly expressed interest in acquiring 25-49% of Royal Air Maroc if a suitable deal can be reached. The two carriers initiated a joint-venture in 2015, agreeing to codeshare between Casablanca and Doha, as well as on points beyond their respective hubs.

Today the partnership entails Qatar Airways operating the trunk route once daily and Royal Air Maroc three times weekly, rising to five times next summer. The Moroccan flag-carrier already places its code on flights from Doha to Singapore, Bahrain, Kigali and Entebbe, and is targeting codeshares for India and China as soon as the relevant bilateral agreements have been amended. Special prorate agreements (SPAs) for Qatar-operated Chinese services are already in place.

"Today we are very happy with the partnership we have with Qatar. We are doing great figures," Addou affirmed. "We need to strengthen this commercial agreement to make it much more positive and bring much more business."

Equity sale

Pressed on whether deeper cooperation could involve an equity sale, he said there were "no other discussions" at present and that management were not explicitly looking for an investor.

"Again, we are thinking about our new strategy that will be ready next year. One of the tools could be a partnership with an airline, and Qatar could be one of those airlines, thanks to the good relationship that we have today. But it doesn't go beyond that," he insisted. "Qatar is a very strong ally to us and a very strong friend. So if, one day, we need to think about something, Qatar will be, of course, one on the top of the list."

"But it's too early to discuss about any change in the equity."

The chief executive was more up-front when talking about Royal Air Maroc's appetite for Oneworld membership. Citing its deep African footprint and four-star rating from Skytrax, he said the flag-carrier could become a valuable member of the alliance. "We are in the phase of discussions with them and they have to decide



whether they will have us," he added, declining to put a timeline on accession. Membership of rival groupings SkyTeam or Star Alliance is no longer being considered.

Localised partnerships are another priority as Addou forges a new path for Royal Air Maroc. Codeshare talks are on-going with Canada's WestJet, Brazil's GOL and Italy's Alitalia, while West African market leaders Asky Airlines and Air Côte d'Ivoire also have "potential" as future partners.

"Any time there is some business and you can bring new things to the customer, we will go for that," the chief executive said, highlighting the success of existing deals with New York-based JetBlue and Abu Dhabi's Etihad Airways.

With the overarching business plan not due to be announced until next year, Addou was understandably reluctant to make firm predictions about fleet development.

The flag-carrier's 55-strong fleet today comprises 36 Boeing 737NGs, four 787-8 Dreamliners, four 767-300ERs, one 747-400, four Embraer E190s, five ATR 72-600s (operated by regional subsidiary Royal Air Maroc Express), and one 737-300F. Two additional aircraft – a 747-400 Combi and a 737-BBJ2 – are operated on behalf of the government.

When the fifth and final Dreamliner arrives in January, Royal Air Maroc will have just two outstanding orders for ATR 42-600s plus a "small" number of options for 737 MAXs. That may be surprising given the airline's historic pledge to reach 100 aircraft by 2025, but Addou said all forecasts made by his predecessors are now invalid.

"The idea is not to say we need to be a big airline with 100 aircraft," he insisted. "The idea is to assess the potential of the market and then decide what fleet we will have."

Planned deployment

Asked about the planned deployment of the next 787, he said that while "there are some [new] routes that would definitely work with the Dreamliners" the airline's initial focus would be on up-gauging narrow-body services – specifically to Jeddah and Medina. Royal Air Maroc currently deploys its Dreamliners to New York, Washington DC, Montreal, Rio de Janeiro, Sao Paulo, Doha and Paris.

Boeing and Airbus are both in the running for future orders, Addou confirmed, though he stressed that there is no urgent need to phase out existing aircraft.

Likewise, for the 100-seater category, the chief executive would not be drawn on specific plans, despite previous announcements by the airline forecasting a need for up to 20 regional aircraft.

He did, however, reserve kind words for Superjet manufacturer Sukhoi, remarking: "They have a very good product. I have met them twice. They are very positive, very aggressive, and doing a great job. Why not [take Superjets]? It's open."

"It depends on our needs, and what each of them will offer in terms of product, in terms of creativity, in terms of innovation – [the manufacturers must enable us] to address the customers the way we would like to address them."



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Iraq Gate was the first executive charter company in Iraq.



Gateway to a new tomorrow for Iraq airline

Iraqi Government forces are steadily pushing back against Daesh insurgents with the extremists now holding around 15% of the country, roughly one-third of the territory they did two years ago. Behind the military headlines, reports Alan Dron, young air operators, such as Iraq Gate, are seeking to maintain vital transport services in the country.

With large swathes of the country still in the grip of civil war, it may not seem the ideal time to think about setting up a scheduled airline service in Iraq. However, Iraq Gate believes that the country's business fundamentals could be sufficiently sound to make the venture worthwhile.

Iraq Gate was set up in 2013 as the first executive charter company in the troubled nation. Created by executive aircraft operator Arab Wings, from neighbouring Jordan, as a joint venture, it operates under an Iraqi air operator's certificate (AOC) and now has six aircraft on the Iraqi register – three Bombardier CRJ200s, two Hawker 800XP mid-size executive jets and a Beechcraft King Air 200 turboprop.

Arab Wings has seconded some staff to Iraq Gate to get the young operation off the ground and has appointed others within the country.

But why did Arab Wings, a well-established business jet operator, aircraft management and handling company, decide at the height of unrest in the country that it was a good time to set up shop in Baghdad?

"Although the [security] situation is not as we would like it to be, there is a demand for charter and business aircraft operations there," explained Sameer Hdairis, Arab Wings' business development manager.

"There are a lot of people who need travel in and out of Iraq, plus there are oil and gas companies present there who need transport for their own staff, both to other countries and within Iraq itself."

It is the oil and gas sector that provides much of the work for the CRJ200s, which most people would regard as unusually large aircraft for this type of charter work. The aircraft, which formerly operated with Spanish regional carrier Air Nostrum, are still in their 50-seater airline configuration. The first began service in Iraq in March 2015, with two other aircraft following later that year.

"Oil and gas companies do move a lot of people around and these aircraft suit their requirements," said Hdairis. It is not unusual for these companies to fly groups of 30 or 40 personnel at a time. Government personnel make up another significant share of Iraq Gate's market.

"We would like to enhance the operation and extend it to scheduled, or other types of services. We would like to grow," he added.

Ups and downs

At present, the market "has its ups and downs, but it's going", said Hdairis. The security situation in Iraq obviously required careful watching on a daily basis, he added.

Any military activity in an area into which the company was due to fly required careful briefing for the crews and extra efforts in terms of security planning. Crews were kept at the airport for security reasons.

Iraq Gate and Arab Wings have put in place a higher level of protocols and audits. This has gained them 'approved' status from several major oil and gas companies that allows them to transport the companies' personnel.

Meanwhile, back in Amman with Arab Wings, "business is going well", said Hdairis, despite the relative austerity in many parts of the region brought about by the slump in oil prices over the past couple of years. "We continue our operations. Of course, there are difficult times in terms of lower demand than usual."

The diversified nature of Arab Wings' business helps here. As well as flying executives and government officials around the region and beyond, the company has a portfolio of services, including aircraft management, ad hoc charters, its own handling and maintenance facility and even air ambulance flights.

Three CRJ 200s will be featured by the Iraqi operator.



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QATAR AIRWAYS ON TRACK TO MAKE HISTORY

Qatar Airways will become the first airline in the world to install a new flight-tracking system recommended by the International Civil Aviation Organization (ICAO). Marcelle Nethersole reports.

When Malaysia Airlines flight MH370 went missing over the Indian Ocean en-route from Kuala Lumpur to Beijing, China in March 2014, it caused one of the biggest searches in aviation history – one that is still on-going.

Then, in May of this year, EgyptAir flight 804 disappeared en route from Paris Charles de Gaulle to Cairo International Airport. It was later discovered the plane had crashed into the Mediterranean Sea, taking the lives of all 66 people on board.

It was reported that no mayday call was received by air traffic control from the EgyptAir cockpit before the aircraft was known to have disappeared.

The crash is still being investigated after the flight data recorder was successfully recovered.

There was mounting pressure on ICAO and the airlines to develop or adopt new systems that would enable aircraft to be tracked, wherever they were in the world.

The aviation industry has been concerned and frustrated about the methods used to track commercial flights and respond to emergencies. It has been working hard to put together recommendations to improve tracking and other safety procedures to prevent such tragic events occurring.

Shortly after the Malaysia Airlines event, a special multidisciplinary meeting on global flight tracking (MMGFT) was held at the ICAO headquarters in Montreal, Canada, to propose recommendations for future action. One of the main decisions taken was the need for operators to pursue global tracking of airline flights at a faster pace.

In the Middle East, the Arab Air Carriers Association (AACO) formed an advisory group comprising regional aviation industry heads and it recently issued a protocol on tracking and information sharing between airlines.

AACO now has 33 member airlines, including Emirates, Flydubai, Etihad, Qatar Airways, Flynas, Gulf Air, Kuwait Airways and EgyptAir.

And it is a Qatar Airways that will become the first airline in the world to adopt the new ICAO flight-tracking recommendations, using a device called GlobalBeacon, the organisation's global aeronautical distress safety system (GADSS) requirement.

The agreement will provide Qatar Airways' integrated

operations centre with minute-by-minute global tracking of automatic dependent surveillance-broadcast (ADS-B) equipped aircraft by 2018.

Aireon and FlightAware have developed the GlobalBeacon technology. The system combines FlightAware's worldwide flight-tracking information, including origin, destination, flight plan route, position, estimated time of arrival – with data from Aireon's space-based ADS-B aircraft surveillance system, due to be operational in 2018.

"Our needs, and our drive to deliver the very best services for our global passengers, are continually evolving," said Qatar Airways group chief executive, Akbar Al Baker. "GlobalBeacon will seamlessly integrate with our existing ICAO 2018-compliant flight-watch technology and further enhance our fleet management by providing updates every minute.

"I am proud of Qatar Airways' leadership position in this vital area of aviation safety and awareness. We will be the first airline in the world to have the capability to use worldwide satellite air surveillance to support our airline operations and to achieve the highest flight-tracking standards ahead of the ICAO 2021 mandate."

Proactive approach

Aireon CEO, Don Thoma, added: "Qatar Airways is a leader in the aviation industry and its proactive approach to implementing the GADSS recommendations reinforces that point. With a modern fleet of 190 aircraft flying all over the world, across remote and oceanic airspace, Qatar Airways and GlobalBeacon are an ideal match and no new avionics will be required."

FlightAware CEO, Daniel Baker, said that the adoption of the solution shows the company's commitment to improve airline and aviation stakeholder ability to locate aircraft in distress and improve search and rescue capabilities.

Qatar Airways will also integrate FlightAware's Firehose application programming interface (API) with its existing visualisation tool in its flight operations centre.

"Firehose provides secure transmission control protocol (TCP)-based streaming of flight positions and flight status data via a combination of worldwide air traffic control data, ADS-B, Mode S multilateration (MLAT), and aircraft datalink information," said Baker.



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Taking on a failed airline's name – and its debts – may seem unlikely first steps when setting up your own carrier. The new owner of Dubai-based Eastern Skyjets explained why to Alan Dron.

PROGRESS WITH PILGRIMS

It's a race against time for Pirouz Hamidian-Rad and the revived Eastern Skyjets as he aims for a start to operations by the time the Umrah pilgrimage season begins in November.

Speaking in late August, he reckoned he was two months away from receiving his air operator's certificate (AOC) from the UAE General Civil Aviation Authority (GCAA). Assuming that was granted, a further month would be needed to receive the necessary approvals to uplift pilgrims from countries to which Eastern Skyjets planned to operate.

"It's a tight schedule," he admitted. "Everyone is working, if not 24/7, then 18/7."

The Gulf aviation community will remember the former Eastern Skyjets, which operated for several years with McDonnell Douglas DC-9s, then Boeing 737 Classics and specialised in flying international troops in and out of Afghanistan, where they were fighting the Taliban. The airline also undertook work for the UN World Food Programme.

"They did very well for several years," said Hamidian-Rad.

However, he said the original owners failed to react quickly enough to changing market conditions, notably the drawdown of allied forces in Afghanistan.

Growing problems

Among growing problems, the airline also had the misfortune to have one of its aircraft damaged by terrorists in Pakistan.

In June 2014, the owners approached him to find them investors, but their financial difficulties were too severe and it was too late to put together a rescue package, he said.

Eastern Skyjets closed, but Hamidian-Rad, a former principal economist at the World Bank, bought the name.

"I like to restructure difficult projects – that was my background at the bank," he said.

"I didn't pay much for the company. The previous owners were gone."

He did, however, take on the former company's



debts. And those were substantial. When he acquired the company they stood at \$40.6 million, against assets of just \$3 million.

Following negotiation with creditors, he was able to reduce that to \$12 million, a figure that by late summer 2016 had been further cut to \$8 million.

While many people would think it unlikely that creditors would be willing to write off 80% of their debts, "Companies think it's better to get something rather than nothing," he said, particularly when combined with the prospect of winning new business from the re-born company.

"This industry is too small to burn all bridges with suppliers and customers. Services required by Eastern Skyjets will be going to those companies that have stood by us during difficult times – insurance, spare parts, maintenance. The first priority will be companies that took a major haircut to help us out."

Debts to the Dubai Government have been paid off – "That's why we were allowed to re-start the airline" – and salaries owed to previous staff will also be honoured.

Hamidian-Rad anticipates all debts will be paid off by the end of three years. At that point, he may look at changing the airline's branding.

The revived airline intends to start operations

with Airbus A330-200s, with several examples already picked out and for which negotiations are under way with lessors.

It had been an uphill battle to ease the doubts of lessors, several of whom were understandably cautious about dealing with a company that had been dormant for two years, he admitted.

However, that problem was on the verge of being solved.

"The aircraft will be dry-leased from a lessor in the UAE. They're 15 to 16-year-old aircraft, fresh out of C-Check and formerly operated by Emirates Airline. They've got a fantastic maintenance record."

Discussion with the lessors

"Three are already available in the country. In fact, they are standing outside our offices, but I don't want to pre-empt any discussions with the lessors."

According to the airline's temporary website, Eastern Skyjets hopes to start operations with six A330-200s, building up by at least two aircraft a year (including some Boeing 777-200ERs) until it reaches a 17-strong fleet by the end of 2020.

The airline will initially concentrate on the Haj and Umrah market: "Some 60% of revenue will



A Former Emirates A330-200 is set for Eastern operations (left). Pilgrims are a key market for the airline. "Some 60% of revenue will be generated by that type of activity," said Hamidian-Rad.

be generated by that type of activity. The other 40% will come from ad hoc charters and flying for UN agencies, because we have the right type of aircraft," said Hamidian-Rad.

"Our first priority is the Far East countries. Given the range of the aircraft, we're aiming at Malaysia, Indonesia and Thailand to some extent. Secondly, we'll look at India and Pakistan – especially the Indian market, which has recently been liberalised for Haj and Umrah operations. It's no longer under the control of Air India. Thirdly, we'll look at west Africa, with its very large Moslem population."

Niche in the Gulf

He believes that the A330s will find a niche in the Gulf for ad hoc and aircraft, crew, maintenance and insurance (ACMI) charters, as no operator in the region uses wide-bodies for charter operations.

"Several charter operators have shut down or discontinued operations in the UAE, so there's a good chance of picking up business there. We've been in touch with many ACMI brokers and there's a good demand there."

There are already many airlines fighting for a slice of the religious pilgrimage market. So how does Hamidian-Rad hope to

differentiate Eastern Skyjets from competitors?

"Firstly, through service orientation. I lived in Saudi Arabia for almost two years and have dealt with Haj and Umrah services for eight. We're very hands-on management.

"Secondly, through the type of aircraft. Wide-bodied aircraft are not something many people are focusing on."

The third emphasis will be on reliability. Hamidian-Rad said he had seen too many cases of pilgrims paying a deposit up-front and readying themselves for this important moment in their lives, only for the promised aircraft not to turn up at the appointed date.

Although based in Dubai, as a charter company Eastern Skyjets cannot land at Dubai International Airport. It was given the choice of operating from Dubai World Central or from Ras Al Khaimah (RAK).

It picked the northernmost emirate: "Although it's a bit further away, traffic is much easier on the route to Dubai downtown and the cost of operating from RAK is the cheapest of all the airports in the UAE."

With a gaggle of expectant creditors in its wake, Eastern Skyjets will arouse more than the usual level of interest surrounding a new operator when it takes to the air.

Pirouz Hamidian-Rad: From World Bank to a coffee shop



Pirouz Hamidian-Rad has an interesting background.

Born in 1953, he left his native Iran to study before the 1979 revolution. Although he returned periodically, he has not been back since the departure from power of the relatively moderate President Mohammad Khatami in 2005.

As a student in Washington DC, he helped pay for his studies by the time-honoured US method of finding a job – in his case, driving a Washington taxi for three years.

After 16 years at the World Bank, he became chief economic advisor to the prime minister of Papua New Guinea, then lived in Afghanistan for seven years before the security situation became too hazardous.

He is the CEO of Jeddah-based start-up Emir Airlines, whose progress stalled after a disagreement with local partners, but could be quickly resurrected if that problem was solved, he said. He also heads Emir Aviation Services International, which provides a range of resource management and project management services from Sharjah.

During his attempt to resurrect Eastern Skyjets he found himself operating out of a coffee shop for six months: "It was next door to the office, which was sealed by creditors. I refused to pay a creditor, who wanted his money before everybody else, and resorted to a court order. Once we are up and running everyone will be paid according to the schedule."

Dedicated cargo aircraft no longer need to be hired for moving cars around the world.



FLYING CAR-GO CLASS

Moving high-spec – and highly expensive – sports cars between the Gulf and destinations favoured by local residents is, as Alan Dron reports, becoming a growth area for airlines.

Like their contemporaries from around the world, young Arab men like their cars. They like them so much, in fact, that many want to make sure that they accompany them on holiday.

Which explains why, every summer, clusters of Lamborghinis, Ferraris and Aston Martins with Arabic number plates can be seen parading along streets in the more salubrious districts of London, Paris and Milan.

Getting them there, however, is a process that requires considerable behind-the-scenes logistics, not to mention extremely precise manoeuvring of several hundred thousand dollars-worth of metal.

However, it's not only wealthy young men who need to move their vehicles around the world. Expatriates returning to their native countries from contracts in the Gulf frequently want to take home a car bought at a much better price in the Middle East than would be possible in their own countries.

Previously, that would have required the vehicle to be loaded on board a ship for a lengthy sea voyage to the expats' native country. Increasingly, however, air-freighting is seen as a viable proposition.

One company trying to tap into what it describes as a steadily growing market for moving cars around the world is Etihad Cargo, particularly as new-generation aircraft with increasingly capacious under-floor holds mean that dedicated cargo aircraft no longer need to be hired.

The Boeing 777 has become known for its particularly large under-floor hold – to such an extent that some Gulf pure cargo carriers have complained that their specialist freighters have been undercut by regular passenger airliners. However, the smaller Boeing 787 is also capable of carrying vehicles, as is the ultra-large Airbus A380.

"Through our use of a mixed fleet of aircraft, we have a range of options that enable us to transport cars in the hold, including some of the new additions to our fleet such as the A380," said David Kerr, senior vice-president of Etihad Cargo.

The past summer has seen Etihad linking premium cabin

seats with carriage of the passenger's car, in a bid to expand what Kerr described as having formerly been something of a niche product, given the special procedures required to transport expensive vehicles.

"We have a database of vehicles that has all their dimensions, even specialised, customised elements," he explained.

Where necessary, special padding or packaging is applied to protect protruding edges: "It's an incredibly micro-managed procedure; each case is unique."

The vehicle is then strapped on to a special pallet and raised to the level of the cargo door, where it is pivoted as it enters the door and inched into the hold. "We will pick a particular part of the hold to put it, usually close to the door – we wouldn't want to take it too far into the hold, for ease of getting it in and out."

Dedicated freighters

However, some cars defeat even the 777's belly; SUVs normally have to be transported in dedicated freighters.

At its destination, Etihad handles the necessary customs clearance and will, if required, deliver it to the passenger's hotel. The process goes into reverse at the end of the summer holiday season, when the passengers return home.

While some of the destinations to which the carrier regularly delivers cars are unsurprising, others may raise an eyebrow. Manchester, Düsseldorf and Amsterdam do not normally spring to mind as supercar destinations – in Amsterdam's case because the narrow, canal-side streets make travelling at anything more than 50kmh difficult.

"You'd be surprised," said Kerr. "There are many points in Europe popular for travel from the UAE."

Germany, for example, attracts more young Arabs than you might think. Moving a sports car is not cheap, but it's still more economical than hiring an equivalent supercar for two months.

The number of vehicles moved in this way remains in the low hundreds, said Kerr, but is noticeably increasing, with 2016 showing a 23% rise year-on-year.

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Salalah Airport has just undergone a major upgrade programme, with a new terminal and runway.

The leopard can be the catalyst for Salalah



A new Omani charter airline, Salalah Air, aims to open up the country to air tourism, the first step in creating a network of flights both domestically and throughout the region. Alan Dron reports.

Since the accession of Sultan Qaboos bin Said Al Said in 1970, Oman has undergone a remarkable transformation.

Having overcome the early and potentially deadly threat of a communist-inspired insurgency from over the border in Yemen, the country has slowly but steadily prospered.

Previously almost medieval in its backwardness, its emergence into the modern world has been a remarkable success story.

The national carrier, Oman Air, is expanding rapidly and has carved out a niche for itself in a market dominated by the 'big three' airlines in Qatar and the UAE.

But, for all its success, said Sam Owen, CEO of start-up Salalah Air, it has not provided the country's second city with the level of air services desired by its population.

"Basically, there's no service in the south of the country," said Owen, a British expatriate who has lived in Oman for decades and is a former wing commander (Lt-Col) in the Royal Air Force of Oman.

"Oman Air has expanded very nicely around the world, but not in Oman. The people of

Salalah want more flights to Muscat, they want to connect with the rest of the world."

Many of the factors that would support a new airline in Salalah are in place: there has been considerable investment in tourism, with hotels and an improved road infrastructure. The city's airport has benefited from a new terminal and runway. And the port has been greatly expanded and is increasingly on the itineraries of visiting cruise liners.

Additionally, the area around Salalah has one attraction that is almost irresistible to many residents of the Gulf. As temperatures start to reach a peak of 45C or more throughout the peninsula in June, the northerly edge of the Indian Ocean monsoon hits the southwest coast of Oman. Its effect is to bring clouds, temperatures of around 25C, mist and drizzle from June to the start of September. This is the khareef and visitors flock to the region for the novelty.

"The jebel turns green, you've got cows and camels in the same field and if it's a good season there are even a few waterfalls in the wadis," said Owen. The same conditions also prevail in southeast Yemen and parts of Sudan, but neither country is in any condition to take advantage of the phenomenon.

Oman Air lays on additional flights to Salalah to cater for the influx of tourists and more than 90,000 visitors passed through the airport during the latest khareef season, but Owen believes that much more can be done.

Until recently, Oman did not allow the establishment of airlines apart from the national carrier. That changed in January 2016 with the request for proposals to set up a new low-cost carrier (LCC). Owen and his team applied, but the successful bid came from another state-run enterprise – the Muscat National Development and Investment Company – and Salam Air is due to take to the air in the third week of December. Ironically, its initial destination will be Salalah.

New venture

Having lost out on the LCC contract, Owen turned his attention to a new venture. Starting small, with a handful of light aircraft, Salalah Air intends to step up initially to 19-seater regional aircraft, then to jets by 2018. At the time of writing, it was closing in on its air operator's certificate (AOC), with the aim of having it in place by the end of the year. Postholders were being recruited over the autumn and manuals submitted for approval by the Public Authority for Civil Aviation (PACA), the country's aviation regulator.

Funded mainly by a locally-based family, with additional money coming from Oman's banks, Salalah Air plans to start operations with four GippsAero GA8 Airvans. The Australian-built light aircraft operates with a single pilot and up to seven passengers.

"We looked at the Cessna Caravan, but it's an



expensive aircraft," said Owen. "An Airvan is \$900,000, it's rugged and very cheap to operate."

Initially, two aircraft will be based in Muscat and two in Salalah, with the target market being the tourism industry, both foreign and domestic. "We have five airports in Oman, but we also have around 40 unpaved ex-air force strips that were used for public support-type services by Short Skyvans. A lot of them are in very good tourist destinations and what would be a four- or five-hour drive by car takes 20 minutes by air."

Regional turboprop

Owen hopes to start services with the Airvans in January 2017, at around the same time as introducing a Dornier 228 regional turboprop. Swiss manufacturer RUAG is being extremely helpful. "We have one lined up, which would be a wet lease from RUAG itself, to get us going. We need the support of the original equipment manufacturer (OEM) at the moment for maintenance, etc.

"We will explore second-hand aircraft initially, to keep our costs down, although we're in negotiations with RUAG to buy new aircraft."

One of the attractions of an aircraft such as the Dornier 228 is that it is rugged and has the potential to be converted to carry cargo or parachutists. Owen sees both the 228 and the Airvans being used for roles such as parachuting at weekends, when they are not required for passenger services.

The Airvans will also be used by a new flying club when not required by the airline: "Any aircraft we have, we have to use for as many things as possible," he said.



Left: Salalah Air intends to start operations with four examples of the Australian Gippsland GA8 Airvan.

Almost simultaneously with the Airvan, the company plans to introduce the RUAG Dornier 228 (above).

Among other avenues being explored to add revenue streams is the erection of a semi-permanent hangar at Salalah. This would be larger than needed for Salalah Air itself, to give the company the opportunity to offer hangarage to business jet operators who fly into the airport.

The next stage in Salalah Air's development will be the introduction of jet equipment – initially leased 37-seat Embraer 135s – before moving on to a larger type, such as the Embraer 190, which typically seats 94-114 passengers, depending on internal configuration. Owen hopes to introduce the 135 in January 2018.

"We'll probably start off with the 135, as the population of Salalah is small, just 400,000. It's a tried and tested aircraft and is economical." The 135 would allow Salalah Air to extend its routes to longer sectors within Oman, such as Salalah-Khasab and Salalah-Masirah, as well as to other Gulf destinations, while the 190 has the range to fly as far as Zanzibar, off the East African coast. The island was once an Omani possession and

many residents there still have Omani heritage.

"We've done the route analysis [for Zanzibar]. We can be fairly competitive compared to Oman Air's fare structure," said Owen, who believes that adding the island to the company's route structure will give it the option of offering tourists two-centre holidays.

Like RUAG, Embraer has been extremely helpful in providing advice on subjects such as route analysis, he added.

Although Oman Air has been slow to provide services from Salalah, the new airline hopes to team with the national carrier, meeting disembarking tourists and either flying them on to another destination or arranging car hire and hotel bookings: "We want it to be a one-stop travel shop. Ultimately, we would look at having a codeshare with Oman Air."

Salalah Air has taken as its emblem the Arabian leopard. Owen will hope that his company's progress is as sure-footed as that of the big cat.

Enhanced Trent points the way ahead for A380

The first of Rolls-Royce's Trent 900 engines for Emirates Airline's latest tranche of A380 super-jumbo airliners, ordered in 2013, have now been delivered to Toulouse for installation by makers Airbus.
Geoff Thomas
reports.

Emirates picked Rolls-Royce to supply 217 engines, valued at \$9.2 billion, for 52 Airbus A380s and says the UK manufacturer is in pole position to power a more fuel-efficient 'neo' variant of the aircraft if the long-mooted plan goes ahead.

The new A380s will be the first Emirates airliners to be powered by Rolls-Royce Trent 900 engines, the airline having chosen the UK company's power-plants in preference to the rival Engine Alliance GP7200 engines that power its previously ordered 90 super-jumbos.

Speaking at a London media briefing, Emirates president, Tim Clark, said that some of the Trent 900s could be converted to more efficient 'neo' types, should Airbus decide to go ahead with an upgrade of the A380.

He also commented that the aerodynamically revamped airliner could use an improved version of Rolls-Royce's Trent XWB engine now in service on the Airbus A350.

The world's largest international airline has said it could order at least 100 more A380s if Airbus commits to a 'neo' version, equipped with engines that are more fuel-efficient.

Any A380neo would, it's believed, be expected to deliver fuel efficiency gains of between 10% and 13%. Emirates is confident that an order for around 200 A380neo aircraft may spur Airbus into further developing the airliner.

Airbus, on the other hand, clearly believes that re-engineing the A380 is unlikely to be as successful as the

current A320neo and A330neo projects have been. Only time, and further growth in a relatively stagnant market, will tell.

Many market analysts believe that, while the current A380 is competitive in economic terms with Boeing's 777-300ER, it is less so when compared with the latest B777-9. So the conundrum facing Airbus is simple: can it maintain sales of the current A380 for perhaps a decade while market demand for the super-jumbo worldwide increases?

The delivery of the initial shipset of four Trent 900 engines to Airbus for installation on the first of Emirates' 52 A380s was a significant event for Derby-based Rolls-Royce for two key reasons.

Firstly, it was the initial shipment in an order that is the largest ever in Rolls-Royce's commercial engines history. The decision also made the Trent 900 the engine of choice, both in terms of number of customers and also in terms of overall market share. Rolls-Royce now has just less than 70% of the current firm order backlog for the A380 and 11 out of 17 operators have now selected the Rolls-Royce option.

The delivery was also significant in that Emirates' Trent 900s are the first to be built to the new enhanced performance (EP3) standard.

Variety of improvements

The EP3 package, which is the current build standard, includes elliptical leading edges on compressor blades, and a variety of improvements in the internal aerodynamics of the engine, all contributing towards enhanced fuel economy and improved longevity before maintenance is required.

The package also includes casing improvements to optimise cooling air and sealing, together with further improvements around the high-pressure turbine.

This latest EP3 package follows a Trent 900 EP2 programme, introduced in 2014, that included optimised fan blade tip clearances; improved turbine case cooling; improved sealing for the low-pressure (LP) turbine; an optimised intermediate pressure (IP) compressor; an improved engine sector stator; and improvements to the internal air flow system.

The Trent 900 engine that powered the very first A380 commercial flight back in 2007, was the company's main display exhibit at the most recent Dubai Airshow and, during the event, it was presented to Emirates. This gesture now enables Emirates Engineering apprentices and personnel to familiarise themselves first-hand with the mechanics and operations of the engine.

It was subsequently moved from the air show site to Emirates' engineering training facility at Dubai International Airport – a location where maintenance and engineering staff can now familiarise themselves and receive hands-on training, learning how to perform tasks that would be difficult to achieve on an in-service aircraft, including fan blade installation and component removal.



The Trent 900 is prepared for the Emirates A380.



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Over the past 20 years, low-cost carriers (LCCs) have become a major feature of the airline landscape in Europe, Asia and North America. They have certainly made an impact in the Middle East, but will they ever become as significant in those other regions? Alan Dron talked to the CEOs of several Middle East LCCs to take the market's temperature.

The long and the short of low-cost travel

When LCCs first emerged in the Middle East, there was scepticism over whether they would survive. Many industry observers believed that potential passengers would equate 'low cost' with 'poor quality' and hesitate to use them.

The past decade has shown that passengers in the Middle East like a good price as much as their counterparts in Europe, North America and Asia.

But just how strong is the Middle East low-cost market at present?

"It's very strong. Travel is an essential part of our life here," said Flydubai CEO Ghaith Al Ghaith. The high number of expatriate workers from the region and the Indian sub-continent virtually guaranteed strong passenger flows, he said.

"This region is not really different from any other region that has experienced low cost in the past," commented Adel Ali, CEO of Air Arabia, the region's first LCC. "It always starts with negativity. The perception has been like everywhere else – that LCCs don't have a good product or good punctuality. Once you prove to people it's a sustainable business, with good aircraft and good prices, it tends to work. People like it. You stimulate a new market.

Sustainable growth

"We've had 13 years of sustainable growth and have no reason to think that growth won't continue."

Most of the region's LCCs are profitable. One that will not be – this year, at least – is Turkey's Pegasus Airlines, admitted its CEO, Mehmet Nane.

However, the reasons for the anticipated drop into the red are largely geo-political and outside the airline's control. A series of terrorist attacks in Turkey – notably at Istanbul's Ataturk International Airport that left more than 40 dead – led to a sharp drop in inbound tourism, denting



Adel Ali: "Once you prove to people it's a sustainable business, with good aircraft and good prices, it tends to work."

Pegasus' passenger figures.

This followed Russia's ban on charter flights to Turkey after Turkish F-16 fighter aircraft had shot down a Russian Sukhoi Su-24 that had strayed into Turkish airspace at the end of 2015. Relations are now on the mend.

Fortunately, said Nane, the Turkish domestic market remained strong and still had room to grow. "Next year, we'll definitely be back in profit."

However, while low-cost travel has taken off in the Middle East, it is a rather different animal from the European market, said Al Ghaith.

There, airlines can offer essentially a uniform model throughout the continent. In the Middle East, the 'one size fits all' approach doesn't work.

Flydubai focuses on keeping costs low by being as efficient as possible, but offers facilities unheard of on European LCCs, such as on-board television and movies. Passengers have to pay for the service, but "That's what people here are used to.

"As for food, people have to pay for it, but some routes are so long that we had to include it as part of the ticket price."

One other major difference to European no-frills carriers, such as Ryanair and EasyJet, is the move of airlines, such as Flydubai and Saudi Arabia's Flynas, towards a hybrid model, with business-class seats.

Paul Byrne, Flynas' CEO, believed that LCCs still did not have the same level of acceptance as elsewhere. "People here are used to their luxury. That's one of the reasons why we felt we had to provide a business-class as part of our offer, together with a frequent flyer programme."

On certain routes – notably to Cairo – business-class is essential, he said and some carriers have fitted the wider seats specifically for that sector. The Riyadh-Jeddah sector got decent load factors in its eight-seat business section, he added, as did weekend traffic between Saudi Arabia and Dubai.

Market requirements

Air Arabia's Ali accepted that carriers had to refine their offerings to meet market requirements. "For us, it would be wrong for me to say we would never develop business-class but, until now, we've sustained a very high seat factor. Better to operate a single class and maximise our profitability and carry a large number of passengers rather than a business-class seat."

Kuwait's Jazeera Airways has always had business-class cabins but Jazeera Group chairman, Marwan Boodai, believed that there are deeper underlying changes. "The market today in the Gulf, as with other parts of the world, is no longer segmented into low-cost versus legacy. Instead, we are seeing the market more and more now being consolidated into two categories, the short-haul or regional airline category [and] the long-haul or global airline category.

"Frequent travellers, and those who follow the sector, have seen legacy carriers reposition their

“There is a customer-led push into redefining what short-haul or regional travel is.”

MARWAN BOODAI

product for regional travellers and adopt some of the key success factors of classic low-cost carriers. There is a customer-led push into redefining what short-haul or regional travel is, in terms of price, cabin fitting and services. And, as a result of that push, legacy airlines' economy-class experience on short routes is being overhauled to meet what regional or short-haul travellers require. So, the question today isn't how strong the low-cost market is, but rather how strong is the regional travel market?"

Despite its success, can the low-cost market ever be as strong in the Gulf as it is in Europe or the USA?

Single sky policy

"There are about one billion people between Europe and the USA and both regions operate under a single sky policy separately. Now, the Gulf's population is roughly around 50 million people. So, no," said Boodai.

"However, the sector doesn't have to mimic Europe and the USA. In fact, open regional travel in the Gulf is quickly taking on different and very noteworthy characteristics.

"For example, the Gulf and the Middle East has religious sites in four different countries for people of different faiths. Airport ownership and management are gradually moving away from governments and into the private sector, and when that happens growth will be a primary objective for these airports. And when airports grow, airlines grow.

"Other noteworthy factors include the growth of same-day business travel, and that makes airlines focus on frequencies not just numbers of destinations. And there's a whole set of other factors, including the strong family ties across Gulf countries. So regional travel is inevitable for everyone."

Continued
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Air Arabia's Ali is more optimistic about the low-cost market's future status, but sounded a cautionary note, namely the lack of open skies policies in many countries around the region.

"A good example is that we've not been able to grow our requirement into India for the last eight years. We know we can double the capacity on Indian routes but India is not open to an open skies relationship, although we have a good relationship between the two countries. Similarly, there are a number of airports where they don't want to see us growing, to protect their conventional airlines. Every airport that an LCC has gone into has grown passenger numbers and the business.

"The market is there and, proportionately, it will grow in the same way as in Europe and elsewhere.

"Simply, people want to travel more and travel has been an integral part of people's lives. To fly frequently, people want affordable prices that can only be offered on a commercial basis by a LCC."

Al Ghaith concurred: "Flydubai considers any destination within a five-hour radius from Dubai as a possible route, but is stymied by restrictive controls and visa regulations in several major markets.



Ghaith Al Ghaith: "Flydubai considers any destination within a five-hour radius from Dubai as a possible route."

"India accounts for less than 2% of our flown seat-miles but is the largest market here," he said.

"Most GCC countries have open skies, which is very positive, but what matters in our region is a big block of countries important to us – India, Pakistan, Iran – where open skies is still not there."

Despite these constraints, several Middle East LCCs are gearing up for fleet renewal or expansion. Flynas, for example, is in talks with

both Boeing and Airbus for replacements for its fleet of A320s and anticipates making a choice by the end of this year.

Similarly, Air Arabia is in the market. By the first quarter of 2017 it will have taken delivery of all 44 A320s that form its current fleet. The airline's network plan "suggests we will have requirements for additional aircraft after Q1 2017. We're in discussions with a number of lease companies," said Ali.

LCCs traditionally operate single-type fleets, but Ali did not rule out a mixed fleet if Boeing produced the best offer. Bombardier's CSeries also looked like being a good aircraft, he said.

"Our balance sheet means we require some aircraft to be leased. But we will also be putting in orders for replacements and expansion."

Longstanding marketplace rumours that Air Arabia was looking at the larger, longer-ranged Airbus A321neo were confirmed in late September when Air Lease Corporation said it would be supplying the Sharjah-based carrier with six examples in 2019. Ali had earlier hinted at this decision: "Perhaps we're on the limit with the A320," he said. There were routes where Air Arabia needed more capacity, he noted.

Pegasus is expanding its operations in the Gulf through a codeshare arrangement with



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Flynas, which sees the Turkish carrier flying passengers to Istanbul, from where they can connect on to destinations on the Pegasus network.

It has just begun a major fleet switch from the Boeing 737-800 to the CFM LEAP-1A-engined A320neo, but anticipates running both types in tandem for some time.

The A320neo, which entered service this summer, is delivering its advertised 15% reduction in fuel consumption compared to its predecessors. "So far, reliability has been good," added Nane.

Over the next year, Salam Air in Oman and Flyadeal in Saudi Arabia are due to join the low-cost ranks. Can the region absorb new LCCs?

"Absolutely," said Al Ghaith. "I remember when Flydubai was announced, people asked 'Do you think there's enough room?' We're now up to 53 aircraft. It's been an amazing journey and whatever we have done could be done by other airlines."

His airline has orders and purchase rights for more than 100 Boeing 737-800s and 737 MAX versions.

More competition is inevitable

Ali also believed that more competition is inevitable. "The more successful the airlines are, there will be people who see that this is a good business model and they'll set up LCCs in different markets. What we've seen in 13 years is that some have succeeded and some haven't. 'Can you stick to the business model' is the question."

Jazeera's Boodai has often talked of over-capacity on some Gulf routes, but also believed that the market could cope with more aircraft – in certain places.

"There is no doubt that there is a lot of over-capacity on Gulf routes to and from Kuwait. In fact, some routes today are flying aircraft that are practically half empty. Having said that, there are other markets that seem to be underserved, such inter-Saudi travel.

"In terms of the big picture, there is room for growth and room for the Gulf regional travel market to expand. I believe that once the private sector takes over the airports, once more liberal traffic legislation is introduced, and once more Gulf cities work on their infrastructure and facilitating home-grown tourism, there will be plenty of opportunities for everyone."

This year has been, sadly, defined for Flydubai by the March crash of one of its Boeing 737-800s at Rostov-on-Don, southern Russia. However, the public has not been deterred from travelling, said Al Ghaith:

"From the numbers we can see, there's always an effect from those dreadful events. But I can say that as far as loads and people's reactions are concerned we're coming back to normality very quickly, if we're not already there."

■ Overleaf: Flynas expanding routes as the pressure mounts



Flydubai leads the way as region's low-cost market looks to expand

John Grant, senior analyst, OAG, gives his views on why the low-cost carrier growth continues and who will be the winners and losers.

In a market where the 'big three' dominate with their global networks, aircraft orders and product innovation, it's easy to forget that other sectors of the market are growing rapidly and taking an increasing share of demand.

Over the last five years, low-cost services within the International Air Transport Association (IATA)-defined Middle East region have increased by a staggering 150%, making the region the second fastest major growth region in the world, behind northeast Asia.

This year, nearly 200,000 scheduled low-cost flights will be operated to and from the Middle East; the equivalent of 540 a day. Five years ago it was just over 200 flights.

As in the legacy sector, there are three major airlines in the low-cost market that have, in recent years, expanded rapidly, adding city pairs to the market and opening up travel to new market segments.

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Flydubai is the market leader with a 35% share of all scheduled services, followed by Flynas (27%) and Air Arabia (20%). Collectively, the three airlines operate 82% of all low-cost services to and from the Middle East.

However, unlike in the legacy sector, only one of these three airlines appears likely to grow significantly beyond their current sizes. With an outstanding order for some 80 aircraft, Flydubai will double its fleet size and appears likely to have in excess of 50% share of the market by 2020.

Unlike in other markets where low-cost airline services have developed, much of the growth being seen in the Middle East centres on new unique city

pairs that, certainly in the case of Flydubai, could not support wide-bodied operations from its sister carrier Emirates.

With a network that now reaches through central Asia into Africa and south eastern Europe, Flydubai offers its own hub network alongside the complementary feed that it provides to Emirates and other carriers operating at Dubai. With the lifting of sanctions in Iran there is further room for growth for the airline in this market.

□□□□

From a forward perspective, the market opportunity lies not only with the locally based low-cost carriers, but also with the development of inbound low-cost services. From Europe airlines, such as Wizz Air and Sun Express, have already developed services and others will inevitably follow.

With the south east Asia situation, the attraction of a growing leisure market in both directions, operated by next-generation single-aisle aircraft, will represent an obvious development of networks.

All of this will, in time, place further pressure on the legacy carriers of the region that are already facing fierce competition in their home markets.

Faced with an abundance of new market opportunities, the low-cost airline model is now firmly established in the Middle East and will continue to grow strongly in the next decade, with the Dubai-based carrier likely to win the largest market share, based on current and future capacity.

What will be interesting over time will be how other more traditional airlines respond to this growing threat to their business models; only time will tell.



Saudi carrier Flynas is weighing proposals from Boeing and Airbus to replace its fleet of Airbus A320s.

Flynas expands its routes in bid to ease the pressure

Saudi Arabian carrier, Flynas, faces increasing competition in the kingdom as three new rivals take to the skies.

Alan Dron
reports.



CEO Paul Byrne says that expansion of Flynas' route network will be concentrated on the Arabian Peninsula – both to Saudi regional airports and to other Gulf nations.

Nobody ever said running an airline was easy. Facing a Saudi economy feeling the effects of two years of low prices, a dominant national carrier that has built-in advantages from the state, and with new competitors about to appear, Paul Byrne, CEO of Flynas, knows that better than most.

Flag-carrier Saudia, which already has by far the largest share of the domestic market, is now bringing in larger long-haul aircraft, such as Boeing 787s and Airbus A330s, to operate domestic sectors. This increased marketplace capacity is depressing yields.

"Effectively it's below-cost selling," said Byrne. "We have a concern over it. It's not a level playing field as far as we're concerned."

That situation is not improving. In August, Saudia took delivery of its first A330-300 Regional, a lower-weight version of the European twin-jet optimised for shorter-range services, and is believed to want to use them to increase capacity on its most popular routes. Saudia has 20 on order. The national carrier also plans to launch a new low-cost carrier (LCC), Flyadeal, in 2017.

Flynas also faces new competition from Saudi Gulf Airlines, which should have begun operations around the time that this issue of *Arabian Aerospace* appears, together with Egyptian-Saudi carrier Nesma Airlines.

However, further competition in the shape of Qatar Airways' planned subsidiary, Al Maha Airways, is unlikely to materialise. Qatar Airways has declined to comment on progress on obtaining an air operator's certificate (AOC) for Al Maha from Saudi Arabia's General Authority for Civil Aviation for more than a year now and it is understood that the project has been abandoned.

Dammam-based Saudi Gulf has said it intends to offer a premium product that differs from that offered by Flynas, but Byrne believes some overlap is inevitable: "I'm sure they have no choice but to compete with us, even though they believe they won't."

Nesma, meanwhile, intends to start services with ATR turboprops. But aren't turboprops supposed to be unpopular with Gulf passengers? "That would have been

my impression, too," said Byrne. The airline has been granted a series of public service obligation (PSO) routes.

These are focused on Hail, in the north of the country, radiating out to nine outlying regional airports, said Byrne, although he believed that the airline would also take delivery of some A320s, with the aim of flying the Hail-Riyadh-Jeddah triangle.

Flynas has been given permission to launch a similar series of PSO routes, based on Abha in the far southwest of Saudi Arabia and covering such secondary cities as Bishah, Jazan and Al Bahah. "We'll go in a couple of times a week. The idea is to open up all the airports of the kingdom to regular flights. From Abha, we can take them around the kingdom or link up to international flights from major cities where we have codeshare partners.

"We've had a longstanding [codeshare] arrangement with Etihad, but we've broadened it out and it's been a great success for both of us. We also have a new codeshare with Pegasus Airlines [of Turkey] and that's going great guns for us."

Book journeys

The latter enables Flynas passengers to book journeys through Pegasus' home hub, Istanbul's Sabiha Gökçen airport, to five Turkish cities.

A further Pegasus connection comes in the form of two Boeing 737-800s from the Turkish low-cost carrier that are currently wet-leased to Flynas to provide extra capacity.

Meanwhile, the Saudi airline continues to search for its next generation of equipment. It operates 27 A320s (24 leased by the airline itself, plus three wet-leased – two from Freebird of Turkey and one from Etihad) but is looking at either the A320neo or Boeing 737 MAX as future equipment.

"We're in the 'request for proposals' process with Boeing and Airbus. That process has taken longer than we thought it would, but we're still confident we can make a decision by the end of the year."

Despite the problems of over-capacity and depressed yields, Flynas "is still profitable", said Byrne.

With its combination of new routes, codeshare and new equipment, it hopes to stay that way.



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Saab has expanded its range of airborne early warning and maritime patrol aircraft and now offers its Erieye and Swordfish mission systems integrated on Bombardier's Global 6000 business jet. As Jon Lake reports, these operational solutions look set to enjoy significant market success.

FOCUS ON FISH-EYE

The UAE has selected the new GlobalEye, which combines the Global 6000 with a powerful new extended-range radar, to meet its airborne surveillance/early warning requirements.

It has also chosen a new iteration of the Swordfish maritime patrol aircraft, again based on the Global 6000, which promise to challenge the Boeing P-8 Poseidon as the 'high-end' solution of choice for the maritime patrol and anti-submarine role.

For many years, Saab's special mission offerings tended to be based on its own platforms – the Saab 340 and the Saab 2000. This trend was interrupted when Brazil, Greece and Mexico opted to buy the Saab Erieye airborne early warning system and radar integrated on the Embraer EMB-145, which offered superior speed and altitude performance over the Saab 2000, with similar range.

Though there is still a healthy demand for special missions versions of the Saab 2000 (and even of the older Saab 340), the company increasingly found that some potential customers had a preference for new-build platforms currently in production, rather than using conversions of older surplus airliner types.

Saab was able to win an order for Saab 340-based Erieye airborne early warning aircraft to meet an interim UAE requirement, but its then definitive Saab 2000-based Erieye failed to be selected to meet the long-term requirement.

Pitched against the Boeing 737 AEW&C and Northrop Grumman's E-2D Hawkeye, the Saab 2000 Erieye was a serious contender, but it took the new GlobalEye, combining an enhanced swing-role surveillance system derivative of the Erieye with the Global 6000, to clinch the deal.

It would be a mistake to view the GlobalEye as being merely an enhanced Erieye on a new platform. Though it is derived from the original Erieye radar, Erieye ER has a 70% greater detection range than the previous sensor, thanks to new processing hardware and software and the use of new gallium nitride (GaN) transmit/receive modules. Saab claims that range is 'horizon limited'.

Identify and track

The new radar can also detect, identify and track the most challenging targets, including cruise missiles, small unmanned air vehicles and hovering helicopters.

And the GlobalEye is a multi-role, swing-role surveillance platform that genuinely operates in all domains – simultaneously providing airborne early warning and control (AEW&C), maritime surveillance and land surveillance.

GlobalEye is able to do this because the Erieye ER offers synthetic aperture radar and ground moving target indication modes to locate and track land targets, while the combination of a belly-mounted Selex Galileo SeaSpray 7500E maritime search radar and a FLIR Systems Star

Safire 380HD electro-optical/infrared sensor provides a formidable capability against even the smallest surface targets, including submarine periscopes, rigid inflatable boats (RIBs) and jet skis.

GlobalEye offers a formidable surface surveillance capability and can usefully augment dedicated maritime patrol and anti-submarine aircraft. But there are aspects of that mission that the GlobalEye cannot accomplish, and for these, Saab offers a dedicated maritime patrol solution in the shape of the Swordfish Maritime Patrol Aircraft (MPA), which adds the ability to search for targets in the underwater domain, and the 'high-end' capability of actually prosecuting attacks against underwater targets.

With 600 submarines in service, and with many of these being smaller, faster and harder to detect, anti-submarine warfare (ASW) is a key capability area for high-end MPAs, together with maritime intelligence, surveillance and reconnaissance (ISR), anti-piracy, search-and-rescue, and command and control.

ASW is very much a Saab strength, not least thanks to its ownership of Kockums AB, the naval shipbuilder responsible for Sweden's innovative A26 submarine.

Traditional high-end ASW platforms carried lots of sensors, lots of sonobuoys, lots of weapons and 12-13 operators, and were complex and expensive to maintain. Today, ASW platforms can take advantage of greater



The GlobalEye is a multi-role, swing-role surveillance platform that operates in all domains.

automation and navigational accuracy and use smaller, lighter sensors that are easier to integrate and to use, and that require less power and less cooling.

All of this means that the ASW mission can be undertaken by smaller aircraft with fewer crew.

Saab believes that its latest MPA, based on the Global 6000, offers a compelling alternative to the Boeing P-8 Poseidon as a true high-end ASW platform.

The Global 6000-based Swordfish uses the same basic mission system as the earlier Saab 2000 Swordfish, but with four or five sensor operators (the rival P-8 carries five), and with an expanded weapons capability.

It carries up to four MU-90 or equivalent torpedoes (one fewer than the P-8) and what Saab coyly refers to as a “significant payload of sonobuoys”.

Though it does point out that, unlike the P-8, it’s MPA is not limited to carrying A-sized buoys, but can also use smaller F- and G-sized buoys.

With a payload of upwards of 1.5 tonnes, it can be seen that the Swordfish can probably carry something close to the P-8’s maximum load of 126 buoys. Moreover, the Swordfish uses two single-shot gravity launchers (one of which can be pressurised) and two 10-shot rotary launchers.

The Boeing 737-based P-8 is optimised to hunt and engage submarines from medium level – dropping torpedoes that are equipped with

wing kits (based on those fitted to the JDAM glide bomb) and guidance systems.

By contrast, the Swordfish does ASW the old fashioned way, descending to low level to drop patterns of sonobuoys with greater accuracy and precision than is possible from higher altitude. The aircraft can then climb to monitor the resulting signals, and descend again, if necessary, to put torpedoes into the water.

Saab’s Gary Shand, the company’s director marketing and sales, airborne ISR and a former RAF Nimrod acoustics operator, said: “ASW is still a low-level game.”

He explained that maintaining the security of a pattern of sonobuoys was fundamental. “Lose contact on a single buoy and it may be game over,” he said.

Real persistence

The Swordfish has real persistence and is able to remain on station, 1,000nm out from base, for eight-and-a-half hours, with a SAR payload on the middle stations, or for five-and-a-half hours carrying four torpedoes. The P-8 endurance is given as four hours, 1,200nm out from base.

Saab claims that the Global 6000-based Swordfish will cost two-thirds of the acquisition cost of a P-8, with 50% lower life cycle costs over its 30 year lifespan.

The aircraft also has a small logistical footprint and uses laptop-based support systems. It will, its makers claim, be able to

deploy for up to four nights without any ground crew.

The Global 6000-based Swordfish shares considerable commonality with the GlobalEye, so Saab does not plan to build a demonstrator or prototype. Instead, production aircraft could be delivered within 36-42 months of a contract award, depending on the exact configuration.

The Swordfish mission system is platform agnostic, and, for customers who cannot afford to invest in the Global 6000, or who require slightly less capability, it is offered on the Saab 340 and Saab 2000, and now also on the Bombardier Q400.

This could have fuel tanks scabbled on to the fuselage sides, boosting endurance to about four-and-a-half hours, 1,000nm from base, and the aircraft could carry a pair of torpedoes, rather than the four carried by the Global-based Swordfish. “It’s still a high-end solution,” Shand averred, “with slightly less endurance as a compromise.”

Saab claims there has been a lot of interest in the higher market segment, where the Global 6000 Swordfish is pitched against the Boeing P-8 and Kawasaki P-1 as a potential replacement for the many elderly P-3 Orions and Atlantics now in service.

There has, apparently, been more interest in the Global 6000-based Swordfish than in the Q400-based solution, and Saab is in active discussions with a number of potential customers in “every major continent”.

Alan Warnes looks into the strange affair of Iraq's L-159s.

FINALLY...IT'S CZECH MATE

It was October 2012 when the Czech Defence Minister, Alexander Vondra, announced a \$1 billion sale of 28 brand new dual-seat L-159Bs to the Iraqi Air Force.

The deal was expected to be signed 'imminently' and the first four would be delivered within seven months. This would enable Iraq to quickly start bridging its training gap, while awaiting delivery of the new-production L-159s. These were scheduled to arrive 26 months after contract signature.

Prague had been trying to sell off its surplus L-159s for some years but, at the time, the majority were single-seat aircraft and no good to Iraq as trainers, hence the order being primarily for new production two-seat L-159s.

However, by April 2014, it had all changed. Aero Vodochody and the Iraqi MoD had reached an agreement for 12 L-159s. By August 2014, this had changed again, to 15 (comprising 13 single-seaters and two dual-seaters), which would include three L-159As from the Czech Air Force.

Nothing materialised until March 9, 2015,

when a deal for 15 aircraft, worth 750 million crowns (\$29.68 million) was announced. Four would come direct from the Czech Air Force. And that is the way it stands... kind of!

We can now reveal that 10 L-159As came from the aircraft stored at Vodochody since the late-90s and the other three (serialled 6006, 6049, 6055), direct from the Czech Air Force.

Of the two-seat L-159s, one is ex-Czech Air Force L-159T1 (6069) and the other, a L-159B (6084), is now being built at the Aero Vodochody plant, the first time an aircraft has been constructed there since 2004.

Massive breakthrough

The latter is a massive breakthrough for the company, with all the tooling and jigs being re-assembled in one of the hangars, where 6084 is now being worked on.

As you walk around the aircraft, all the paper 3D drawings are visible, helping this new generation of Czech aerospace engineers to put the pieces together.

The first pair of Iraqi Air Force L-159s were



delivered to their new base at Balad last November, where they are operated by the 115 Training/Attack Squadron.

They have since been followed by a second pair on July 27, and a third duo on August 25. All are understood to be maintained by Czech personnel.

Since becoming operational, they have seen a lot of action against Daesh, fighting around Fallujah and firing rockets and guns at militants in the area.

The Iraqi pilots are being trained at Aero Vodochody in a dual-seat L-159T1, which will be delivered to Iraq after overhaul and once the training is complete. It is regularly seen flying from the Odolena Voda site just outside Prague.

The Iraqi Air Force will continue with its own pilot training on the two dual-seaters. The one currently being built is expected to be the first to arrive there, by early January.

There are seven aircraft destined for Iraq currently at Aero Vodochody's maintenance repair and overhaul facility. They are being stripped right back, with the fuselage and wings being taken apart and then checked. Each aircraft takes around nine months to complete.

Once done, the systems are checked before being pulled outside the hangars to go through engine runs. Once the clearance is given, company test pilots will check the aircraft out.

One of the sorties will see the L-159 flown with its four fuel tanks loaded on.

IRAQI L-159s IN COMBAT DEBUT

The Iraqi Air Force's newly delivered L-159s flew their first operational attacks against Daesh targets on June 12 2016, writes *Jon Lake*.

The first two Iraqi L-159As (marked up as 5903 and 5904) had been delivered to Balad on November 5 2015, routing from the Czech Republic, via Plovdiv in Bulgaria, where they night-stopped on November 4.

Combat operations began on June 12 with a strike by two L-159As against Daesh targets in Fallujah. The aircraft were armed with Turkish-manufactured 500lb Mk 82 freefall 'dumb' bombs.

They also returned to Fallujah the following day.

By September this year, seven of the Iraqi aircraft were in service, with four more due for delivery before the end of the year, and three more in 2017.

A team of instructors from the Czech Air Force's 21st Tactical Air Force Base at áslav were deployed to Balad to assist with the Iraqi L-159 operations, and they will continue to do so until the end of 2018.

The Iraqi L-159s are assigned to the 115 Training/Attack Squadron and are intended both for use as lead-in fighter trainers, preparing Iraqi pilots for the more sophisticated and higher performance F-16 (also based at Balad and assigned to the 9th Fighter Squadron), and as operational light attack aircraft, with an initial emphasis on the latter, operational role.

In addition to the Iraq deal, Czech manufacturer Aero Vodochody has also received a domestic requirement for L-159Ts and a 21-aircraft order from US company Draken International, which will use the type for contractor-owned, contractor-operated (COCO) aggressor and 'Red Air' flying.



All the Iraqi aircraft don this dark red primer colour scheme before being painted. This aircraft has just completed its first engine run after being re-assembled and was expected to fly a week later.

NEW ROLE FOR JORDANIAN SKYTRUCKS?

On July 29, the US Department of Defense announced that the Sierra Nevada Corporation had been awarded what was referred to as an "undefinitized contract action" for the modification of a PZL Mielec M28 aircraft for the Royal Jordanian Air Force.

The value of the contract was "not-to-exceed" \$10,224,545.

The contracting authority for this foreign military sales (FMS) deal was named as the 645th Aeronautical Systems Group, based at Wright Patterson Air Force Base, Ohio. Also known as 'Big Safari', this is the United States Air Force programme office responsible for the management, direction, and acquisition, modification, and logistics support for special purpose weapons systems derived from existing aircraft and systems – especially for intelligence surveillance and reconnaissance and signals intelligence.

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This gives a clue as to the likely nature of the modifications to the Jordanian Skytruck.

The announcement did not reveal any details of the proposed modification but said that the work was expected to be completed at Centennial, Colorado and Amman, Jordan by the end of July 2018.

Under the terms of the contract, Sierra Nevada was to modify one aircraft, look after spares, and offer field service representative support for 12 months after aircraft delivery, as well as being responsible for ferry flying.

Whether the second Jordanian Skytruck will receive similar modifications remains unclear.

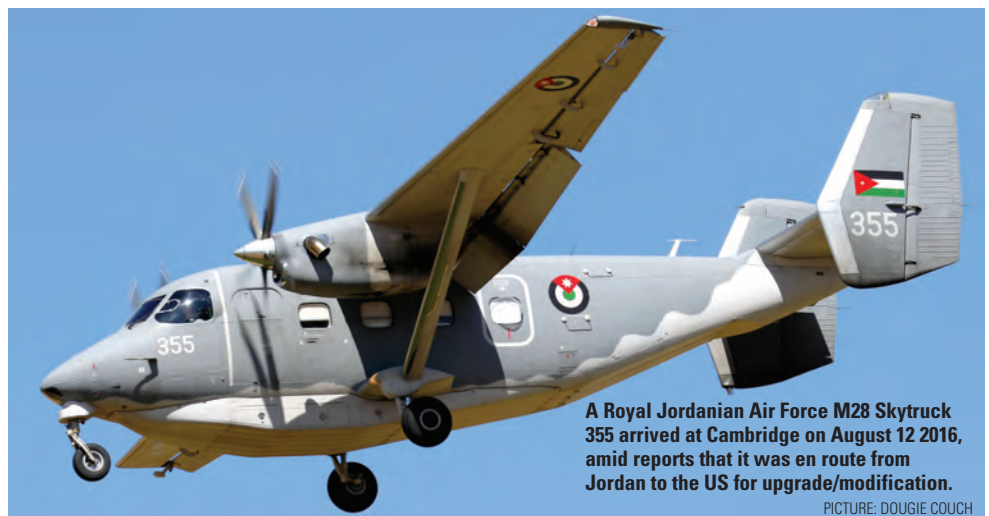
A Royal Jordanian Air Force M28 Skytruck 355 arrived at Cambridge on August 12 2016, amid reports that it was en route from Jordan to the US for upgrade/modification.

Jordan originally ordered two M28 aircraft in 2013, although manufacturer PLZ Mielec (owned by Sikorsky since 2007, and thus now part of Lockheed Martin) did not announce the contract. The company

does now acknowledge that Jordan is an operator of an unspecified number of M28s.

The first aircraft departed Mielec on December 18 2014 and was seen in transit at Sharm-el-Sheikh on December 20. The next aircraft was delivered almost exactly one year later.

The two aircraft were assigned to No3 Squadron at Amman-Marka, alongside two C295s and 10 C-130s. They have been used for border patrol and special forces support.



A Royal Jordanian Air Force M28 Skytruck 355 arrived at Cambridge on August 12 2016, amid reports that it was en route from Jordan to the US for upgrade/modification.

PICTURE: DOUGIE COUCH



Protecting oil and gas installations, as well as the many international events hosted by Qatar, are the main proposed roles for a purpose-designed aircraft now being developed in Germany. Alan Dron reports.

Standing unobtrusively outside the exhibition halls at this year's ILA Berlin air show was a grey, propeller-driven light aircraft unfamiliar to most of the visitors thronging the area.

With a prominent belly fairing, obviously designed for some type of radar, positioned aft of an electro-optical turret, it drew considerable attention.

The aircraft was the Q01 intelligence surveillance and reconnaissance (ISR) platform being designed by German company, Reiner Stemme Utility Air Systems, with Qatari funding.

Clean-sheet design

A clean-sheet design developed in 18 months and poised to receive a production contract by the end of this year, it could be flying in the skies over the small Gulf nation by the end of 2017.

The man behind the aircraft is Brigadier General Khalid Al Kuwari, commander of the Reconnaissance and Surveillance Centre in Doha.

"It's an idea I suggested to the Qatari Armed Forces," said Al Kuwari. "Rather than going through the system and purchasing whatever the market has for ISR, we decided to develop an aircraft from scratch."

The reason for adopting this route, he said, was that virtually all aircraft today in the medium-altitude long-endurance (MALE) ISR category are modified from existing aircraft: "Those are not really ISR aircraft, they're just a platform. This is the first design built and evaluated from scratch for the ISR mission.

"The Qatar Armed Forces agreed with my

Qatar backs new eye in the sky

idea, accepted the challenge and risk, and are funding the programme."

Al Kuwari chose Reiner Stemme as developer "because I wanted to build an aircraft with glider-like performance, a stable aircraft with long duration". The German company is known for designing a series of gliders and motor-gliders.

The composite-airframe Q01, which flew for the first time in November 2015, has a high-aspect, laminar-flow wing mounted atop the fuselage with a retractable tricycle undercarriage capable of operating from unmade runways. It has an empty weight of around 1,700kg, with a maximum take-off weight of 2,750kg.

Operating costs are designed to be low – around \$500 per flight hour – and the aim is to keep the design simple so that high school diploma-level personnel can maintain the aircraft.

The aircraft is powered by a Technify Motors CD-300 diesel with a constant-speed MT-Propeller unit. It will have two crew – typically a pilot and a systems operator – and will carry a variety of sensors.

At Berlin, it had an under-fuselage sensor ball, representative of an L-3 Wescam electro-optical/infrared unit, together with its under-fuselage fairing, capable of carrying a ground surveillance radar.

It will have a duration of up to 48 hours at altitudes of up to 30,000ft (9,150m) and, significantly, will be capable of operating in manned or unmanned configurations.

The production variant of the aircraft is intended to have a rest area for crew immediately behind the cockpit.

"As you know, Qatar has most of its wealth offshore and you require a 24-hour 'eye in the sky'," said Al Kuwari. Overland surveillance is also intended as a role for the aircraft: "Nearly every week we have a sporting or political or economic conference in Qatar. It's a huge responsibility for a small state to undertake this sort of security."

Surveillance duties

He foresees the aircraft also undertaking pipeline and border surveillance duties, as well as playing a part in future coalition roles. Civilian crisis management roles, for example in the aftermath of natural disasters, are also possible missions.

"Prototype A" – the aircraft shown at ILA – "was just to prove the concept. Prototype B is the pre-production platform that will also be used for European Aviation Safety Agency (EASA) certification and we expect that to be ready by the end of this year. Hopefully, by the end of this year, we will be ready to sign a contract with the Qatari Armed Forces for 17 aircraft."

Delivery of the first aircraft would take place about a year after contract signing.



QEAF trains its orders on Pakistan's Mushshak

The Qatar Emiri Air Force (QEAF) is establishing its own in-country military flying training system, having previously sent its pilots to train in neighbouring nations, *writes Jon Lake*.

The latest element of this training system to be put on contract is a screening/elementary training aircraft.

On June 23 2016, Pakistan's Ministry of Defence Production (MODP) announced that Qatar had signed an agreement with the Pakistan Aeronautical Complex (PAC) to buy an unspecified number (understood to be 10 or 12) of Super Mushshak elementary training aircraft.

One report suggested that the Mushshaks would be assembled in Qatar as part of the project spearheaded by Khaled Al-Atiyah, Qatar's Minister of State for Defence Affairs. This will see the construction of a facility for manufacturing "light training aircraft", probably as part of a wider trilateral military industrial relationship between Qatar, Turkey and Pakistan.

The order followed a goodwill visit to Qatar by the Pakistan Air Force, with two Super Mushshak trainers and two JF-17 fighters. The JF-17s went on to participate in the GCC Exercise Raad al-Shamal in Saudi Arabia.

The agreement was signed in Doha by General Salim Hamad al-Nabit, commander of the QEAF Air Academy, and PAC deputy chairman, Air Vice Marshal Arshad Malik.

Qatar's air force expansion will require a massive increase in the number of pilots and, to facilitate this, a new QEAF Academy (the Al Zaeem Mohamed bin Abdullah Al Atiyah Air College) has been established.

Apaches head up expansion plans



The Qatar Emiri Air Force has placed an order for 24 Boeing AH-64E Apache helicopters, one Longbow crew trainer, and ground equipment, as part of its ambitious expansion plans, *writes Jon Lake*.

The expansion plans (announced in 2014) also includes the acquisition of 72 fast jet fighters to replace its current force of about 12 Mirage 2000s and six Alpha Jets.

The \$667 million foreign military sales contract for the Apaches was announced in June 2016, with deliveries to be completed by May 31 2020. Further contracts will be placed for weapons systems, sustainment and support.

As well as the Apaches, 12 NHI NH 90 TTH transport

helicopters and 10 NFH 90 maritime helicopters are expected to replace about 25 Sea Kings and Gazelles.

The AH-64E (previously known as AH-64D Block III) is the latest version of the Apache, and has more powerful T700-GE-701D engines, new composite rotor blades, and an upgraded transmission, as well as improved digital connectivity, including the ability to control unmanned aerial vehicles (UAVs).

With regional sensitivities heightened after the US nuclear deal with Iran, and a major arms package for Israel, proposed fighter contracts with Kuwait and Qatar have been delayed. However, by mid-September, US Government and industry sources were saying that these deals were expected 'imminently'.

The US is expected to announce the approval of exports of 24 Boeing F/A-18E/F Super Hornets to Kuwait, 24-36 Boeing F-15E Advanced Eagles to Qatar, and perhaps 30 Block 61 F-16E/F aircraft to the UAE (together with upgrades for the UAE's other F-16s).

The F-15s for Qatar will augment 24 Dassault Rafales ordered on May 4 2015.

The Qatari Strike Eagle deal would allow Boeing to keep the F-15 line well beyond 2020, after the delivery of the last of 84 aircraft for Saudi Arabia in 2019 and an undeclared top-up buy of F-15SGs for Singapore.

The existing Qatari Mirage 2000-5s will be sold, with Pakistan revealed as the most recent potential customer for these ageing aircraft.

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THE MARCH OF THE

Unmanned air vehicles (UAVs) are increasingly being seen as a military option in the Middle East.

David Oliver looks at the rise of the technology.

The United States has been reluctant to give approval for the export sales of armed UAVs even to friendly nations in the Middle East.

It has, however, sanctioned sales of the Insitu ScanEagle, an unarmed long-endurance mini-UAV that is launched using a pneumatic wedge catapult.

Equipped with an electro-optical/infrared (EO/IR) sensor and high-resolution video cameras that enable the operator to track both stationary and moving targets, the ScanEagle has a service ceiling of 5,000 metres and an endurance of more than 20 hours.

Tunisia was the first country in the Middle East to operate the ScanEagle and, in July 2016, it was revealed that additional UAVs would be delivered under a US foreign military sales (FMS) contract.

Insitu has also been awarded a \$9.4 million contract to supply four upgraded ScanEagles to Lebanon, along with training, programme management and field service. Much of the work will be carried out at Hamat in Lebanon.

Deliveries of 12 ScanEagles to Yemen began in 2015 but these have been halted due to the

civil war. Ten UAVs were delivered to Iraq in 2014.

Taking advantage of the US reluctance to give approval for the export sales of armed unmanned aerial systems (UAS), China has been staging a successful marketing programme in the Middle East to fill this gap.

One of its most capable unmanned medium-altitude long-endurance (MALE) intelligence, surveillance and reconnaissance (ISR) platforms is the China Aerospace Science and Technology Corporation (CASC) Rainbow CH-4.

With a wingspan of 18 metres and a length of 8.5 metres, the CH-4 has a maximum take-off weight of 1,330kg and a payload of 354kg. It has an endurance of 14 hours cruising between 150 – 180km/hr with a dash speed of 210km/hr.

The payload includes electro-optic and infrared sensors for TV in a semi-retractable turret, synthetic aperture radar and semi-active laser guidance.

The armed variant, the CH-4B, can carry up to six HJ-10 laser-guided anti-tank missiles or FT-9 60kg precision-guided bombs, or four FT-6A 250kg range-extended precision-guided weapons.

Designed for the suppression of enemy air defences (SEAD) role, the FT-6A utilises a fragmentation warhead to destroy radio frequency communication systems, jamming, and command posts.

Two systems of three CASC CH-4B platforms were delivered to Iraq in 2015 and are operating from Kut Airbase, supported by Chinese operators and maintainers.

An undisclosed number have also been delivered to Saudi Arabia, which have been used to attack rebel forces in Yemen during Operation Restore Hope.

Saudi Arabia also operates the German EMT X-2000 Luna, an unnamed short-range surveillance UAV over Yemen.

The Algerian Air Force's No 545 Squadron is equipped with unarmed versions of the CH-4, while Egypt and the UAE are also reported to have acquired the UAV.

The UAE has been developing a family of MALE Yabhon UAVs designed by Adcom Systems but few have reached production.

In March 2016, the UAE signed a €316 million (\$353m) contract for eight Piaggio P.HH Hammerhead MALE UAVs. These are derived from the P180 Avanti II business twin-turboprop aircraft produced by the Italian company, which is now owned by Mubadala Development Company, an Abu Dhabi-based investment firm.

The twin-pusher MALE has the Selex ES

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1. The Sagem Patroller UAV has been offered to Egypt for assembly by the Arab Organization for Industrialization Aircraft Factory. Picture: David Oliver.

2. The Italian Piaggio P.HH Hammerhead MALE has been ordered by the United Arab Emirates. Picture: David Oliver.

3. The Chinese CH-4B armed UAV has been delivered to the Iraqi Armed Forces.

4. The successful rotary-wing UAV, the Austrian Schiebel S-100 Camcopter, is in service with the UAE and Jordanian Armed Forces. Picture: David Oliver.

5. Qatar Armed Forces (QAF) and Reiner Stemme Utility Air-Systems (RS-UAS) are developing the Q01 optionally piloted vehicle.

DRONES...

SkyISTAR mission management system (MMS) that manages sensors, video and data, and communications. The Hammerhead has an operational ceiling of 13,500 metres and an endurance of 16 hours with a 225kg payload and with a transit speed of 395 knots. It is the fastest MALE ever designed. However, the prototype crashed in May 2016, which may delay deliveries.

One of the most successful short-range surveillance UAVs is the Austrian Schiebel S-100 Camcopter, a small rotary-wing air vehicle with a 50kg payload. An S-100 derivative, the Al-Saber, is in production in the UAE with more than 40 of 80 on order delivered to date. Two S-100 systems of two air vehicles, equipped with the L-3 Wescam MX-10 EO/IR sensor turret were delivered in 2011 for operation by the Jordan Armed Forces Reconnaissance Squadron.

There is a growing global market for low-cost ISR platforms. Ecarys GmbH, the military division of Germany's Stemme AG, which won the French Army's tactical UAV contract with its S15-1-based Sagem Patroller against the Thales Watchkeeper, is offering an optionally manned variant (OPV), the ES15.

Powered by a single 115hp Rotax 914F, the Patroller can carry 250kg of high-performance multi-sensor intelligence-gathering payloads, including optronics, radars, and electronic warfare (EW) systems in sensor turrets and

under-wing pods to an altitude of 6,000 metres for up to 30 hours.

In September 2015, Sagem announced that it had teamed up with the Arab Organization for Industrialization (AOI) Aircraft Factory to offer the Patroller MALE to the Egyptian armed forces. AOI would be responsible for final assembly of the Patroller in country, and would provide system support and commissioning, according to Sagem. No firm order has yet been announced.

Stemme is promoting its ES15 OPV, a single-engine multi-sensor surveillance variant of its high-performance composites aircraft, on which Patroller is based.

With an endurance of up to 20 hours, and a maximum range of 2,500km at low consumption cruise, the ES15 can carry a 350kg payload, including an electro-optical gimbal system and an infrared sensor on under-wing pods and an airborne laser scanner or synthetic aperture radar in the fuselage.

The aircraft's composite construction gives a very low radar signature and low cross-section. With low noise emissions and an operating cost of only €300 (\$335) per hour, Ecarys is confident of a wide market, especially in the Middle East.

At the same time, Qatar is developing an OPV ISR – the Q01 platform – designed by the former CEO of Stemme AG, Dr Reiner Stemme. ■ SeePage 44: Qatar back new eye in the sky.

Osprey radar takes to the air

Leonardo's new Osprey active electronically scanned array (AESA) airborne radar is now flying, and looks likely to attract orders in the Middle East, writes Jon Lake.

Osprey is a second-generation AESA, which provides a full 360-degree field-of-view by using three distributed fixed antennas, each of which provides 120-degree coverage.

Each antenna array contains 256 gallium arsenide transmit-and-receive modules (TRMs) – 25% more than the single array on the company's older Seaspray 7500E radar. The antennas are controlled through a single processing unit, which collects the data gathered and displays it as a single coordinated radar picture.

The new radar draws on elements of the Selex (now Leonardo) Seaspray series of maritime search radars and its air-to-air and air-to-ground surveillance sensors, and also uses a processor derived from the Vixen air-to-air fire-control radar and algorithms from the PicoSAR battlefield surveillance radar.

The Osprey could be scaled up with up to four arrays for a larger fixed-wing platform, while single-panel systems would be suitable for light or unmanned air vehicles.

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Developed in Edinburgh, Scotland, over the last three-and-a-half years, and then flight-tested on board a company-owned Reims-Cessna F406 Caravan II, the radar was selected for use on the 16 AW101 helicopters ordered for Norway's search-and-rescue helicopter programme (NAWSARH).

These aircraft have three AESA arrays, one in the nose and one in the rear of each main landing gear sponson, to provide 360-degree coverage. The antenna arrays are mounted relatively high on the fuselage, rather than under the fuselage or nose, as a conventional search radar would be. This reduces the danger of damage in the event of a hard landing, or by impact with obstructions if landing on snow or in brownout conditions.

Leonardo has said that the company has secured two contracts with undisclosed United States-based customers.

The Osprey radar is also an optional payload on Leonardo's Falco EVO unmanned air system (UAS), which has already been selected by two customers in the Middle East and Gulf region, though it is not known whether they have ordered the new radar system.



Battle of the Som

Turkey is developing its own indigenous stand-off weapons.

Alan Warnes *has been taking a look.*

Air-launched stand-off weapons, often referred to as cruise missiles, allow pilots to keep out of harm's way. Mounted under an aircraft, they can usually be dropped up to 300 miles (500kms) from the target.

If the Royal Jordanian Air Force had owned such weapons, then the young flight lieutenant, who was captured and subsequently murdered by Daesh nearly two years ago, would never have needed to fly into danger.

The US is very sensitive about exporting stand-off weapon technology and, as a result, those Middle Eastern countries that have bought US aircraft find it extremely difficult to acquire the Raytheon AGM-154 joint stand-off weapon (JSOW).

Increasingly attractive

Europe isn't so fussy, so the Eurofighter and Rafale fighters have become increasingly attractive aircraft to many air forces, as they can also purchase an alternative cruise missile. The MBDA Storm Shadow (as it is known in UK), Scalp EG (in France) and the Black Shaheen (in the United Arab Emirates) are popular and, like the AGM-154, have been operationally proven.

Turkey is chasing the dream of self-sufficiency and is working on many indigenous military programmes. Consequently, it is not surprising that Roketsan, the munitions specialist, is developing a new stand-off weapon – the Som-J.

There are three versions of the Som – Som A, B and J – all powered by a turbojet.

The A version, revealed at the Izmir Airshow in June 2011, has no infrared (IR) seeker. It does, however, have an inertial navigation system (INS)/GPS with a high explosive (HE) fragmentation warhead. It can be dropped by Turkey's F-4Es but, according to Roketsan, has not been used operationally.

There are two versions of the Som-B. The B1 has an IR seeker with a different HE frag warhead, used by F-4Es and, shortly, by the F-16. The B2 has an IR seeker and a dual tandem penetrator (DTP) for use against bunkers, which Roketsan should qualify any time now.

The DTP causes two blasts – the initial penetration into the target will explode, then the second warhead goes through the hole and explodes deeper. The fusing/timing depends on the target. But there is no data-link right now, so the pilot cannot update it as it is heading towards target.

The Turkish Undersecretariat for Defence Industries (SSM) contracted Roketsan in 2014 to develop the Som-J for the F-35's internal weapons bay. It now has a redesigned narrow airframe and the air intake shifted from under the weapon to the left side. The missile weighs 650kg with a 250kg warhead.

Shorter range

Roketsan's Cem Trasdeler said: "It doesn't carry as much energy (fuel) as others but it can still go 150 miles (250kms). Being lighter, the aircraft's performance is not affected like it is by a heavier weapon but, of course, it has a shorter range than the likes of Storm Shadow and JSOW. It's a trade-off!"

"So you have a choice; do you want to get closer to target or stay back? With more fuel, the further it can go, probably an extra 60-150 miles (100-250kms). But do you really need that range? And with that comes a bigger price. So we have gone for the lighter weapon with a shorter range."

Roketsan signed a contract to develop the newer generation Som-J missile in cooperation, with Lockheed Martin during July 2015. The partnership will look to integrate the weapon into the internal weapons bay of the F-35.

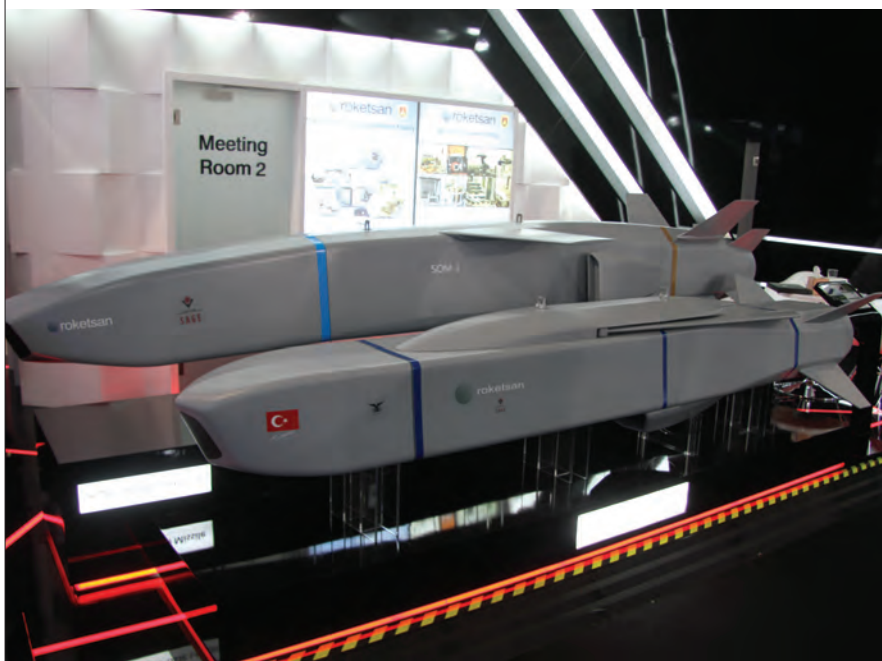
The contract will enable both companies to work their technical assistance agreement, making the Som-J missile available to international customers.

Integration into the F-35 is scheduled for the Block 4. Early live flight-testing will be conducted on Turkish F-16s.

"Som-J integration on the F-35 will enable pilots to engage targets from long ranges while maintaining the aircraft's critical stealth capabilities," said Frank St John, vice president at Lockheed Martin Missiles and Fire Control.

Trasdeler added: "In 2018-19, the aircraft will be delivered to the Turkish Air Force and we need to have carried out integration tests before then. We are now into 'captive-carries'."

The Som-J will be a bit slimmer than the other two versions and will be similar to the one on display at FIAS 2016. Testing depends upon Lockheed-Martin's schedule.



Turkey's 230 F-16s will be replaced by the new TF-X fighter, with the Block 30s (seen here) likely to be retired first.



BAE SYSTEMS TARGETS MULTI-BILLION DOLLAR TAI-UP

BAE Systems is preparing for a special link-up with Turkish Aerospace Industries (TAI). Alan Warnes reports.

BAE Systems is on the verge of signing a multi-billion dollar four-year contract with Turkish Aerospace Industries (TAI).

As part of Turkey's national fighter programme, also known as TF-X, the Turkish Government launched a competition last year for a foreign collaboration company (FCC) to assist with the project.

The enormity of the job will not be lost on BAE Systems, with Turkey wanting the jet to fly in 2023, coinciding with the 100th anniversary of Mustafa Kemal Atatürk founding the secular Islamic state.

BAE Systems held off European rivals, Airbus Defence and Space (ADS) and Saab, to be selected late last year. It will work with TAI as FCC and negotiations over a four-year contract have been on-going for several months now, according to one source.

"There have been pre-contract studies between BAE Systems and TAI over the last few months and, once finalised, more contracts can be awarded. The FCC has joint responsibility for the design of aircraft with TAI and, together, they will work out the detail."

Deal signed

If the discussions fail, then it will fall to ADS or Saab to deliver. However, most people expect to see the deal with BAE Systems signed within a few months.

A project management office, headed up by a two-star Turkish Air Force general, will oversee the whole process. The two organisations are working on a schedule for the sequence and scope of the contracts that need to be signed.

The Turkish Government is seeking the support of its opposite number in the UK to share responsibility for the fighter, and to back it not only with industrial participation but to export it too. Having government support is paramount to Turkey and, with the UK heading out of the EU, it's a deal the UK should be keen to be involved in.

By the end of the four-year contract, which, if signed soon, will be completed in 2020, the preliminary design will have been agreed.

But there will be no commitment during that time to a first flight date. That will come in the next contract, which is also likely to be four years and see the number of people working on the project rise from the hundreds to the thousands.

One source said: "It is not easy to set up such a programme because it is not just about TAI and BAE Systems working together. Other stakeholders, representing the engines and avionics, have all to be considered."

Strategic aspects

Export rights, industrialisation, as well as strategic aspects, are all under consideration, with the engine being the most crucial part of the latter. Rolls-Royce and Eurojet are both likely to be considered, although everyone is remaining tight-lipped about whether it will be a one or two-engine jet.

The Turkish Government is seeking the new fighter to replace its fleet of F-16s, with the Block 30s being the first.

The new fighter will eventually work alongside the F-35 Joint Strike Fighters on order by the Turkish Air Force, which will replace the F-4E Phantom 2020s.

TAI already has experience of working with future fighters. It signed a \$100 million, long-term agreement with Northrop Grumman in June 2005 to produce composite parts and subassemblies for the F-35 centre fuselage, developed by Northrop Grumman. Delivery of the first one, from Ankara, took place in March 2011.

So TAI does have some manufacturing experience of a fifth generation fighter, which will help the TF-X project. But, with so many other projects going on, the company has its hands full.

Jon Lake looks at the Sikorsky S-70i helicopter as it continues to make inroads in the region.

Once known as the International Black Hawk, Sikorsky's S-70i offers customers an alternative to the current US Army specification UH-60M Black Hawk.

The aircraft is more 'customisable' than the standard UH-60, and is available through direct commercial sale rather than the US Government's more cumbersome and time consuming foreign military sales (FMS) route.

Lockheed Martin, which now owns Sikorsky, proudly boasted that the time from contract to delivery using the direct commercial sale avenue could be less than 12 months, whereas the FMS route would take much longer.

The Sikorsky-owned PZL Mielec factory in Poland has been involved in S-70 production since 2007, and provides 40% of the aerostructures for the UH-60M. But, while Sikorsky's 'main' Stratford factory takes these sub assemblies and components and builds them into UH-60Ms, some remain at Mielec to become fully European-assembled S-70i helicopters.

The first S-70i built by PZL-Mielec (N4905N, S/N 0001) was shipped to Hartford, Connecticut, for final assembly and made its maiden flight at Sikorsky's development flight centre at West Palm Beach on July 1 2010. The aircraft was virtually identical to the UH-60M, apart from some radios and avionics that were not 'exportable'.

The first production S-70i (SP-YVA, S/N 002) underwent final assembly and flight-testing in Poland, and made its maiden flight on November 15 2010.

Unidentified customer

PZL Mielec delivered the first three aircraft to its first, still officially unidentified customer (the Saudi Ministry of the Interior) in August 2011. They were airfreighted from Poland's Rzeszów-Jasionka Airport on an Antonov An-124 Ruslan cargo aircraft after a week of acceptance flying in Poland. Secrecy surrounding the deal was imposed belatedly, after Sikorsky had issued a July 2010 press release stating that "the Kingdom of Saudi Arabia's Ministry of Interior (MOI) has become the launch customer for the new S-70i."

The aircraft were assigned to the General Civil Defence Agency (GCDA) – the paramilitary wing of the Ministry of Interior – and were used for police support, search and rescue and fire-fighting duties, including providing helicopter support to Saudi counter terrorism forces.

Together with a larger number of S-92s, they have replaced the Kawasaki Vertol KV-107 helicopters previously used by the GCDA.

During the Islamic Year 1433 (November 2011-November 2012) the Interior Minister,



Prince Mohammed bin Naif, issued a directive changing the name of Civil Defence Aviation to Security Aviation, and the following year the General Command of Security Aviation was established as a separate body.

The S-70i helicopters are based at Abha in southeast Saudi Arabia, close to the Yemeni border, one of four air bases used by the force.

At the UK's Farnborough International Airshow, Lockheed Martin sources reported that the Saudi Ministry of the Interior had now received five S-70i helicopters, and that discussions were on-going for a further batch, with the possibility of these being assembled in-kingdom, following the signing of an agreement between Lockheed Martin and Taqnia Aeronautics to 'jointly explore helicopter production opportunities in the Kingdom of Saudi Arabia'.

PZL-Mielec has now built 37 S-70i helicopters, and these have been exported to Brunei (8), Colombia (10), and Mexico (1), as well as to Saudi Arabia and to the Polis Havacilik Daire Baskanligi (Turkish National Police).

There have also been recent completions for as-yet undisclosed customers, and there are active campaigns in progress on every continent.

The Turkish National Police took delivery of four aircraft in early 2014, but these will be followed by a much larger number of locally produced S-70i helicopters under the Turkish utility helicopter programme (TUHP).

This will see Turkish Aerospace Industries (TAI) licence-building a total of up to 300 T70

helicopters (109 is the baseline quantity, with 191 options) to the Turkish land forces, air force, gendarme, special forces, national police, and the Directorate General of Forestry.

PZL will manufacture the first five cabin structures for TAI's first five T70s, and has provided the 37th S-70i to serve as the T70 prototype.

Sikorsky accepted the TUHP prototype aircraft during a ceremony on June 22 in an event attended by senior leaders from the key programme stakeholders, including the Turkish Undersecretariat for Defence Industries (SSM), TAI, Aselsan and Alp Aviation. Sikorsky will expand the manufacturing capability of Alp Aviation, which is 50% owned by the US company.

Rescue hoist

The TUHP prototype was fitted with a rescue hoist, internal auxiliary fuel tank, cargo hook, integrated vehicle health management system, a blade de-icing system, and a rotor brake. However, it was not armed.

Aselsan will develop a new cockpit avionics system for the T-70 aircraft, and the TUHP prototype will be flown to Ankara, where it will become the engineering development test bed for the new avionics suite, having its existing Rockwell Collins cockpit stripped out. Sikorsky and Aselsan will integrate, flight-test and qualify the avionics suite on the aircraft before full production begins.

The first fully Turkish-built T70 aircraft will be certified and delivered to the Turkish Government in 2021.



ON THE MIDDLE EAST

At Farnborough this year, Lockheed Martin showed off a heavily armed S-70i, but the aircraft is offered in armed and unarmed configurations, and can be offered with unique communications, or with specific equipment removed or added. The Saudi Ministry of the Interior aircraft, for example, were delivered without blade de-icing equipment.

Although the S-70i can represent a more affordable way of procuring a Black Hawk, Sikorsky is increasingly turning its attention towards an armed and missionised aircraft, in which any cost-differential tends to be negated by the extra equipment and capability.

The S-70i is, thus, being offered with what looks very much like the second 'level' of the previously marketed three-tier 'Battlehawk' system.

There is no provision for the belly-mounted 20mm gun turret that characterised the 'Level 3' Battlehawk, but there could be provision for an

under-nose surveillance/targeting sensor (the aircraft shown at Farnborough had Lockheed Martin's 15inch INFIRNO turret), a 300kg capacity rescue hoist, retractable fast-roping systems, and the stub wings of the external stores support system (ESSS), which can carry crashworthy external fuel system (CEFS) tanks or 10,000lb (4,500kg) of armament including rockets, gun pods or guided weapons, including laser-guided rockets or anti-tank guided missiles, with crew-served guns in the cabin doors.

Hellfire missiles

Up to four AGM-114 Hellfire missiles could be carried on each of the four ESSS hardpoints, or seven or 19-round Hydra or DAGR rocket pods.

Gun options include the Dillon M134D 7.62mm minigun, with 4,000 rounds, a GAU-19 GECAL 50 0.50 calibre Gatling gun, with 1,400 rounds, or a podded FN Herstal M3M (GAU-21) 0.50 calibre cannon, with 400 rounds. Another

option is an FN 0.50 calibre pod with 250 rounds and three unguided rockets.

Ten soldiers could still be carried (depending on the weight of the weapons) or a 200 US gallon auxiliary tank, giving 150km extra range, could be fitted in the cabin.

The S-70i's weapons capability was developed as a Sikorsky initiative, without US Government guidance. The intention was to extend the functionality of the existing Blackhawk, and not to build a dedicated gunship.

Running alongside the S-70i manufacturing programme, Sikorsky also offers comprehensive support, and training. An initial class of pilots and maintainers from Brunei graduated from the Sikorsky Training Academy in Stuart, Florida, in February 2014, after using the company's new high-quality, customised classroom facilities and simulator, and after receiving hands-on aircraft instruction using a newly purchased S-70i that was procured exclusively for customer training purposes.

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The F-16 is a serious contender for the Bahrain contract while below, Northrop Grumman AGP-83 radar would upgrade the existing F-16 fleet.



D-DAY DRAWS CLOSER ON BAHRAINI FIGHTERS

News reports indicate that a Bahraini decision on acquiring a new fighter aircraft may be imminent. It has even been reported that the Pentagon is putting pressure on Bahrain to postpone any decision until after the US presidential elections take place on November 8.

Jon Lake reports.

For some time, it is believed that there have been two distinct camps in Bahrain – one favouring the Eurofighter Typhoon and the other preferring the Lockheed Martin F-16V – a modernised and upgraded version of the F-16C/D Fighting Falcon now in service with the Royal Bahraini Air Force (RBAF).

It has long been clear that a decision on a new fighter for the RBAF will depend in part upon Saudi Arabia, which is likely to provide financial support for the procurement. At one time this was felt to be an advantage for the Eurofighter Typhoon, with a Bahraini order likely to form part of the long-awaited second batch order for the Royal Saudi Air Force (RSAF), and with both air forces able to leverage efficiencies and savings in training and support costs by operating a common aircraft type.

Saudi Typhoons have been deployed to Bahrain during the last two Bahrain International Air Shows, and have clearly attracted a great deal of interest from RBAF officers of all ranks. In October 2015, Major-General Mohammad Bin Salman Al Khalifa, assistant commander of the RBAF, reportedly made an extended visit to assess the performance of the RSAF Typhoons during operations against Houthi positions in the Yemen.

By early 2016, however, there were signs that Bahraini interest was increasingly focused on the cheaper F-16. In March 2016, it was reported that Bahraini Finance Minister, Sheikh Ahmad Bin Mohammad Al Khalifa, was

said to be working on the details of a possible deal with Lockheed Martin following a renewed offer by the company in January.

In June 2016, the Lebanese ‘tactical report’ counter-intuitively suggested that any Saudi support would depend upon Bahrain buying the cheaper, less capable F-16, rather than the Eurofighter Typhoon. If true, this could reflect Saudi parsimony, or may otherwise reflect a belief that the Typhoon would be ‘too much fighter’ for Bahrain’s relatively modest requirements. Alternatively, the Saudis may be encouraging Bahrain to go down a more economical route, upgrading its existing aircraft, and buying only a relatively small number of new-build F-16s. This could also result in a more compressed timescale, with the RBAF getting new capabilities on the frontline more quickly than it would by acquiring a new aircraft type.

The RBAF is facing an increased operational tempo thanks to its involvement in the coalition campaigns against Islamic State militants in Iraq and Syria, and against insurgents and rebels in Yemen. One Bahraini F-16C was lost in an accident during operations over the Yemen in December 2015.

Modernising its existing Lockheed Martin F-16C/Ds to F-16V standards would include the integration of a Northrop Grumman APG-83 scalable agile beam radar (SABR) active electronically scanned array (AESA) radar, as well as new displays, datalinks, sensors, systems and weapons. The aircraft would also have provision for conformal fuel tanks.

The F-16V upgrade would be undertaken in-kingdom, with even the lead aircraft undergoing modification and flight-test in Bahrain. As well as upgrading the 16 surviving RBAF F-16Cs and four F-16Ds, the RBAF could also acquire an additional batch of 17 or 18 new-build F-16Vs.

Bahrain’s King Hamad Bin Isa Al Khalifa is not yet believed to have taken a definitive decision as to the new fighter purchase, and his determination will be of pivotal importance, so some uncertainty remains. Additionally, the Eurofighter Typhoon could still be selected to replace the RBAF’s 12 remaining Northrop F-5E/Fs, giving Bahrain a high-low mix of Typhoons and F-16Vs.



Kuwait has become the seventh customer for the Airbus Helicopters H225M Caracal, the much-improved military derivative of the AS 532A2 Cougar. Jon Lake reports.

Kuwait order gives Caracal a huge vote of confidence

A contract for 30 H225M Caracal multirole utility helicopters, plus an associated support and services package, was signed on August 9 this year.

It happened during a visit to Kuwait by the French Defence Minister, Jean-Yves Le Drian, who observed that the deal would: “further strengthen the strategic partnership which has bound together our two countries for several decades, while we are currently engaged side-by-side in the fight against Daesh in Iraq and Syria.”

The helicopters come with a new search radar and forward-looking infrared (FLIR), comprehensive self-protection systems, provision for various armament options, more powerful Turbomeca Makila 1A4 turboshaft engines, and greater endurance.

Developed to meet a French Air Force requirement for a specialist helicopter for combat search and rescue (CSAR) operations, the helicopter was initially known as the EC725 Cougar II.

Some 14 helicopters were ordered for the Armée de l’Air in two batches, and export orders soon came from Brazil (whose 50 aircraft are being built at the Helibras factory in Itajubá, Minas Gerais province), Mexico (12 aircraft), Malaysia (12 aircraft), Indonesia (six aircraft) and Thailand (four aircraft).

The Kazakhstan Government has also signed a letter of intent with Eurocopter for the purchase of 20 EC725/H225M medium transport helicopters.

Special operations

In April 2015, Poland announced that the H225M Caracal had been selected to meet a requirement for 50 helicopters, 16 transport versions, 13 for CSAR, eight for antisubmarine warfare (ASW), eight for special operations and five for medevac – all to be assembled in Poland. The type passed state trials in Poland in May 2015, but no contract has been signed, the acquisition process apparently delayed following a change of government, and stalled further after the fatal crash of a civil H225 in Norway on April 29 2016, which led to the grounding of all civil H225s and AS332 L2s due to fears about gearbox safety.



New FLIR systems aided the Caracal meet its new role demands.

The emergency airworthiness directive that resulted in the grounding of civil H225s did not cover military variants of the helicopter and a number of operators continued to fly their H225Ms.

Airbus Helicopters mandated a “short-term withdrawal from service” of a specific type of second-stage planet gear “to be managed through a retrofit programme”. Despite this, the Norwegian accident led to a delay in Singapore’s competition to replace its ageing Super Pumas – a competition in which the Caracal was said to be the front runner.

Vital time

The Kuwaiti order came at a vital time for the Caracal, representing an invaluable vote of confidence for the troubled helicopter and its manufacturer.

Kuwait had originally issued a request for proposal (RFP) for a new medium helicopter in 2013, attracting tenders from AgustaWestland (now Leonardo) with the AW149, Airbus with the H225M, and Sikorsky with the S-70i

Selection (of the H225M Caracal) followed in June 2015, when Kuwait announced that it would acquire 24 of the type, signing a letter of acceptance (LoA) in October 2015, with a further six aircraft under option.

Guillaume Faury, CEO of Airbus Helicopters noted that: “Our

relationship with Kuwait dates back more than 40 years with Super Pumas, Pumas and Gazelles having been delivered to the armed forces of the State of Kuwait over the past decades. This H225M Caracal contract opens a new chapter in our cooperation.”

Of the 30 helicopters on contract, 24 will go to the Kuwaiti Air Force, which currently operates a fleet of 11 older SA330 Puma and AS332 Super Puma variants. The remaining six will equip a new aviation unit of the Kuwait National Guard.

According to *La Tribune*, the H225Ms will be delivered with machine guns (perhaps with the new ‘HForce’ weapons package) and will later be armed with anti-ship missiles.

Delivery timescales and contract values were not revealed, though French media reports valued the deal at €1.07 billion (\$1.19bn), with deliveries due to start before the end of 2018.



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ENGINEERED WITH PASSION

Liz Moscrop looks at the Middle East Business Aviation Association (MEBAA) achievements ten years after it came into being.

THE POWER OF TEN...

In a fitting end to the year that started with the 10th anniversary of HH Sheikh Mohammed bin Rashid Al Maktoum's accession as prime minister of the UAE, MEBAA closes December with a celebration of its own first decade of existence.

The two celebrations are parallel. Dubai has grown rapidly in the past 10 years to become a centre for tourism, trade and business and now has some of the world's most iconic landmarks, including the world's tallest building.

Meanwhile, the wealth it has generated has given rise to an increasing number of business aircraft in the emirate, reflecting the growth of the sector throughout the MENA region.

MEBAA's founding chairman, Ali Alnaqbi, said: "In 10 years, the market has reacted very positively overall. Business and private aviation is now accepted throughout the region and we have managed to present ourselves in a good way to the market and have a strong reputation."

He pointed out that, although the association came into being in 2006, the market has been far from stable since, mainly because of politics.

He continued: "It is hard work to make sure that business continues and the market goes in the

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"In 10 years, the market has reacted very positively overall. Business and private aviation is now accepted throughout the region."
Ali Alnaqbi



MEBAA has leading awareness of business aviation across the region.

CONTINUED FROM PAGE 55

right direction,” adding that this had impeded the growth he’d envisioned for the association’s first 10 years in terms of having a presence, or an event, in each of the 21 countries of the region. However, he said: “Putting that aside, I am delighted that the market is moving in the right direction and continuing to grow. We have raised many issues in individual countries and put them to the proper authorities, in terms of both operations and awareness.”

Indeed, raising awareness of exactly how the industry works is one of the most important parts of MEBAA’s remit. Alnaqbi is adamant that educating people is the way to develop the sector; choosing mission-specific aircraft that are appropriate for the trip can add a great deal of value to businesses.

Today, ministers and civil aviation authorities turn to the association as a first port of call when crafting new regulations for the civil aviation industry.

Although there is a long way to go before business aviation operations are treated on a par with their commercial counterparts, Alnaqbi said he has noticed a difference.

“Governments asking us for advice is very important to us. When ministers consult us on their master plans for civil aviation it enables them to account for business aviation, too. This has not happened in the past.”

He believes that this is primarily

“I am delighted that the market is moving in the right direction and continuing to grow.”

because they now recognise that business aviation plays an important part in connecting the MENA region to the rest of the world, and has far-reaching implications for the region’s economic growth. He clarified: “Business aviation traditionally complements other forms of aviation by increasing accessibility to traditionally underserved areas and, as a result, facilitating trade and business between places that may not have done so otherwise.”

MEBAA reckons the importance of these additional outlets is much more acute in emerging markets, such as MENA, where a larger percentage of places may not yet be accessible by traditional routes.

Today, business aircraft in the region represent a relatively small percentage of the global business fleet. However, the number of business jets in the Gulf is predicted to grow by more than 80% by 2023, according to the latest Bombardier Business Aircraft market forecast. In addition, the value of the industry is predicted to reach \$1.2 billion by 2020.

Alnaqbi points out that government and industry support is necessary to allow the industry to grow at such a rate, with airport support, landing slots and clearances all required to foster growth. “I am pleased to report that three governments – the UAE, Saudi Arabia, and Morocco – represent the majority of the business aviation market in the

MENA region and are listening to our requests,” he said. “Infrastructure changes and developments do not happen overnight but the requirement has been identified and we are working towards a solution that will benefit the industry and, therefore, the economy as a whole.”

A key aim for MEBAA is to have business aviation in governments’ plans, such as in Dubai, where the sector now has its own large dedicated facility in the new Al Maktoum International Airport (Dubai World Central).

Success story

Another success story is in Morocco, where MEBAA has worked with the government to include a tender for a new fixed-base operation (FBO) to service the private aviation sector in its budgetary planning. The tender is now out. “Until now,” Alnaqbi said, “there has been no dedicated facility or main terminal for business aviation in Morocco, which is challenging in a country that size.”

The association also cherishes its links with other industry associations, such as the US-based National Business Aviation Association (NBAA), the European Business Aviation Association (EBAA) and the International Business Aviation Council (IBAC), which drafts a global suggested safety standard for the industry. “We have hardly missed a single IBAC board meeting in the last 10 years,” Alnaqbi confirmed.

To date, the association has built strong relationships with civil aviation authorities in Jordan,

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CONTINUED FROM PAGE 56

Bahrain, Lebanon, Morocco, Saudi Arabia, the UAE and now Egypt. Its membership has grown from six founders in 2006 to 152 today.

Its key triumphs are at the governmental level. Illegal charter, or the so-called 'grey market' has been the scourge of the industry worldwide, almost since the sector came into being. Alnaqbi is particularly proud of what has happened in Saudi Arabia, which was one of the region's greatest offenders. "We worked closely with His Excellency Sulaiman Bin Abdullah Al Hamdan, president of the General Authority of Civil Aviation of Saudi Arabia, to tackle the issue and now have seen a 40 to 50% decline, since he has changed the rules."

Al Hamdan also opened the floor at May's MEBAA conference in Jeddah in order for operators to question him about how to develop a more useful operating environment for business aviation players.

Saudi Arabia has now abandoned US FAA Part 91 non-commercial-style operations, whereby there is no compensation paid for carriage of passengers or cargo. While the regulation is straightforward, it has been open to abuse, predominantly by unscrupulous operators accepting favours or cash without going through the proper channels – obtaining a certificate similar to US FAA Part 135-style operations.

Commercial certificate

To receive payment for air transportation, operators need a commercial certificate from the General Authority of Civil Aviation of Saudi Arabia (GACA). Obtaining such a certificate is an involved and time-consuming process. Part 135 has specific flight-duty-time and crew rest requirements and imposes a higher standard of pilot qualifications, as well as equipment and maintenance requirements that are more stringent than those needed for a private operation.

Until the crackdown, foreign operators were coming in and picking up passengers and dropping them off in different cities, committing cabotage – another contravention of international rules. MEBAA has played an important role in educating GACA, which said Alnaqbi, will be beneficial for all concerned in helping to create a safer industry.

Something is certainly working. Business aviation flights in Saudi Arabia increased by 6% year-on-year in the first quarter of 2016, according to statistics from WINGX released at the Jeddah conference.

There were almost 3,500 business jet flights from Saudi Arabia in 2015, with more than 80% of them taking off from King Khalid International Airport, Riyadh, and King Abdul Aziz International Airport in Jeddah. The most popular city pairs included Le Bourget in Paris, London Luton and London Stansted.



MEBAA shows are drawing in new audiences.

"We have managed to raise awareness of the grey market ...and the most important element is the passenger."

Speaking at the event, Ahmed Al Ansari, deputy chief operating officer for Dubai South, quoted the Bombardier Market Forecast stating that the Middle East would be the fastest-developing region for business aviation in the world, with fleet growth of 7% by 2030.

He said: "With its high concentration of high-net-worth individuals, Saudi Arabia remains one of the most promising of the GCC markets in terms of this demand. In addition, private jet usage in the Kingdom of Saudi Arabia is also higher than the global and regional average."

Al Ansari noted that, as the Gulf countries diversify, the resulting increase in trade and business would attract more air traffic. He highlighted that there would be a need for greater infrastructure, airport capacity and airport access for private jets to accommodate this growth.

"I am pleased to report," he said: "that people's first question now is 'is this a legal or illegal flight?' We have managed to raise awareness of the grey market over the last 10 years, and the most important element is the passenger." He cited the EBAA's work and input as the roadmap MEBAA has used. "Until recently, everyone was involved. We didn't know who was paying who, and even airports were in on the game."

Marketing methods

MEBAA has used several marketing methods, including social media, to get its point across. "We have to continue the fight though, and raise awareness and create the foundation for the next generation."

One of his major ambitions is to get some solid data on the problem but another thorn in his side is the unwillingness of people to share statistics, especially in a region where privacy is highly prized.

The pluses outweigh the minuses, however, and in 10 years technology has improved the industry exponentially.

Although there is far more airspace congestion than there was a decade ago, largely due to the rise in fleet sizes of commercial carriers, superior

avionics and air traffic management systems have eased the problem.

Airport slots remain a difficult issue. However, Alnaqbi is pleased with the developments at Dubai World Central (DWC).

Maintenance is manageable – for today. People are getting their heavy checks done when they are on holiday and there are more maintenance, repair and overhaul (MRO) providers around capable of doing line checks and light work when required. He foresees a great opportunity for hangar providers, though, as people increasingly realise that leaving their \$50-\$70 million asset outside on the ramp in searing heat plays havoc with the avionics. "There is a good business for someone building and leasing hangars," he said.

A gift made of tin

Popular culture dictates that a 10-year anniversary earns a gift made of tin. At first glance that seems inappropriate for such a wealthy region. However, tin is an element that is unassuming, but not unimportant. This metal is used to prevent corrosion and to produce glass and bronze, the alloy that changed civilization by ushering in the Bronze Age. Today tech researchers are excited about graphene, a single-atom layer of carbon that is both harder than diamonds and stretchable like rubber. It's entirely possible that the next high-tech advance, like graphene, will come from humble tin.

That being the case, it would seem a fitting gift for such an elemental part of the MENA region's young and vital business aviation industry.

MEBAA's next major event is its biennial show, taking place December 6-8 this year at the air show site at DWC in Dubai. It will provide a crucial platform for 9,000 business aviation professionals from the region to meet, network and foster corporate and industry growth in the region and beyond.

With more than 460 exhibitors expected, it has become a major part of the global airshow circuit, and after 10 years of existence is a testament to both Alnaqbi's vision and the support of HH Sheikh Mohammed, who has championed aviation since he came to power.



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GRECIAN 2016

*Greek operator, GainJet, will be appearing at this year's Middle East Business Aviation Association (MEBAA) show and is also celebrating 10 years in business. CEO and president, Captain Ramsey Shaban, tells **Dave Calderwood** how the first decade has gone.*

Ten years is a long time in aviation, especially given that the last decade has been one of the most turbulent in the industry's history.

But Greece-based operator, GainJet, has adapted, survived and become one of the leading worldwide private jet charter and aircraft management companies, with a substantial chunk of the business tied up in the Middle East.

As well as the company HQ in Athens, GainJet has an office in London, UK, and has established a subsidiary operation in Shannon, Ireland. Plus, there's a global network of strategic partners, with VIP and medevac aircraft positioned throughout the Middle East and Europe, which means it can offer high-class travel wherever it's required.

In 2015, GainJet operated nine charter aircraft, flew 4,603 hours, and transported 8,021 VIPs to a total of 94 different destinations.

So what does Captain Ramsey Shaban, CEO and president, think of the past decade?

"In the early years, GainJet's main shareholders were interested in expanding the aviation business in Europe, primarily our corporate aviation business," he said. "We made slow and calculated investments and the long-term plan revolved strongly around setting up our own operation in Europe. This is when we set our focus on Greece.

"The strategic location of Greece, connecting



GainJet staff and customers were welcomed to a 10th anniversary celebration.

three continents with easy access to our main markets, and availability of professional manpower, helped us move ahead with our decision to set up GainJet Greece in 2005," he continued.

"We were a small team, only about seven people, and everyone was working day and night to complete the air operator's certificate (AOC) application process. We literally lived in the office in those days! It was great team spirit and there was plenty of enthusiasm. We were able to complete the AOC work in four months!

"In 2006, when we first started commercial operation and through until late 2008, there was

plenty of business to go around and we were quite busy. However, after the 2008 global recession, and the pursuant consequences, the work environment got a lot tougher and our business did take a hit.

"We struggled in 2009-2010 and re-examined our business model. We adapted a diversified working strategy, focused our efforts on specific niche markets, and since 2011/2012 have seen a significant but slow and steady growth."

The professionalism and experience in depth of GainJet's team is instrumental in the company's success, said Shaban.

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As well as the medevac configured G550, GainJet offers the G650 for charter.

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“Our staff are all experts in their specific fields and are all hard working,” he said. “Their day-to-day hands-on involvement, dedication and interaction with each other, has helped us move ahead. Everybody is motivated to work together and support one another for the company’s well-being.”

GainJet manages to blend charter and aircraft management seamlessly, with both sides of the business working together, each just as important as the other.

“Many aircraft owners want to offset the cost of operating and maintaining their planes,” said Shaban. “Hence, management with the ability to charter out works best for 80% of our clients. We manage aircraft for clients from three continents. They are an important part of business and these clients are very special to us.”

Greece, with its much-publicised economic issues, may seem an odd place to base a private jet business. Not so, said Shaban, explaining: “Though GainJet is based in Greece, we generate only about 5% of our business from the Greek market. It’s a good strategic base to operate from for our worldwide operation, especially considering the fact that it is central to our three main target markets.

“The Greek economic crisis didn’t have any major effect on our business directly because we are not dependent on the local market. The country still offers many advantages for our company and continues to help us. Furthermore, GainJet Ireland, our new subsidiary AOC

operation in Shannon, has assisted our business growth and provided us with more flexibility.”

This practice of not depending on one market, but to spread the business over a couple of different ones, has worked well.

“We target Europe, the Middle East and Africa as our primary markets,” said Shaban. “The Middle East is certainly an important one, accounting for more than 25% of our business.”

Plans for the future include more of the same. “GainJet’s business model is based on a diversified strategy, but focusing on specific niche markets,” said Shaban.

High-end of the market

“We serve the high-end of the market, primarily focusing on our VIP executive airliner and ultra-long range operations. We have plans in place to add one or two more VIP executive airliners to the fleet, while also adding additional ultra-long range jets as well, like our Gulfstream G550, which has proven to be one of our most reliable platforms so far.

“These aircraft are best suited for the Middle East market and we may look to base such aircraft in the region, at least on a seasonal basis.

“We are also in the process of further developing our medevac operation. We already have one medevac Challenger 604 based in Kuwait, and we’ve acquired a second one recently, which will be primarily based in Athens as a central hub to serve the European, Middle East and African medevac markets.

“We are looking to add more medevac aircraft to the fleet to expand this operation, including additional Challenger 604s, with a potential acquisition of a medevac ultra-long range aircraft, like a Gulfstream GV. We also have a plan in place to establish a base in Africa, focusing on medevac operations there.”

As if this expansion of VIP and medevac services wasn’t enough, GainJet is also key to a joint project with Seattle, US-based company, Long Range.

Long Range designs and manufactures quick-change auxiliary fuel tanks to extend the maximum flying range of aircraft. Currently, GainJet and Long Range are concentrating on auxiliary fuel tanks for Boeing airliners, the 737 Classic in particular, but the system can be adapted for other aircraft.

“We have contributed one of our Boeings to this project,” said Shaban. “Testing and installation is now complete and Long Range now has the supplemental type certification (STC) to fit up to six tanks. We are expecting European Aviation Safety Agency (EASA) approval any time.

“The system increases the range of the 737 Classic from five-and-a-half hours to nine hours. The system offers range and, most importantly, flexibility.

“Tanks can be added or removed in just one-to-two hours. We can configure the aircraft to suit the mission requirement in terms of baggage space versus range.”

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French manufacturer Dassault is celebrating its centenary this year and, as Alan Peaford discovers during a flight from Paris, the company is entering its second century with innovation and optimism in equal measure.

100 years on, Dassault still has the X factor...

Grey clouds hung over the early morning scenes at Le Bourget Airport, just north of Paris. The doors of the hangar opened and the scene was brightened by the pure white outline of the tri-engine form of the Falcon 7X.

As it was pulled to its spot on the apron, it parked next to another classic Dassault aircraft, a Falcon 900, emblazoned with the words ‘Falcon Response’.

This is one of the most recent initiatives from the French business aircraft manufacturer to support its growing global customer base.

The aircraft is on standby to support aircraft on ground (AOG) crises and take specialist engineers, their equipment and spare parts to wherever they are needed.

“The unique thing about this is that it also has a VIP cabin installed, as well as the mobile workshop. This means we can take the owner to wherever they were supposed to be going so they are not inconvenienced while the repair is carried out,” explained Alain Lemee, director, international sales, civil aircraft.

The aircraft is rarely called on as Dassault’s technical service support around the world offers 24/7 guidance, and a high level of telematics allows the company to resolve most issues quickly.

There is no need for support for our 7X. The aircraft had flown back to Paris from Moscow the previous evening. It had been refuelled and replenished with sufficient provisions to keep the six passengers happy for the 5,430-mile journey to South Africa.

Successful journeys are nothing new to Dassault. The company is commemorating its 100th anniversary since the founder, Marcel Bloch (later to become Dassault), designed the Éclair (Lightning) propeller in 1916. He

recognised that First World War aviators could have their aircraft performance improved by reshaping the wooden blades so they would have constant thrust along the propeller’s length – a design that continues to be seen to this day.

Taking the jump seat for the departure from Le Bourget, another of the great innovations was apparent. The Falcon 7X’s digital flight control system (DFCS), a more recent development, has lightened the load for pilots.

As we roared into the skies, a momentary break in the clouds allowed a ray of sunshine to illuminate the iconic Eiffel Tower off the port wing. Soon there were blue skies ahead.

While it has generally been a gloomy time for business aviation over the past few years, those dark clouds could be soon left behind.

First ever delivery

As the Middle East Business Aviation Association (MEBAA) show approaches, Dassault is preparing to deliver its first Falcon 8X to the region, having made the first ever delivery of the new flagship aircraft to Greek operator Amjet Executive.

The 6,450nm/11,945km 8X received its European Aviation Safety Agency (EASA) and Federal Aviation Administration (FAA) certification in June and is entering service precisely on schedule, two years after it was first announced.

Certification followed a month-long, round the globe, operating test campaign intended to ensure aircraft systems would be fully mature and operational from day one.

“To see our new flagship Falcon handed over right on time in perfect operating order gives us immense pride,” said Eric Trappier, chairman & CEO of Dassault Aviation. “We are very pleased

to deliver the first example of this great new aircraft to Amjet, a long-time Falcon operator.”

Based in Athens, Greece, Amjet offers fleet management, charter, sales and maintenance/repair services and operates a full line of Falcon jets, including the super mid-sized Falcon 50, the long-range Falcon 900EX EASy and the very-long-range Falcon 7X.

As well as the imminent delivery to the UAE, further deliveries are anticipated over the coming weeks to customers in a dozen countries, from Brazil, the US and Europe, to India.

The 8X is based on the successful airframe of the 7X; it is more than a metre longer and also has strengthened wings that allow it to carry more fuel, increasing the range to 6,450nm.

According to director of sales, Gilles Gautier, that extra length means the 8X can accommodate more than 30 different configurations for the cabin layout, offering a choice among three different galley sizes, a crew rest area, lounges of varying lengths, and a lavatory with shower.

“One particular design, where the crew rest area can be converted to larger galley and lounge bar, is looking popular,” Gautier said. “It provides a great place for people to meet informally during the flight.

“We are taking this market very seriously. There is significant growth potential and it is developing quickly. The new economies are changing things. Our customers used to be governments, but now we see a real mix of governments, corporates and private individuals.

“The Falcon 7X, and soon the 8X, give owners an aircraft that can fly across oceans yet take off and land from short airfields – including London City. It is a smart aircraft, it has good



Gilles Gautier: Dassault still has a nose for innovation.

connectivity to be an office in the sky, it is more affordable and it has good reliability,” he said.

The trijet was launched in May 2014 as a stretched and longer-range version of the now nine-year old Falcon 7X. Key differences also include an extra fuel tank within the centre fuselage section, which enables the 8X to carry up to 15,800kg (34,900lb) of fuel – compared with 14,500kg carried by the 7X; a redesigned ultra-efficient wing derived from the 7X; and the more powerful Pratt & Whitney Canada PW307D engines.

According to Trappier, the company has “broken new ground” with the 8X. “Not only did we meet customer demand for an aircraft combining increased range and cabin volume, with the technological prowess of the popular 7X, but we were able to get it to market fully mature and tested in a remarkably short period of time, and exactly within our production schedule.”

Anyone who has ever flown on the 7X will attest to the cabin comfort and connectivity capability. But Dassault wanted to ensure that the new 8X would push standards to the next level and the global proving tour – using test aircraft number three – was designed to demonstrate the aircraft’s capabilities under different conditions

of operation, with a particular focus on cabin comfort and connectivity.

“Feedback from the operational trials – cabin comfort, air conditioning, and, in particular, cabin noise – was excellent and indicate the aircraft is poised for a flawless service entry,” senior vice-president, civil aircraft, Olivier Villa said on the completion of the trial.

The technology for the pilots is also moving to the new level. The three aircraft used in the flight-test campaign, notching up more than 830 hours across 400 flights, have now been redeployed.

Combined vision system

Serial number 1 is being used to certificate Dassault’s FalconEye combined vision system (CVS) on the 8X, and to gain approval for its use in dual head-up display (HUD) configuration.

Last month, FalconEye was certified by EASA and the FAA for use on the smaller Falcon 2000S and LXS twinjet aircraft. The 8X certification for the equipment should happen before the end of the year.

FalconEye is the first head-up display (HUD) system to blend synthetic, database-driven terrain mapping and actual thermal and low-light camera images into a single view, providing an unprecedented level of situational awareness

to flight crews in all conditions of operation, day and night.

It is equipped with a fourth-generation multi-sensor camera that generates very high definition images, close to those on a military forward-looking infrared (FLIR). In synthetic vision system (SVS) mode, the camera displays a 30 x 40 degree field of view, one of the widest angles on any HUD, ensuring full coverage of the viewing area with no tunnel vision effects.

And the system’s modular architecture will make it easy to add on future capabilities, like enhanced vision system (EVS) landings.

On the 8X, FalconEye will eventually be qualified not only for use on a single HUD but also for dual HUD configuration. By providing the same information and views heads-up to both the flying and non-flying pilot, the dual HUD system will improve crew coordination and facilitate pilot training. Falcon 8X dual HUD approval is anticipated in late 2017 or early 2018.

With the vast majority of orders opting for the dual HUD system, it will be a key selling point when Dassault brings its centennial celebrations to Dubai next month for the MEBAA show.

In the past 100 years, the company has been a leader in innovation – and it will be clearly demonstrating it is not stopping now!

*Exhibitors always plan something different to bring to the Middle East Business Aviation Association (MEBAA) show. However, for one Canadian company, doing something different is a regular occurrence, as **Mohammed Ali Ahli** discovers.*

VERSATILE TEAM ADDS TO THE COLOURS PALETTE...

With clients' missions becoming increasingly varied and specified, Flying Colours, the North America-based maintenance, repair and overhaul (MRO), completion and refurbishment specialist, will be coming to the MEBAA show in Dubai promoting its expertise and flexibility.

And it is not just about luxury interiors either. The company has been gradually developing and expanding its special mission capabilities and now has a range of projects and approvals under its belt. It will be looking to demonstrate these during the three-day event at the Dubai South site from December 6-8.

The experienced workforce can guide clients through the complexities and intricacies of creating one-of-a-kind solutions, according to its executive vice president, Sean Gillespie.

Maximise the potential

"The versatility of the Flying Colours team enables them to take an aircraft from either a green state, or pre-owned, and maximise the potential for even the most complicated of client requests," he said. "In some ways, every aspect of refurbishment or completion we undertake could be deemed special mission as it is tailored to each client.

"However, for technical special mission work requiring installation of particular equipment, software and

technical paraphernalia, this requires a whole other level of expertise."

Flying Colours has been in business for more than 35 years and boasts a workforce of highly knowledgeable technicians, design engineers, interior designers, and aviation experts, plus state-of-the-art workshops to outfit the most complex of requests.

With the capacity to work from nose to tail and generate the necessary supplemental type certifications (STCs) for specific equipment installation, in addition to adhering to strict regulations, the Flying Colours team said it aims to deliver tailor-made configurations to accomplish a variety of special mission requirements.

The company has already completed a range of Bombardier Global and Challenger aircraft projects, fulfilling multiple-passenger mission interiors, which incorporated complex customised designs.

It has redelivered to a Middle Eastern client an aircraft that comprised a tailored multi-use VIP/medevac configuration to ensure both patients and accompanying passengers can travel in style.

Dedicated medevac aircraft

In Europe, it has also delivered dedicated medevac aircraft to specialist air ambulance operators.

For governments, it has previously reconfigured a CRJ200 aircraft into special mission configuration, as well as modifying CRJ700 NextGen aircraft for special government use.

Supporting the special mission work, Flying Colours also holds a number of international approvals from the Saudi General Authority of Civil Aviation (GACA) and the Qatari Civil Aviation Authority (QCAA), making it easier for clients with aircraft in the Middle East to have on-going maintenance undertaken.

The company also holds approvals from the Bermuda CAAC, Transport Canada, the Federal Aviation Administration (FAA), the European Aviation Safety Agency (EASA), and the Cayman Islands. Combined, these approvals enable Flying Colours to offer on-going services to a broad spectrum of private aircraft across a range of international registries. This also complements its status as a Bombardier Business Aircraft authorised service facility and preferred completion centre.

As well as its specialised work in green completions, interior refurbishment and modifications, it also provides heavy maintenance and repair, exterior paintwork and avionics installations.

"We hope to be able to demonstrate all of these at the MEBAA show," Gillespie said.

The medevac configuration ensures both patients and accompanying passengers can travel in style.



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How virtual is helping to speed up the reality

Manufacturers are increasingly looking to augmented reality to shave months off interiors completions.

Liz Moscrop reports.

From sports bars to 3-D cinemas, virtual reality (VR) has taken the entertainment world by storm.

Increasingly, aircraft manufacturers and completions houses are using it to help customers visualise their ideal aircraft, eliminating the need for several iterations of a hugely expensive mock-up.

By stepping into a virtual world at the outset, customers are able to choose what they want and make a much more informed decision about their cabin interior – as well as giving them extra enthusiasm as the project unfolds.

Embraer Executive Jets has invested heavily in its interiors facility in Melbourne, Florida, mixing both virtual and augmented reality (AR). It has teamed with camera company Canon to install the latter's Mreal system for mixed reality, leveraging engineering and design for the production of next-generation aircraft.

By combining the rich, visual information of the real world with the flexibility offered by computer-generated images, the system provides Embraer's engineers with ways to explore aircraft designs in life-size scale and in three dimensions.

Humberto Pereira, the firm's vice president,

engineering and technology, pointed out: "Embraer has been using virtual reality in Brazil to create digital prototypes and evaluate designs since 2000. But our engineers in the US will enjoy the next phase of this philosophy, using mixed reality to provide a more interactive, immersive experience."

Mreal enables engineers to modify designs with a level of realism that allows complex ideas and plans to come to fruition quickly. The technology lies at the heart of the Melbourne Engineering and Technology Centre, which was built with a \$24 million investment from Space Florida.

Embraer also offers its customers the ability to walk through a virtual mock-up of their aircraft online, adding preconfigured colours and renders of surface materials to experiment on how that would look.

Frank Chavez, the firm's supervisor for interior design and customer installation, explained: "They can download our iPad apps in the comfort of their homes and configure their aeroplanes."

The service is available for every platform, except the Lineage 1000. Chavez continued: "We give our customers a quick overview of what the platform looks like

Continued
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initially, then they can walk through the aircraft and add and change different schemes.” He said it has shaved plenty of time off the process. Often customers will come in and spec out a Phenom in an afternoon’s visit to the facility.

He said: “You can get renders 30 minutes later, and it makes the process a whole lot more interesting. They walk away with something very realistic. It also works for exterior paint schemes.”

The process has proven invaluable in helping create designs tailored to Middle East clients – many of whom opt for ultra modern piano black glossy veneers.

Chavez said that he has walked through a Lineage 1000 outfitted in a beige scheme with a client and an iPad, and been able to demonstrate immediately how an aircraft seat would look in a different colour and with different veneers surrounding it.

Dassault Falcon has also opened two state-of-

and other interior features to be displayed in an environment reminiscent of a typical Falcon cabin. Design of the facilities drew heavily on ideas and suggestions from Falcon operators. There are two to assist customers from regions such as the Middle East, who may not want to fly as far as Little Rock.

Eric Trappier, Dassault Aviation CEO said: “The interior spec and design process has evolved greatly over the past several years with the wide use of digital tools, 3D processes like Dassault Systemes CATIA, and a greatly expanded selection of options and new products. Our customers now have a very accurate vision of the aircraft interior they are designing, several months before the first part is manufactured.”

Lufthansa Technik (LHT), too, has invested heavily into virtual and augmented reality technologies. In contrast to VR, AR offers users additional information in real time over and above what they actually perceive. This allows

connections, while reducing the workload by almost 50%.

The firm launched a VIP interior concept for the Airbus A350 dubbed ‘Home’, and aimed at a new generation of buyers. Michael Reicheneker, LHT interior architect and Home’s co-designer said: “Our customers are getting younger and they will have different demands on what they want their aircraft to do.”

LHT believes these customers will demand a flexible space that allows them to alternately enjoy complete family privacy or entertaining, while still accommodating staff and other support needs.

To show the concept off, LHT offered a virtual tour of the interior at the European Business Aviation Convention & Exhibition (EBACE), using 3D monitors and iPad apps providing 360-degree views from various points in the floor plan.

“We wanted to put the human being at the centre of the story,” Reicheneker said. “We want the VIP to leave more relaxed than when they entered.”

Sales and refurbishments

LHT sees demand for new narrow-body business airliners declining and pre-owned sales and refurbishments on the increase. The used inventory is coming mostly from the Middle East and Asia, the firm said, as are purchases and requests for retrofits. Here again, LHT sees a generational shift occurring. “The customers are getting younger and they do not want to wait so long to get a new aircraft and interior.”

Realising this, London-based pre-owned aircraft broker, The Jet Business, launched a cabin interiors app two years ago at the Dubai Airshow. Clients can visualise a variety of business jet cabins in a full-size replication and experiment with full 3D interior view of business jet cabins at the company’s London showroom.

The completions customisation ability adds on to the firm’s original sales app, which features comparative graphic images and full size 1:1 cabin cross-sections of the jets. However, the interiors app allows potential buyers to change the style of aircraft seats, cabinetry veneers and soft furnishings in a virtual life-size representation of the cabin. The software can instantly change fabrics, carpets, woods, cabinetry, veneers, finishes and upholstery. The firm works with material suppliers to ensure it has the most up-to-date digital and physical samples in its selection choices.

The company said it launched the app in direct response to client demand. CEO Steve Varsano said: “With a wide range of options now available in interior furnishings and the great leaps in technology and digital imagery, we are very pleased to help clients create personalised interiors, which reflect their lifestyles and tastes. Up to now, the process has been very different for clients to immediately visualise their choices only using swatch materials.”



Virtual reality can change give a customer a clear idea of what effect a different colour scheme could have.

the-art interior design and showroom centres aimed at facilitating the selection of interior design solutions and options for Falcon customers. Located at Paris-Le Bourget and Teterboro, two of the busiest executive aviation airports in Europe and the US, the multimillion-dollar facilities provide an interactive environment that allows customers to specify their aircraft interiors and pick and choose from available on-board equipment hardware and materials in the easiest and most efficient manner possible.

Specification areas are equipped with high-definition screens and advanced 3D tools that interface directly with Dassault’s digital modelling software, greatly simplifying the cabin design process.

Showrooms feature a stylish and elegant decor that permits seats, in-flight entertainment equipment, galley appliances, lighting, panelling

for innovative new production procedures and methods.

LHT said: “The high level of effort required for installation in case of primary structural connections in VIP completion projects can be reduced by using laser-based installation templates.”

It has already swapped such processes to replace old manual, mechanical measurement and alignment tools for a new laser-based AR system. It’s a mobile projection system that can be positioned and aligned flexibly in the aircraft fuselage in line with the respective installation situation. The installation template is projected on to the work environment and corresponds to the virtual 3D model. It acts as a positioning and alignment aid. The employee can then install the required components.

The firm says that the precision “significantly increased” when installing primary structural

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GAMA Aviation expects to announce details of a major investment at its Sharjah base when the Middle East Business Aviation Association (MEBAA) show takes place in Dubai this December. Alan Dron reports.

Sharjah facility could be a GAMA changer...

While more information will be released in Dubai, a virgin site within the Sharjah Airport perimeter will allow the fixed-base operation (FBO), maintenance and managed aircraft specialist to pull together its currently scattered facilities.

These consist of an FBO facility and lounge with three aircraft stands close by, together with three hangar spaces – a small, air-conditioned unit, a larger, open hangar, as well as access to a large air-conditioned hangar.

The new facility will be “a major investment”, said GAMA’s managing director for the Middle East, Martin Ringrose. Timescales for making the new facility operational may be revealed at the show.

“We still don’t have a final cost but we’ve been very much focused on the enabling side of things. We’ve been in negotiations with our landlords, the airport, on the terms of the lease. They’ve been very supportive.”

The new building will come at an opportune time. After two years of an austere business environment, due to the slump in oil prices, Ringrose can see business starting to pick up.

“The economy here as a whole has obviously been affected. Clients and countries here have a financial resilience, but after a couple of years that starts to be

tested. I wouldn’t say there’s been much of a slowdown, but there certainly hasn’t been any growth. It has plateaued. We’ve been on that plateau for 18 months and we’re just starting to lift out of it now.

“I think business is improving. Summer was less slow than summers usually are here. August is usually the quietest month of the year, as most owners disappear to other parts of the world, but we did particularly well.”

At the show, GAMA will be promoting its bread and butter activities, such as aircraft management and charter. “But we’ll also be talking about our air ambulance capability, which will be something new,” said Ringrose.

GAMA is looking at using a Lear Jet for this service and, perhaps, other aircraft. “We’re looking to provide it as a charter. We’re in discussions with a couple of medical providers at the moment. GAMA will be offering the aircraft with on-board equipment; the medical expertise will come from elsewhere on a case-by-case basis.

Growing maintenance capability

“On the ground side, we’ll be promoting our growing maintenance capability. We’ve added one new type to our portfolio this year, the Embraer 145, and will have added two more types by the time the show comes around.”

Those new types are likely to be the Piaggio Avanti twin turboprop and the Lear Jet 60.

Worldwide, GAMA manages around 150 aircraft and up to 11 are operated out of the Sharjah FBO. There used to be no business aviation activity at Sharjah, but GAMA’s arrival allowed it to pick up a couple of aircraft in the emirate and that number has slowly grown.

The company set up the FBO with initial capability four years ago and has developed that over time. Two years ago, it launched its own, dedicated lounge: “That’s the point at which we got to a level of maturity, handling all our own passengers etc.”

In the past year it has also taken on a large airport-parking lease, and now has exclusive rights to manage business aviation at Sharjah, being the sole supplier of handling.

The biggest aircraft on GAMA’s books is a Boeing BBJ, but it also has 20 Gulfstreams, ranging from the GIV to the G650 series. By far the biggest feet managed worldwide, however, is that turboprop workhorse, the Beechcraft King Air, with 55 under contract.

At Sharjah, GAMA also has crew facilities, line maintenance services and no slot restrictions, which makes it popular with clients.

The Sharjah FBO offers a variety of services, including dedicated customs and immigration, wireless internet, communal iPads for passengers and crew, plus VIP restrooms and shower facilities.

Martin Ringrose: The new facility will be “a major investment”.



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Satcom Direct rebranded itself earlier this year to reflect the fact it now offers a whole suite of services.

Liz Moscrop
plugs in.

A Florida-based technology company has made waves in the Middle East since it landed in Dubai a few years ago.

SD, the company formerly known as Satcom Direct, has been expanding its Dubai team to cope with increasing demand for its offerings. It has also built an in-house activation team to enable its local clients to get online and use their SD products.

Once solely a purveyor of voice communications for the cockpit and cabin, SD is rapidly becoming a full connectivity service provider, as well as a hardware manufacturer. To reflect the changes, earlier this year the firm rebranded itself.

European regional director, Michael Skou Christensen, explained: “We’ve gone beyond Satcom – like Hewlett Packard became HP. The new branding represents the evolution of the company over 18 years. Today we offer solutions-focused global connectivity. We have a raft of different industry offerings.”

It’s an impressive swathe. Today the firm provides satellite voice and broadband data solutions for flight deck and cabin communications, serving business, military, government, and heads-of-state aircraft. It is a premier Inmarsat distribution partner, Iridium service partner, and ViaSat Yonder’s preferred reseller, supporting more than 90% of all corporate flight departments worldwide.

This summer it added route alerts, a plug-in that provides automatic, real-time notifications to the flight deck about hazardous weather conditions to its geoservices app, a geolocation-based technology that provides situational awareness at every stage of flight. Near real-time monitoring of the flight path and automated updates on conditions allow the crew to stay on top of changing hazards. Route alerts is compatible with existing avionics and no additional applications are required.

Skou Christensen continued: “We service 70% of all

ITS SUITE SUCCESS FOR SD

private jets in the world. We have partnerships with all the satellite providers and offer all the connectivity options including Iridium voice, fax and datalink Inmarsat classic, SwiftBroadband and JetConneX.”

Last year SD became Inmarsat’s first distribution partner to transmit data over the Ka-band Global Xpress network via the Inmarsat-5 F-1

and F-2 satellites, using the latter’s new JetConneX business aviation high-speed broadband service. As well as the connectivity offering, SD offers a Wifi router, which enables passengers to make and receive calls, text, and e-mail, connect to the internet and stream data, automatically selecting the best connection available. It works with any broadband offering, and can also work with competitors’ technologies – fortunately so as Skou Christensen pointed out: “We sometimes have to troubleshoot competing systems for our clients.”

Link together

He said that one problem was that large multinationals have different departments with different responsibilities and don’t always link together. He continued: “We have a unique combination of skills that represent the whole distribution in the system – original equipment manufacturers (OEM); maintenance, repair and overhaul operators; and satellite providers. If the problem isn’t ours, for example we are not allowed to fix the Honeywell box, we can identify where the problem is and provide the information for our customer to go to Honeywell and say ‘this is what we’ve done, this is what’s showing’ and then troubleshooting can proceed from there.”

He also pointed out that, often, problems are to do with the configuration of the aircraft. “Satcoms are tied to a registry, which is usually an N registration. So if an OEM doesn’t restrap the satcom to the new registration when it flies to another country, then the satcom won’t work. When you’re spending \$60 million that hurts. We’ve now made a tie between OEMs and field service representatives, so we can make sure ferry flights are configured correctly.”

He promises plenty of new announcements for the business aviation community at both the forthcoming US-based National Business Aviation Association (NBAA) and Middle East Business Aviation Association (MEBAA) shows.

“We are always at the forefront of new technology. Many of our clients are aircraft owners who would rather be first movers. We get input on our newest technologies and make them part of our discussions on what to develop. We move a lot faster since we are a private company.”

The SDR box ready for a Gulfstream.





Just kidding...

Keeping children entertained on board a long flight can be tricky.

Liz Moscrop *finds out that this serious business is anything but child's play.*

It's all very well loving the luxury of a private jet when you're an adult, but for kids being on board is not always fun, regardless of the surroundings.

Given the constraints of not making a mess of the fabulous leather seating and shiny credenzas, what is available to keep children entertained and safe?

Long flights can be great, with the kids either sleeping or watching the in-flight entertainment (IFE), or generally kept content with play packs, books, magazines and music. Or they can be a nightmare, especially if a child is at all unwell. The airlines have been aware of this for years.

Indeed, charter operators in the Middle East have the world's most advanced airline customer service to compete with. Emirates, for example, offers its own 'ICE' entertainment system with hundreds of channels, including newly released family movies, Disney classics, audio stories and interactive games, including the ability to play against other passengers. For infants, there are bassinets, baby milk and toys.

However, when the private sector competes, it does so in style. Most private jets have on-board entertainment systems, with latest models offering the most advanced viewing and communication solutions for VIP customers, and their children.

Wide selection

UK-based PrivateFly's CEO, Adam Twidell, explained: "We can arrange for a wide selection of DVDs and music, according to a child's specific preferences. We can also arrange for books and toys to be waiting on board that will ensure a relaxing journey with your child."

Acropolis Aviation's Andrew West agreed. The company operates G-NOAH, an Airbus ACJ319 that often flies between the UK and the Middle East. "We put models of G-NOAH on board that are really popular with children to take away afterwards – especially in the Middle East," he said. "We also add the latest films and magazines and games for older children and teenagers."

Twidell pointed out: "More than 20% of our flights have a family member on board, and we have several regular questions when we are arranging family flights." These

range from where a child should sit, to what can children eat.

He continued: "As with scheduled airlines, regulations permit that your baby can travel on your lap until the age of two years old, when they will then require his or her own seat. We usually recommend that customers travelling with babies take their car seat on board the private jet. This can be strapped in a rear-facing chair, following the same safety guidelines as when you are travelling with your child by car."

It's also important to remember that safety is always the top priority. Children under the age of two have to be strapped in using an approved child restraint system. It is important that the child's weight doesn't exceed the system's approved limit.

Properly restrained

The child has to be properly restrained for take-off, landing and during the flight. It is important to remember that turbulence is responsible for most injuries in-flight, and can happen at any time during the journey.

Car seats, however, are often ill designed for the purpose, and can be heavy. Farnborough, UK-based Gama Group has tackled the issue with its infant safety seat. Gama operates business aircraft on charter from various locations around the world, and manufactured its seat at its Fair Oaks Airport-based engineering subsidiary. The seat is also in service with Virgin Atlantic and Cathay Pacific, and is the "world's first seat certificated for taxi, take-offs and landings on numerous business jet marques". Its certification (supplementary type certificate) applies to numerous airliners (including Airbus and Boeing types) and aircraft built by the likes of Embraer, Bombardier and Dassault.

However, Twidell makes perhaps the most compelling reason why children might enjoy flying privately the most – an event that is sadly now a lost art in airlines. "Most children also love the excitement of meeting their pilot up close, and visiting the flight deck – not something they can do on an airline flight. Pilots also love to show people around the cockpit, so that's something special we can offer children."



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The flight-test hiatus has put back type certification of the AW609 tiltrotor to at least 2018.

*Falling sales and tragic accidents have hit the helicopter industry hard but, as **Dave Calderwood** reports, it is bouncing back with new products.*

FIGHTING BACK AT FULL TILT

The helicopter industry is having a torrid time with sales and deliveries down, mainly because of the low oil price stifling demand from the energy sector.

There has also been a spate of crashes, with three major manufacturers all affected.

But, despite the issues, helicopter original equipment manufacturers (OEMs) are all pushing ahead with new products, determined to be in good shape for when the upturn comes.

The latest figures released by the General Aviation Manufacturers Association (GAMA) showed a 16% drop in shipments over the first six months of this year compared with 2015. Worse, the value of those shipments is down 32%, from \$2.1 billion to \$1.4 billion.

Let's get the bad news over quickly. The most recent crash was a devastating blow for Bell Helicopter, when its 525 Relentless flight-test aircraft crashed in late June, killing the two test pilots. Bell has suspended further flight-testing for now but remains committed to the highly innovative 20-seat 525. The crash appears to have been caused by a technical issue, according to the US accident investigators.

Leonardo, the new name for Finmeccanica, is back on track with flight tests of its AgustaWestland AW609, the first civilian

tiltrotor aircraft, at its site in Philadelphia, USA.

"The involvement of the Philadelphia site in the AW609 programme represents the anticipated progression towards assembly and certification with the Federal Aviation Administration (FAA) as the certification authority," said Leonardo. "Facilities in Italy, the UK and Poland continue to play critical production roles."

The AW609 project was derailed in 2015 when a flight-test prototype crashed at high speed in Italy, killing both test pilots and putting an immediate stop to all test flying. The interim report from Italian investigators suggested poor understanding of the AW609's high-speed handling and flawed logic in the flight controls.

Leonardo admits the flight-test hiatus has put back type certification of the AW609 to at least 2018. That's a blow for the operators, who have signed 60 orders for the AW609. They include the Joint Aviation Command (JAC) of the United Arab Emirates, which became the launch customer for the search and rescue (SAR) version in early 2016 when it ordered three AW609s, with another three aircraft as options.

The JAC, already operating 11 AW139 helicopters, said: "The AW609's unique speed and range characteristics, combined with its

ability to hover, will dramatically increase SAR mission capabilities."

The third crash may well have lasting implications for the H225 Super Puma heavy twin from Airbus Helicopters.

On April 29 this year, an H225 operated by CHC, crashed in Turoy, Norway, killing 13 people on board. The European Aviation Safety Agency (EASA) grounded the H225 (formerly EC225) and AS332 L2 Super Puma helicopters, further damaging their reputation following two ditchings in the UK's North Sea.

CHC has said it will not operate the type again and, with at least 80% of the world's Super Puma fleet grounded, other operators may follow. Gearbox problems are at the heart of the issue.

That said, Kuwait recently announced a huge order for 30 of the military version, the H225 Caracal, for a wide variety of missions, such as combat search-and-rescue, naval operations, medical evacuation and military transportation.

Guillaume Faury, CEO of Airbus Helicopters, said: "I would like to personally thank the Kuwait Air Force, which placed its trust in our products to renew its helicopter fleet."

That's the first of the good news. Airbus Helicopters is also busy revitalising its fleet. Its newest

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helicopters, the H145 and H175, both entered in service in 2014 and are now available in several configurations.

The H160 light twin, the first clean sheet design since Eurocopter rebranded as Airbus Helicopters, is also making good progress. In July, the European manufacturer confirmed the aeromechanical design had been validated and frozen.

“Thanks to more than 200 hours accumulated in flight-testing, we have been able to confirm several key design assumptions and even exceed some of them,” said Bernard Fujarski, vice president in charge of the H160.

Key objective

“Vibration levels have been a key objective since the launch of programme, and observed results give us confidence that the H160 will set new comfort standards for all mission segments, from medevac to passenger transport or private and business aviation,” continued Fujarski.

The H160 flight-tests concentrated on hot weather trials over last summer, followed by continued performance testing of the Turbomeca Arrano engines. Cold weather testing is about to begin and a third prototype will join the flight-test programme next year. The 12-seat H160’s entry into service is planned for 2018.

One of the first operators will be Abu Dhabi’s Falcon Aviation, which has ordered a VIP version. “The H160 is a natural choice as it embodies our company’s standards of high quality, safety and innovation,” said Falcon COO,



Captain Raman Oberoi.

For Bell Helicopter, the loss of its test 525 Relentless is a huge blow. The 525 is the biggest of Bell’s current range and the plan was to have it certified in 2017 with first deliveries soon after. That’s now on indefinite hold.

“We’ve suspended flight-test activities on the [Bell 525] programme until we determine the cause of the accident,” said Textron chief executive Scott Donnelly. “We remain committed to the 525

programme and will work to ensure the aircraft will be a safe, reliable and high-performance helicopter.”

Meanwhile, Bell is continuing to focus on the 429 light twin, the 407GX ‘workhorse’ and the all-new 505 JetRanger X light single, expected to receive type certification later this year.

Bell recently announced it was moving the JetRanger X to its Quebec, Canada site as it ramps up production to meet orders for more than 380 aircraft worldwide. The

505 JetRanger X is a replacement for the much-loved original JetRanger, with sales appeal across training, tourism, law enforcement, surveillance and private sectors.

Turkey has been a successful country for Bell and the US company has won a 50% market share over the past five years. No fewer than 26 Bell 429s are in operation in Turkey and Bell recently announced an operational availability rate of 95% with Turkey’s police and forest services.

“I am proud that the Turkish National Police have achieved such excellence. They are superior aviators, and the Bell 429 is a fantastic helicopter,” said Clay Bridges, regional manager for Bell in Turkey.

The 429 was originally developed for medevac services, with a large flat-floor cabin, clamshell rear doors, and single pilot instrument flight rules (IFR) capability. Then police air services realised it suited them and Bell has now delivered law enforcement versions to Sweden, Slovakia and New York City, as well as Turkey.

Dubai Helishow postponed and changes venue

This year’s expected Dubai Helishow, set to take place in November, has been postponed until November 2018.

Show organiser, the Domus Group, having received feedback from the industry, said: “The unsuitability of the current venue does not allow for the development of the show in line with industry expectations.”

The event had been due to be held at Dubai’s Meydan Racecourse from November 7-9.

“After investigating various options for a new venue, we are now delighted to announce that the Dubai Helishow will move to the Al Maktoum Airport, Dubai South for the 2018 edition,” said Ahmad Abulhoul, managing director of Domus Group.

The dates are confirmed as November 6-8, 2018.

The Dubai Helishow represents an opportunity for the international community to showcase their products,

services and technologies covering commercial, civil and military helicopters. It includes sub-sectors like air medical rescue and military and homeland security. The exhibition will incorporate hall exhibits and an outdoor static display.

“We are also pleased to announce that the Domus Group has teamed up with prestigious conference organiser, Segma, which is renowned for the highly successful Dubai Airshow conferences, to establish a conference in place of this November’s Dubai Helishow,” said Abulhoul.

“The Dubai HeliConference is confirmed to take place on January 17-18 2017 and it will include a designated area for exhibits, allowing delegates to network with exhibitors during the registration period, refreshment and lunch breaks. Details of the conference programme, targeting military and civil helicopter sectors, will be published shortly.



Top left: The Airbus H160 will set new comfort standards for all mission segments.
Bottom left: Bell is continuing to focus on the 429 light twin.
Bottom right: The all-new 505 JetRanger X light single, expected to receive type certification later this year.
Above: The Sikorsky S-76D is almost a brand new helicopter.

The 429 has a fully integrated glass cockpit, can seat seven passengers plus one pilot, and there is now a VIP version with the Mecaer MAGnificent luxury interior.

Sikorsky has been going through a “getting to know you” stage with new owner, Lockheed Martin, but is now about to open a regional office in Abu Dhabi, with a view to expanding sales and support.

UAE partnership

The American helicopter maker already has a partnership with Mubadala in the UAE, and around 400 helicopters in the region. “Modernisation [of existing fleets] is going to drive that number in the region,” said Anand Stanley, Sikorsky’s vice-president for the Middle East, Turkey and Africa.

Sikorsky’s two main civilian helicopters are the S-92 heavy twin – the preferred alternative to Airbus Helicopters’ Super Pumas – and the long-running medium-size S-76.

The latest version is the S-76D, which is almost a brand new helicopter, with special attention

paid to lower noise inside and out, better performance, increased range, ability to fly into known icing conditions, dual full authority digital engine control (FADEC) on upgraded Pratt & Whitney engines, and ‘flaw tolerant’ composite rotor blades.

A second phase of validations and expanded performance envelope was recently certified for the S-76D. These include the ‘silencer’ wall panel system for the eight-passenger deluxe VIP/executive interior, and air conditioning.

The Thales TopDeck avionics received an upgrade, which adds wide area augmentation system localiser performance with vertical guidance (WAAS-LPV) approaches, single pilot instrument flight rules (IFR), flight following and automatic dependent surveillance-broadcast (ADS-B) out.

“This expanded validation gives commercial operators a wide range of desirable features in the S-76D VIP aircraft and allows operations in various conditions,” said Sikorsky’s Nathalie Previte.



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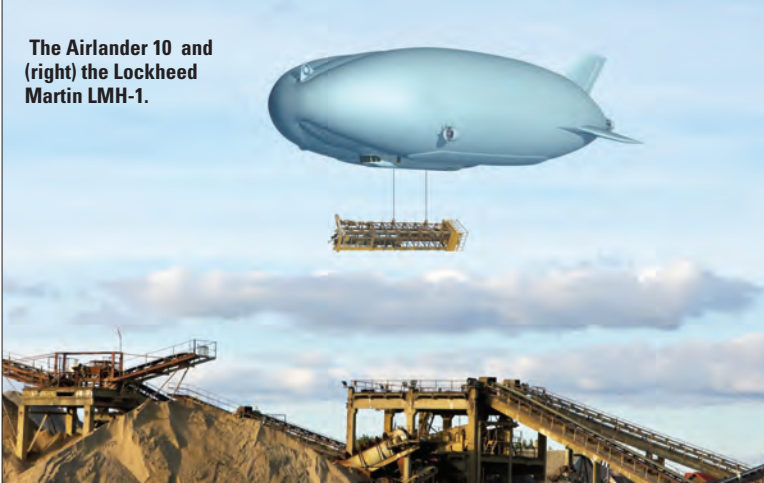
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The Airlander 10 and (right) the Lockheed Martin LMH-1.



There's something in the air for the hybrid blimp

Two companies are going head-to-head to be the first to have a commercial hybrid airship – the UK's Hybrid Air Vehicles, which is behind the Airlander 10, and US giant Lockheed Martin with its LMH-1. Dave Calderwood looks at what the technology could mean for the Gulf region.

The first flight of the re-engineered Airlander 10 airship in September was an important step forward for the fledgling hybrid airship industry. For both Hybrid Air Vehicles (HAV) and Lockheed Martin, Airlander's flight boosted interest in the giant blimps.

On its second flight, Airlander 10 suffered a minor landing accident, which has curtailed its test flying for six to eight weeks while repairs are made.

It's no surprise that a test flight has an incident – that's what test flying is all about. It's just a shame for HAV that it was so public; it's hard to be discreet with the biggest aircraft in the world, bigger than an A380.

Also, it should be remembered that pilots have little actual flight time in hybrid airships. A hybrid flies differently from a normal lighter-than-air airship – it requires forward motion to develop up to 40% of the lift needed to stay airborne. Landing was always going to need practice to refine the technique.

Meanwhile, Lockheed Martin has established a new division, Hybrid Enterprises, to sell its airship. And it's had success with British company Straightline Aviation placing a provisional order for 12 LMH-1s, worth \$480 million.

Straightline Aviation, run by a team of former Virgin Group managers with experience of operating balloons and commercial aircraft, has partnered with PRL Logistics, a leader in remote site logistics, to operate freight and personnel flights to isolated regions of Alaska and Canada. PRL serves a broad range of projects and clients in the oil and gas, mining, defence, industrial, construction and environmental industries.

Michael Kendrick, Straightline's chief executive said: "We are thrilled to enter into this alliance with PRL and merge our understanding of airship operations with their unique knowledge of logistics, working in some of the most unforgiving terrain and conditions on the planet. Together, we will usher in a new environmentally friendly age of air transport."

Hybrid airships could be coming to the Middle East as well, with one company, Airships Arabia, setting up in the UAE to sell, operate and maintain them.

Airships Arabia first announced its intentions in early 2015 and is striding ahead. It has established a base at

Dubai World Central Airport and now has three key managers – commercial director Pete Wallace, company secretary Nigel Hills, and logistics director Katharina Albert – in addition to founder and managing director, Gregory Gottlieb.

At the moment, Airships Arabia offers aviation, logistics and management consulting with a focus on airships, hybrids and aerostats (normal airships and hot air balloons) to government and commercial clients.

"Longer term, Airships Arabia will grow to become an airship operations, maintenance, repair, overhaul, and crew training enterprise in its own right, with a focus on hybrid airships, as they become available from manufacturers, following type certification," said Gottlieb. "Operating our own fleet of hybrid airships, Airships Arabia will eventually provide freight services at competitive prices to customers across the region," he continued.

Payload capacity

"With initial payload capacity of 10 tonnes per load, growing to more than 50 tonnes per load in due course, with an unrefuelled range of more than 3,500km, we will provide an unmatched capability for direct, point-to-point transportation."

Airships Arabia is forecasting 2018 as the year when the first certified hybrid airship will become available. Of course, as well as the airships themselves, support services such as pilot training, maintenance and hangarage also need to be set up.

Airships Arabia says it will be a one-stop-shop for all conceivable maintenance tasks, from envelope repairs and engine overhauls to annual inspections and new envelope pressure tests for hybrid and conventional airships, and for aerostats.

Lockheed Martin has also been busy and it has invented a new robot for inspecting the airship's surface for pinholes. Called self-propelled instrument for damage evaluation and repair (SPIDER), it crawls on the vehicle's surface, both inside and out, linked by magnets. When it finds holes, it patches them. Lockheed Martin is also projecting 2018 for first deliveries of its LMH-1, which first flew as long ago as 2006.



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African Aerospace – launched in 2013 to focus on the exciting potential offered by markets in Africa – provides comprehensive Continent-wide coverage, in both English and French.

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We also report on global aerospace developments that could impact operators, airlines or air forces in these regions and publish **SHOW BUSINESS** airshow dailies for events such as the Dubai Airshow, Bahrain International Airshow, Aero Expo Marrakech, MEBA and many other regional events, all supported by daily online news services.



A new breed of aircraft could be the ideal trainer for the Gulf's growing carriers.

Liz Moscrop reports.

Aussie firm with a foxy new trainer

Foxcon Aviation, a producer of light sport aircraft (LSA), has had a brush with success in Australia and is now expanding its paw print to the MENA region.

The Australian firm has appointed Algeria-based Yahia Almouboudi as its exclusive agent in the region.

He explained: "We are searching for partners and investors in the region as we are looking to build a facility in Libya or Algeria, or possibly Qatar or the United Arab Emirates."

The reasoning is clear. LSA products are economical and ideal for flight-training applications. And, as Almouboudi pointed out, flight-training is a growth area in the region.

He explained: "When you look at the expansion of the likes of Emirates and Qatar, you can see there is a real need for cost-effective, yet robust trainers."

Foxcon's range of aircraft is the result of global national airworthiness authorities (NAAs) adopting similar rules to address advances in sport and recreational aviation technology.

LSA rulings aim to allow for the manufacture of safe and economical light sport aircraft. In June 2008, Foxcon used the guidelines to create its Terrier 200 type.

Key to success

The company says that the key to the aircraft's success is its lightness. Its maximum take-off weight of just 600kg comes from a construction that comprises a perforated foam-like board placed between the two layers of fibreglass, which loses its resin during the vacuum-moulding process as it is sucked through the board's perforations, bonding the two layers and providing very high-strength skin. This is particularly valuable when constructing the fuselage and aerofoils.

Its propeller is made of carbon composite, rather than wood, which can be subject to fatigue and distortion when entering rain during flight.

Its numbers also stack up favourably when compared to heavier types, such as Cessna's ill-fated, yet practical, Skycatcher. The Terrier200



The Foxcon will now be seen in Algerian skies.

is priced at \$59,600 (according to the company's website) rather than the \$95,500 for the Skycatcher.

It also offers a 600nm range, lands in 100 metres and cruises at 110kts. It is not particularly thirsty either, with a fuel burn of 13 litres per hour, as opposed to the Skycatcher's 22 litres. It can also come with a glass cockpit, depending on customer specifications.

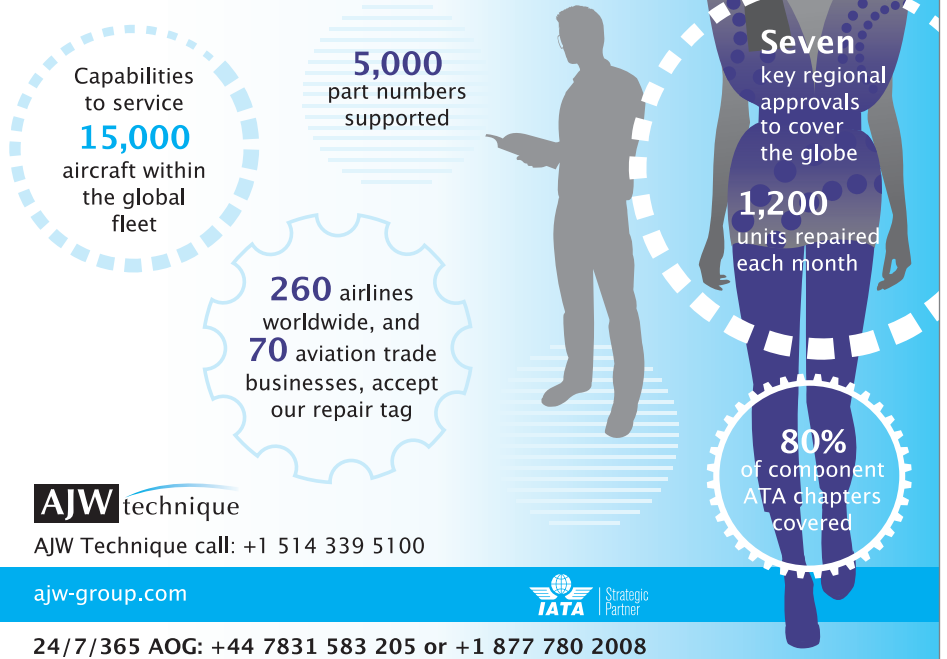
As a private pilot who has been involved in aviation for several years, Almouboudi said he could see the potential across the region as commercial carriers expand their routes and the requirement for pilots grows.

Indeed, should Foxcon succeed in its ambitions it will join Italy's Tecnam, which has already had some success in the Gulf, with an installed fleet of at least 11 of its 14 different types. Distributor Aviation Home is one of the largest distributors in the Middle East region (GCC countries) and is Tecnam's sole distributor in Qatar.

Although Cessna only sold 195 Skycatchers, there are around 50 companies still producing LSAs, which are ideal for flight-training applications, as they are both robust and economical. "I believe this product could succeed in the Middle East first," said Almouboudi, "and then expand into northern Africa."

Our vital statistics

Transforming aviation efficiency



The two-day Global Space Congress (GSC) returns to Abu Dhabi from January 31 - February 1 at the St Regis Saadiyat Island Resort. Steve Nichols looks forward to the event.

Space on the launch pad of opportunity

The GSC has its roots in the global space and satellite forum (GSSF), which has taken place in the Emirate since 2008.

At its launch, the GSSF spearheaded the region's space ambitions, bringing together stakeholders and creating awareness of the need for an organised space sector in the UAE.

The event has since evolved into the GSC, and is being held in Abu Dhabi, the home of the UAE Space Agency, in order to reflect its stature as the premier space event in the region.

So what can we expect?

Organiser Streamline Marketing Group (SMG) says the congress will support the region's on-going space projects and initiatives. It also sets out to establish the region as a "central contributor to the global industry of space exploration through its support for pioneering projects, space education and research, commercial space applications and scientific and commercial missions".

High-level speakers

The list of high-level speakers is still growing, but includes Professor Sir Martin Sweeting, executive chairman of small satellite specialist SSTL, and George Whitesides, chief executive officer, Virgin Galactic.

Others include Soichi Noguchi, head of the astronaut group, Japan Aerospace Exploration Agency (JAXA) and Prince Sultan bin Salman bin Abdulaziz Al Saud, secretary general, Saudi Commission for Tourism and Antiquities.

The UAE Space Agency will be represented by HE Dr Mohammed Al Ahbabi, director general, and Sheikha Al Maskari, chief innovation officer.

SMG managing partner, Nick Webb, said: "The industry is undergoing a massive shift wherein there is a significant private sector role and involvement in space technology research, development and business.

"The event will unite 600 executives and senior decision-makers from the space and satellite sector and connect new space business ventures with traditional players and seek to find opportunity for new firms.



"GSC is a perfect opportunity for anyone who wants to meet with the leaders from key space and satellite projects from countries such as Morocco, Pakistan, India and many others. We are looking forward to welcoming the global space community to the UAE."

UAE investment in the space sector has surpassed 20 million AED (\$5.4m) and the UAE Space Agency continues with its drive towards developing international connections and increasing knowledge transfer within the industry.

According to The Space Foundation, the global space industry is now worth more than \$330 billion worldwide, with commercial space activities making up more than 76% of the global space economy.

International space players are increasingly looking towards cooperation and partnership and the UAE is leading the Middle East region in terms of driving space activities and building global space agreements.

HE Dr Khalifa Al Romaiti, chairman of the UAE Space Agency said: "We believe that Abu Dhabi is well suited to host an international forum that will address the major developments happening in the space industry worldwide.

"Our vision is to develop an innovative and thriving space industry that allows sector leaders to collaborate and work together to achieve success and bring benefits to mankind.

"GSC will be the ideal opportunity for knowledge transfer and exchange of best practices and an international event of this calibre will help us in achieving our vision."

The UAE has one of the pre-eminent emerging space industries. It has a number of projects under way, including the Hope space probe that will land on Mars in 2021.

Hope is planned for launch in July 2020, arriving at Mars seven months later, in time for the celebrations marking the 50th anniversary of the UAE's foundation.

Once in orbit, Hope, which was named after a public campaign, will explore the Martian atmosphere using scientific instruments that include visible, infrared and ultraviolet spectrometers.

Its data should help scientists build a holistic model of the planet's daily and seasonal cycles, and may explain why Mars lost a lot of its atmosphere to space.

The agency is also planning the launch of the KhalifaSat Earth-observation satellite in 2017.



HE Dr Mohammed Al Ahabbi, director general, UAE Space Agency. Far left: The 2015 Global Space and Satellite Forum.

KhalifaSat will have a mass of 350kg and orbit roughly every 90 minutes at a height of around 600km.

It will better the resolution of the UAE's DubaiSat predecessors, thanks to developments in imaging sensors and optics.

The Emirates Institution for Advanced Science and Technology's (EIAST's) first satellite, DubaiSat-1, was launched in 2009, and passes over the UAE four times a day providing 2.5metre resolution colour images. The much bigger DubaiSat-2 was launched in 2013, providing 1m resolution panchromatic (black and white), plus 4m multispectral (colour) photographs across a 12km-wide imaging swath.

With its four solar panels, KhalifaSat will have a resolution of 0.7 metres for panchromatic images and 2.8 metres for multi-spectral imagery.

The satellite will be able to store 1,024 images, each representing a 12km x 12km area. The total image size that can be stored will be 12km x 1,350km.

Another UAE educational space project is the Nayif-1 CubeSat. Engineering students from the American University of Sharjah (AUS) have

built and will launch the UAE's first CubeSat into space as part of a senior design project.

A CubeSat is a nanosatellite with a standardised and simplified cubic design, weighing about 1kg and with sides around 10cm long.

The student-built Nayif-1, which means "one that soars high above", is scheduled to be lofted from Florida aboard a Falcon-9 rocket once SpaceX is confident it has overcome its recent launch issues.

The CubeSat mission is a partnership between AUS, the Innovative Solutions in Space Company and EIAST.

The mission aims to offer Emirati students from various engineering disciplines hands-on experience at designing, testing and operating a communications satellite.

The nanosatellite will produce a communication footprint ranging from 5,000-5,500km and can orbit at a height between 450km and 720km for up to three years.

A ground station has been built at AUS and will be operated by engineering students, who will be responsible for mission planning and operations.

Dr Mohamed El Tarhuni, professor and

associate dean of the College of Engineering at the university, said the project had been a "very exciting and fruitful experience for the students".

Nayif-1 will carry a transponder (FUNcube-5) for amateur radio communications and is expected to launch along with other amateur radio satellites by the end of this year.

The UAE Space Agency recently signed major memorandums of understanding (MoUs) with a number of international players, including space agencies in the UK, France, Italy, Russia, China, India and Japan. These agreements form part of the UAE Space Agency's strategy towards raising awareness of the space sector in the UAE.

It also encourages nationals to learn more about the industry and its importance in shaping a sustainable, diversified economy that is knowledge-, rather than resource-, -based.

Additional events

The congress will also host several additional events as part of the 'next-gen space initiative', including a university roadshow, 'launchpad: careers in space' and the GSC youth lecture.

The university roadshow will be an opportunity for students to discover what it is really like to have a career in the space sector, what the key challenges are and what is necessary to win a place in an industry identified as a key UAE development area.

"Launchpad: careers in space will run during the two days of the congress and will give students and young professionals the opportunity to learn about the broad range of career options in the space sector.

The youth lecture will be presented by global leaders in the space sector, celebrating the opportunities space brings in an effort to inspire the UAE population.

This is aimed especially at young nationals and their parents, to take an active interest in space, to promote the importance of science, technology, engineering and mathematics (STEM) education and to promote the vision of the UAE's leadership.

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Keith Mwanalushi speaks to Jeppesen's Tony Weatherington to explore the growing popularity for airport and airspace modelling systems and, in particular, their application in the Middle East region.



Understanding the best utilisation of existing infrastructure is a key feature of TAAM. PICTURE: JEPPESEN

The model solution...

In June this year, Boeing subsidiary, Jeppesen, announced a new technical assistance agreement with iGA Havalimani Isletmesi AS (IGA), the developer and operator of Istanbul New Airport in Turkey.

The announcement sparked renewed interest in modelling systems for air traffic management and airport operations.

Through the agreement with IGA, Jeppesen will provide its total airport and airspace modeller (TAAM) solution to assist the Turkish airport authorities – the General Directorate of State Airports Authority (DHMI).

Airspace and airport modelling tools are used to create and analyse virtual, simulated scenarios to test various air traffic management (ATM) theories.

Tony Weatherington, Jeppesen TAAM product manager, refers to these systems simply as simulation and modelling. “Within this paradigm, a computer model of a given scenario is created in which a user is able to build and

form a world in which ATM operations are governed by a certain set of rules, procedures, and settings,” he explained.

This model is then simulated using a simulation engine, such as Jeppesen's TAAM solution. “The simulation moves traffic through the world model, and the user is ultimately able to analyse how that particular model performs in relation to other models,” said Weatherington.

For example, he described a scenario where a user may choose to compare a “today” version of an airport's infrastructure and standard operating procedures to a master plan depiction of the airport in 20 years' time to analyse the potential benefits of implementing the master plan. “By attempting to utilise the same flight traffic schedule for both models, the user receives a quantitative comparison of the manner in which each option is able to cope with the traffic demands being placed upon it. In this way, stakeholders can make more informed decisions regarding projects, ranging from major

infrastructure upgrades, such as runway and taxiway construction or airspace reconfiguration, through to minor changes, such as taxiway path reconfiguration or revised route assignments,” Weatherington elaborated.

Jeppesen believes that any entity wishing to better understand the world in which they operate, and plan for the future, should be using simulation to analyse available alternatives to present conditions.

The company's TAAM solution is used by three types of entities: civil aviation agencies (CAAs)/air navigation service providers (ANSPs), airlines, and airports.

“The most common usage of TAAM, especially within today's environment, is to better understand how to best utilise existing infrastructure,” said Weatherington. “Because TAAM allows for unlimited what-if scenarios, airports, airlines, and ANSPs can test different operational scenarios utilising the infrastructure

Continued
on Page 88



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CONTINUED FROM PAGE 87

currently at hand and compare those options to future expansion plans, or future operational shifts due to implementation of advanced technologies.”

Looking closer at the solution, TAAM is also used by entities seeking to expand their operations, whether it is an airport planning a major infrastructure upgrade, an airline looking to significantly increase its scheduled operations, or an ANSP seeking to mitigate the impact of an increasing traffic forecast.

The virtual “what-if” environment of the simulation allows for experimentation that otherwise could not be done in real time, or would cause significant negative impact upon a real-time operation should the alternative prove to be untenable.

The implementation process for acquiring a product such as TAAM is fairly basic. Weatherington said: “Once an airport chooses to move forward with a software licence or licences, Jeppesen provides a basic training course to airport staff in order to familiarise them with the basic functionality of the software. Advanced courses may also be arranged on an as-needed basis.”

Following training, it would be possible to construct a model of the airport from scratch and begin performing analysis as needed.

Weatherington said the largest investment for a new user is simply time. “Time must be allotted to training users and to allowing those users to construct and analyse simulations.”

Consulting services

For airports that do not have dedicated staff to perform simulation tasks, Jeppesen can provide end-to-end simulation consulting services, where its staff perform a complete analysis, or it can provide partial project assistance.

Weatherington explained: “Many customers will contract Jeppesen to create the initial model of their airfield and to work side-by-side with their staff on the first simulation project undertaken. Following such a joint project, data files are handed to the airport so that it may continue on with its own studies independently of Jeppesen.”

Back in Istanbul, the Jeppesen TAAM analysis tool will be used with the IGA and DHMI teams to conduct studies that would potentially maximise Istanbul New Airport runway operations and overall airspace capacity and efficiency. Maintaining safety and minimising airspace conflict within the regional Istanbul terminal control area is another key aspect of the project.

Several operational procedure alternatives will be simulated and analysed by TAAM to assist the new airport’s airspace and runway optimisation process. Both IGA and DHMI personnel will be trained to use the TAAM solution, allowing active participation in the project, as well as the ability to conduct their own continuing analysis projects, following the delivery of Jeppesen’s analysis. The project is currently on-going.

The Gulf Cooperation Council (GCC) is



Simulation is seen as a vital tool for planning for the future.

spending \$100 billion in airport expansion and construction projects on the back of a projected annual surge in travellers over the next 20 years. The International Air Transport Association (IATA) is projecting that Middle East passengers would grow by 4.9% per year to 2034.

Airports in the Middle East ought to prepare and not become a victim of their own growth. As airports begin to get busier, airport operators will, no doubt, be seeking a means of maximising the overall efficiency of their airports and planning for the future.

Ideal platform

“TAAM allows them to do both,” Weatherington suggested. “It is an ideal platform for analysing every possible potential scenario for utilising existing infrastructure at an airport, providing a consequence-free environment for testing all possible ideas for maximum utilisation, whether those ideas are related to gate usage parameters, taxiway patterns, runway sequencing, or full-on construction or reconfiguration options.”

It’s clearly imperative that systems such as these are able to provide airport operators with a quantitative view of how all possible outcomes will potentially perform, as well as a graphical depiction of the given scenario. “When the time comes to plan for major future projects, TAAM can assist in providing valuable insight into how those future systems are likely to perform.”

Weatherington feels simulation at the start of any major project can potentially save millions of dollars, as the consequence-free environment of the simulation is such that airports can identify

infrastructure that will be underutilised or counterproductive before going to the expense of construction and implementation of real-world operations.

“Airports embarking upon major master plan projects spanning many years can definitely benefit from this analysing all possible scenarios for overall throughput, delay, and conflict numbers in order to choose the best possible solution for their individual demand requirements,” he added.

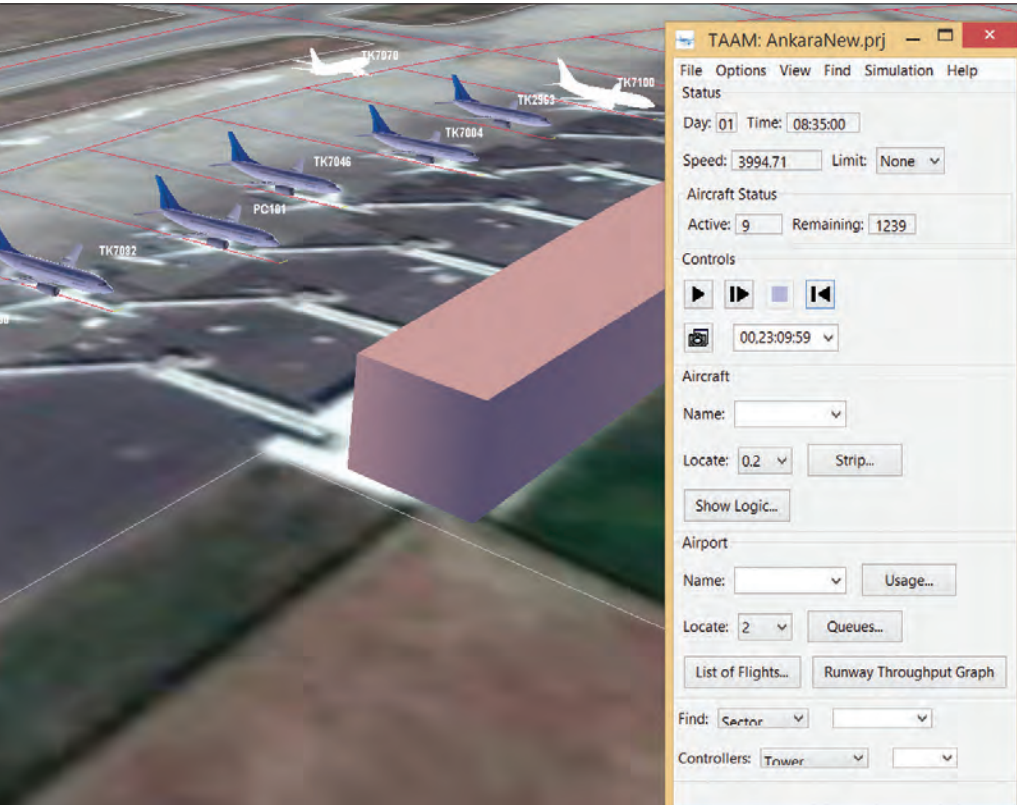
An increasingly congested airspace over the Middle East could cost the region \$16 billion over the next 10 years if the issue remains unresolved, according to air traffic management company NATS.

These will primarily be in terms of significant traffic delays and fuel costs.

It seems the overarching problem in the Middle East is a lack of regional coordination in airspace management, due to concerns over sovereignty issues and also political involvement.

Organisations such as NATS support the concept of a regional ATM solution, as many of the issues being faced by GCC states cannot be completely addressed within their own borders. If one state invests heavily in new systems and training for its people to raise the capacity of its airspace, it will not fully achieve the benefits unless enhancements are coordinated with its neighbour.

Weatherington acknowledged the problem but noted that airspace congestion was not an issue exclusive to the Middle East region, “though with the rapid rise of the Gulf carriers in recent years, it is being felt quite rapidly and acutely”.



ANSPs and airports face similar problems, in that both are asked to process a given number of aircraft at specific times. “Unlike airports, airspace is a much more finite resource,” he said.

It’s obvious that the volume of airspace available cannot be changed, so it must, therefore, be used more efficiently. Refining and validating airspace design becomes more and more significant as demands upon airspace increase.

Constantly re-evaluated

“Airspace must, therefore, constantly be re-evaluated as technology advances and the means develop to process more aircraft through the same volume of airspace.”

New surveillance technologies, such and aircraft navigational functionality, are allowing for more densely utilised airspace while maintaining an acceptable level of safety.

Weatherington concluded by saying Jeppesen’s airspace solutions team specialises in the evaluation and design of airspace, from individual procedures to complete systems. “Utilising this expertise in conjunction with simulation, a complete picture can be provided of airspace performance before and after any refinements or updates are made,” he said.



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Working towards a common goal is vital for airport operators and the national carrier. Keith Mwanalushi looks at how Abu Dhabi International Airport is preparing for the surge in passengers, especially from Etihad Airways.

GATEWAY TO GROWTH

The on-going construction of the Midfield Terminal Building (MTB) at Abu Dhabi International is in response to the anticipated growth in passenger throughput at the airport. The new gateway is expected to accommodate 30 million passengers annually by the time it opens in 2017.

Abu Dhabi International Airport (AUH) has witnessed the completion of several key infrastructure projects over the last few years; an indication of the growing trend for air travel through the Emirate. “The growth in passenger traffic is testament to Abu Dhabi’s status as a hub for regional aviation and aerospace, and we remain steadfast in our commitment to deliver a world-class experience,” said Abdul Majeed Khouri, acting CEO at Abu Dhabi Airports.

Total traffic for the first six months of 2016 reached 11,848,359 passengers, representing a 6.6% increase from the 11,111,577 in the first six months of 2015.

Rise in traffic

Services to Mumbai (still referred to as Bombay by many in Abu Dhabi) have seen a significant rise in traffic, mainly due to an increase in capacity from flag-carrier Etihad. The airline added A380s to the Indian city’s service earlier in May.

“January and March have been the busiest period for Abu Dhabi International Airport in the first half of the year, with passenger traffic exceeding two million in both of these months,” Khouri added.

Figures for August 2016 showed a similar growth curve, with 2.3 million passengers, marking an increase of 2.3% compared to August 2015.

Traffic to the UK and Saudi Arabia also rose by a considerable margin, while services to and from Egypt saw a rise of 26.6% since the start of the year after Etihad’s introduction of thrice-daily flights, and EgyptAir’s increased service of 13 flights per week.

The airport’s continued capacity enhancement



programme (CEP) and the Midfield Terminal are designed to accommodate growth in both passenger and aircraft traffic. In order to accommodate the increase before the MTB becomes operational, the multi-billion Dirham CEP was implemented and is already well under way. This programme focuses on the existing infrastructure at AUH.

The airport currently serves more than 100 destinations in 56 countries. In excess of 23 million passengers used the airport in 2015 and more than 40 million are expected per year within the next decade, according to the airport authorities.

“Over the summer season [2016] we altered the layout of the entrance to terminal 1 in order to ease passenger flow into the airport,” said Khouri. In addition, he stated that with the implementation of a concept known as “smart travel” AUH managed to increase its passenger processing by 70%.

The airport’s smart travel system was inaugurated earlier this year. Khouri explained: “The system consists of self-check-in and baggage drop facilities, automated passport control gates equipped with biometric verification functions and facial recognition technology, and smart boarding gates, allowing passengers to check-in and move through immigration and security, interacting only with innovative technology.”

In the meantime, Etihad is pushing forward with plans to expand its footprint from its home

base. Last month (October), the carrier upgraded services to Riyadh in Saudi Arabia from a single-aisle Airbus A321 aircraft to a Boeing 787 due to strong demand. The daily 787 service now complements an additional 777 daily rotation.

Kevin Knight, Etihad’s chief strategy and planning officer, said the 787 was playing a key role in the fleet expansion strategy. “We are delighted that Riyadh has joined our 787 cities, giving guests a different experience to and from Abu Dhabi, and offering convenient connections to destinations across our diverse worldwide network.

Cargo capacity

“The aircraft also provides significantly more cargo capacity to facilitate the movement of a greater number of goods to and from the Saudi capital. The Kingdom of Saudi Arabia is a very important market for Etihad Airways, supporting our global expansion since the launch of services 13 years ago. Our commitment to the Saudi market has grown since we began flying to Riyadh in 2004, steadily increasing our presence to the current 63 flights each week to and from four Saudi cities.”

Also last month, new daily services were launched to Venice, Italy. Together with Alitalia, its codeshare and equity partner, Etihad Airways will offer 35 weekly flights in and out of Italy, including double daily services to Rome and Milan.

MTB is taking shape and set to open next year.



In February next year Etihad will add three weekly flights between Abu Dhabi and Sydney, Australia to operate a double-daily schedule on the route. This enhancement to the schedule comes with the move by strategic partner, Virgin Australia, to shift its Australia to Abu Dhabi operation from Sydney to Perth from June 9 2017.

In preparation for the added passenger numbers, several new facilities were expanded at AUH, which Khouri believes has already significantly improved the speed, efficiency and enjoyment with which passengers move through the airport, as well as enabling more aircraft to depart.

Some of the added features include the installation of 350 metres of new walkways directly linking the passenger arrival gates to the immigration halls and transfer screening facilities; the opening of nine new code E aircraft stands to accommodate the increasing number of large aircraft at the airport; and the introduction of 16 state-of-the-art X-ray screening machines capable of processing 2,000 passengers an hour, enabling transfer passengers arriving at terminal 1 to proceed directly to terminal 3 without the need for further screening.

AUH has also become the first airport in the region to be awarded ISO 22301 certification – the internationally recognised benchmark of good practice in business continuity management, reflecting a company-wide commitment to holistic planning for airport operations.

“In accounting for contingency planning, crisis

recovery, and ways to cope with several other forms of disruption across an organisation, the business continuity management team at Abu Dhabi Airports has exceeded expectations in its mission to deliver a world-class experience for passengers, operators, and staff,” Khouri said.

In essence, ISO 22301 certification assures all AUH stakeholders that the airport operates with the highest standards, utilising best practice in planning and execution.

Luggage screening systems

Dealing with an increase in passengers also requires investment in new passenger luggage screening systems. In August, Abu Dhabi Airports installed a new automated tray return system (ATRS) to speed up the process of hand luggage screening at terminal 3.

The airport operator said the new system allowed for the processing of bags more than four times faster than conventional screening lanes, reducing wait times and congestion, and providing a smoother travel experience for passengers.

Unlike the conventional system that allows only one passenger at a time to load their belongings into the tray, the ATRS provides four stations at which travellers can simultaneously prepare their bags for screening.

The ATRS also has two buffer stations, seven redress stations for cleared trays, four reject stations for suspicious trays, and two search stations. According to Abu Dhabi Airports, the

system operates with what is called a ‘Hi-Scan 7555 atix’ machine and is equipped with two operator workstations allocated remotely in an imaging room, through which the live images can be analysed separately.

Any trays containing suspect belongings can be diverted to the search area for further investigation, away from the cleared lane.

The crowning moment will, of course, be the MTB when it opens in December 2017. The structure is expected to be one of the largest single buildings in Abu Dhabi, and one of the region’s most architecturally impressive.

Khouri said the 700,000sqm landmark would be visible from more than 1.5km away and, with sustainability in mind: “The form, shape, materials used and sophisticated energy and water monitoring systems, have all contributed to the terminal building receiving a 3 pearl design rating from the Estidama Pearl Building Rating System (PBRS).”

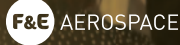
Khouri reported that, in June 2016, the final de-propping of the last arch in the roof of the MTB was completed, which means the structure is now completely self-supporting. “Over the next few months we will begin building the stand-alone retail units in the duty free area of the building,” he said.

In addition, 39 of the 106 passenger boarding bridges have been installed and the exterior enveloping and glass glazing of the new terminal looks like it is quickly advancing.

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“If there’s a global agreement, we need to look into how best we can adapt to that agreement.”
ABDUL WAHAB TEFFAHA

The bitter row between US and European airlines on the one hand, and Gulf carriers on the other, over alleged subsidies, may have dropped out of the headlines over the past year, but politics will continue to play a major role in the deliberations of AACO members as they meet in Morocco.

Both within the Arab world and beyond, politicians will continue to affect the fortunes of AACO members, either by their actions, or inaction.

Nowhere is this more apparent than in the longstanding problem of aircraft emissions. The measures that governments are taking to limit them will again be on the agenda at Casablanca.

“Fortunately or unfortunately, the AGM will take place after the conclusion of the International Civil Aviation Organization (ICAO) Assembly,” said Teffaha.

“The reason it’s so crucial, not only for Arab aviation but also for global aviation, is that the Assembly is going to address the issue of agreeing global market-based measures (MBM) to tackle the emissions issue.”

The need for the ICAO to achieve agreement on this topic is vital, said Teffaha. “Hopefully, that will enable governments to focus on getting that agreement implemented rather than having unilateral initiatives that would create problems, similar to what happened when the European Union (EU) initiated its emissions trading scheme (ETS). It became an international dispute.”

The ETS led to outrage among non-

EMISSION POSSIBLE?

As airline executives prepare to gather for the Arab Air Carriers Organization (AACO) annual general meeting in Casablanca, secretary-general Abdul Wahab Teffaha talked to Alan Dron about the main topics to be debated...

European carriers, which objected to the extraterritorial application of European legislation to their services. Under the European plan, any flights operating in or out of EU airspace were to be charged for the entire length of their journeys, no matter if the bulk of them were outside the EU.

“The AGM is going to be a good place to ponder the results of [the Assembly] because up to now nothing is guaranteed on this front,” said Teffaha.

“If there’s a global agreement, we need to look into how best we can adapt to that agreement, especially in the light of the Arab airlines having the most efficient fleet. When you have an efficient fleet, introducing new efficiencies is not going

to be an easy challenge. But at least we are doing the right thing in terms of environmental friendliness.

“Conversely, if there is no agreement, that will be a bigger challenge because we will be facing a plethora of unilateral initiatives and, according to what EU officials say, a return to the ETS, which was a headache to all [airlines], regardless of where in the world they were located.”

More widely, the topic of regulatory regimes will never be far below the surface at the AGM. Morocco, noted Teffaha, has an open skies agreement with the EU “and there are lessons to be learned from that”.

For the past two years

Continued
on Page 94

CONTINUED FROM PAGE 93

the EU and the Gulf Cooperation Council have had a dialogue on how to develop aviation between the two blocs. The hope is that this will lead to a more liberal regime governing airline services.

“Airlines should be allowed to operate anywhere and compete,” argued Teffaha. “I’m talking generally, not on behalf of Emirates, Etihad or Qatar Airways.”

Achieving such a situation means overcoming what Teffaha referred to as ‘neo-protectionism’, which, he said, reared its head every few years.

“The issue is ultimately that some airlines don’t want to have effective competition against them. At the end of the day, airlines should aim to serve their customers better. This is what we are there for; the airline has to address consumers’ aspirations.”

Even if airlines did not want competition, their governments usually did: “Most governments understand that competition is better for the economy because it’s better for the consumer. Ultimately, governments will appreciate that proper competition, not trying to protect inefficiencies, is the right way to go.”

High level of awareness

On the subject of efficiencies, progress was being made in solving the growing problem of air traffic management in parts of the Middle East, particularly in the Gulf. The AACO’s persistent representations on this subject had created a high level of awareness of the problem at government level.

As a result: “We’ve seen a gradual improvement. This is something that cannot be done overnight. Decision-makers have to be convinced that it’s better to invest in that area and to make changes to allow airlines and the economy to grow.

“We’ve seen improvements in the UAE, Oman, Qatar and Saudi Arabia. Is that enough? No. It’s something that needs to continue. We always need to improve the situation.

“What we’re aiming at is, hopefully, to create a regional flow traffic management system, not only in the GCC but at other choke points, so that traffic won’t just move from one bottleneck to another.”

One of the biggest political developments in the region in the past year has been the easing of western sanctions on Iran. Relations between several Gulf states and its eastern neighbour remain tense, with Saudi Arabia and Bahrain being among Arab nations that have suspended flights to Iran following the execution of a Shia cleric in Saudi Arabia at the start of the year and



Casablanca: host city for this year’s AACO AGM.

Tehran’s angry reaction to the event.

“Geopolitics aside, which we have no control over, I think opening up any country is an opportunity for airlines.” However, Teffaha felt that some estimates of the scale of the Iranian market had been exaggerated.

“Some people thought that there would be a 30 million passenger market there, but that market needs to evolve into maturity. It won’t happen overnight.”

Also prone to exaggeration, he felt, were opinions on the speed of development of the low-cost carrier (LCC) market in the Middle East. These were already popular as a means for passengers to get from A to B inexpensively. However, whether they would become as commonplace as their LCC counterparts in the US and Europe remained to be seen.

Regulatory changes would be required: “Let’s not forget that the US is one country, so freedom to operate has no business restrictions whatsoever and, in the EU, the single market means that it operates as though it’s one country.

“Reaching the same level of development in the Arab world requires a

similar change; it doesn’t have a single aviation market, so progression will take a longer time to reach the same level of maturity as Europe.”

With each Middle East country keeping tight control of its own aviation market, that situation was unlikely to change soon, said Teffaha, but some companies were finding ways around this problem of fragmentation.

Foreign shareholders

Sharjah-based Air Arabia, for example, faced with restrictions on the extent to which an airline could be owned by foreign shareholders, had worked within the existing regulatory regime and struck up partnerships with existing airlines around the region. It now had operations in Egypt, Jordan and Morocco, as well as in its UAE base, which all used the same branding.

The AACO now has 31 members. Teffaha pointed out that some were continuing to operate in the most difficult conditions, as conflict wracked their nations. Remarkably, Yemenia, Libyan Airlines and SyrianAir, were all still conducting at least some flights as they struggled to maintain services for their passengers, providing lifelines for people who needed to get in and out of their respective countries.

Whether any representatives will be able to make the journey to Casablanca remains to be seen, but even if they are not there in person, their efforts will be applauded by their fellow-AACO members.

Yemenia’s struggle to survive has been remarkable, Teffaha said.



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Turkey's premier showcase – the Istanbul Airshow – offered an opportunity to see how the local industry is faring. **Alan Peaford and Marcelle Nethersole** were at Ataturk in October to report.

WHY THE SHOW GOES ON – DESPITE THE THREAT

Turkey's aerospace sector is showing resilience in the face of a series of setbacks that became even more apparent as the industry came together for the Istanbul Airshow, held at the general aviation ramp at the city's Ataturk International Airport.

There had been questions about whether the show would ever go ahead following a series of incidents in Turkey. And, indeed, midway through the afternoon of the opening day, the show site literally shook as a bomb exploded just a few kilometres away.

The reaction by the many Turkish firms on display was a calming influence on international visitors and exhibitors. Within minutes, it was clearly business as usual.

This was a theme that had embodied the preparations for the event, which has seen a name change from the previous Airex, to today's Istanbul Airshow. It had been a tough few months.

Feyzan Erel, from show organiser Mint, said: "After Turkey's downing of a Russian war plane last November, everything starting deteriorating very fast. The economic downturn was followed by bombings – the worst on our



side was the attack on Ataturk Airport." This was followed by an attempted coup against the Turkish president in July.

"As the organiser, we had to make a quick decision – either cancel everything or go on despite the difficulties," Erel said.

"After talking to the Government and to our sponsors, we decided the show must go on. Turkey is at a historical turning point. We had to utilise all the power we had for the air show, despite some of the companies seeing Turkey to have a 'terror risk'.

"Despite everything, we are hopeful

The Turkish Airlines Boeing 737-800 – the 1000th to come off the manufacturing line.

about the future. This country, and its aviation future, will go on to progress consistently."

While aircraft on the static were down on the 2014 event, the exhibition hall was packed – particularly with the growing Turkish supply chain and a number of international exhibitors, such as Boeing, Airbus, Dassault and Leonardo, who continued to support the event.

Boeing had the largest aircraft on the display line with a recently delivered 737-800 – the 1000th to come off the manufacturing line – which is operating with national carrier Turkish Airlines.

Academy aims to train cabin crew to be in a class of their own

Former flight attendant, Tuba Yeramyian, is now one of four cabin crew trainers at Istanbul Aviation Academy, located just by Ataturk airport.

Yeramyian said it is paramount that airlines make sure its cabin crew are trained correctly.

"A flight attendant is responsible for ensuring passenger safety and comfort by fulfilling flight safety measures deemed suitable by national and international civil aviation authorities," she explained. "This is in accordance with operating instructions, which are connected to the airline's quality and flight safety standards during the flight duty. The aim of the Istanbul Aviation Academy cabin crew course is to train the ideal candidates in compliance with the national and international legislation, to a first-class standard."

The company, which was set up in 2014, offers its mock-up training at the Turkish Airlines facility.

The airline is one of the academy's customers, along with Borajet and Sun Express, to name but a few.

The company also offers a dispatch training programme, which has been approved by Directorate General of Civil Aviation.

"We expect our dispatch trainees to comprehend necessary procedures within flight standards and safety limits and to get into the habit of all control steps when they apply theoretical information during a flight operation within this scope," said Yeramyian.

Other courses available at the academy include aviation English, dangerous goods regulations and airline management.



Tuba Yeramyian - ensuring cabin crew are ready for the challenges.



Ozgun Aydin: We are setting our sights on the CIS countries, as well as the Middle East and Africa."

Confident Kaan

Turkish distributor and operator, Kaan Air, attracted plenty of attention as it showed the Leonardo AW169 to the Turkish market for the first time.

The light twin in its 10-seat VIP configuration is the first of light helicopters to be able to fly in known icing conditions.

With full authority digital engine control (FADEC) and a number of innovative safety features, Kaan is confident the 169 has a great future in Turkey.

TSI Aviation Seats ready for take-off

TSI Aviation Seats is a relative new kid on the block, after being established in 2012 as a joint venture between Turkish Airlines and Kibar Holding.

"Our aim was the design, production, repair and marketing all types of aircraft seats and the supply of their spare parts," said Ozgun Aydin, sales and marketing division manager. "We particularly wanted to provide support to Turkish Airlines, both as an investor and as a customer."

The company's first seat product was the Elea. While built for economy-class, it also has convertible options for short range. Its launch customer was, naturally, Turkish Airlines.

"We are proud that Turkish Airlines chose the Elea to be installed on its B737s and A320 families," said Aydin. "This year we also managed to sell the seat to Russian company Nordavia Airlines."

The company's second seat product offering is Sky Sofa. The long-range economy-class seat weighs 14.5kg and is equipped with articulated seat bottom, as well as in-flight entertainment (IFE) integration, which includes an 11.1 inch smart monitor.

"Sky Sofa is built for the A330 and B777 aircraft and has been line-fit approved," said Aydin. "If all goes well, a customer from the Pacific Ocean will be its launch customer."

Aydin said that the company has generated a great response, and that includes outside Turkey. "As we are new to the market, we are still learning and have a long way to go but, already, we are firmly known here in Turkey. Now we are setting our sights on the CIS countries, as well as the Middle East and Africa," said Aydin.

Aydin added that, while TSI has a speedy turnaround in seat production, it is also competitive when it comes to the cost.

"Our cost base is very good compared to our competitors," he said. "Firstly, 80% of the seats are manufactured and produced in Turkey, using Turkish raw material, with only 20% from foreign suppliers, which is an attractive trait for customers. Plus, our costs are in Turkish Lira, so this is also an advantage for us and our customers."

The company is now in the concept design stages of creating a business-class seat and Aydin said a lightweight seat was also possible.



Gurcan Malli: casting off the chains.

Swan gliding into a brave new future

Swan Aviation was established in April 2007 for the management of business aircraft.

In March 2008, the company required an aircraft operator's certificate (AOC) approved for both fixed-wing and rotary-wing aircraft operations. It received its first aircraft the same year.

Originally, the company set out to target the middle Asian market, with its first two customers being in the Ukraine and Kazakhstan. However, the major aviation financial crises struck in 2008 and things took a different direction.

"When the crisis happened, our customers had to sell their aircraft and all of a sudden we ended up being a local company," said Gurcan Malli, general manager. "So now all of our aircraft belong to Turkish customers, and we are still expanding here."



Today, the company has 13 aircraft in operation. Two of them are helicopters – a new A130 based in Bodrum, which is dedicated to high-end individuals, and a Sikorsky S76C++ in Istanbul belonging to a corporate customer, but which also does charter business.

"In our fleet we have a range of aircraft, from the Hawker 800 up to Falcon 7X and we are looking to get a Global XRS by next year," said Malli. "The plan is that, by the end of 2017, we expect to have 20 aircraft."

Turkey is now a key player in the aviation industry and Malli said there is a 'simple' reason for this.

"Turkey learnt how to do business," he said. "We got rid of the chains that were holding us to the ground, and those chains didn't belong to us. Turkish people started doing business around the world and they needed transportation, it's that simple."

Malli added that the company is still very keen to work on its Asian portfolio. However, one continent it has no current interest in is Africa.

"We don't wish to touch Africa at present," said Malli. "It's just too corrupt there, everyone knows that. I don't feel comfortable to work there and, besides, there isn't a deep enough market there. I feel Swan Aviation would need to be a corrupt company in order to work there, and there is no way that we are corrupt, or ever will be."



The Pilatus PC-12 was a major draw for AMAC - the company's new MRO facility at Bodrum is also drawing attention.

SWISS ROLL INTO TURKEY

The Turkish city of Milas Bodrum, close to beaches and mountains, is a popular spot and, in the summer months, its airport manages 20,000 movements a month.

The airport has little support for operators but all that will change early next year when Swiss maintenance and interiors specialist, AMAC Aerospace, opens a new maintenance, repair and overhaul (MRO) centre.

Now fitted with a nose box, the 4,500sqm hangar will accommodate a Boeing 777 or two A320 or Boeing 737s instead, as well as a handful of Pilatus PC12s. AMAC is the distributor for the Middle East and Turkey for the Pilatus PC12 and for a number of Falcon jets.

The new facility complements AMAC's 85,000sqm completions and MRO facility at its Basel Airport headquarters and the MRO base at Istanbul.

Speaking at the Istanbul show, Tarek Muhiddin, technical director special projects, said AMAC would be taking commercial narrow-body maintenance contracts during the "downturn" winter months and then provide line and base maintenance for a range of aircraft, including BBJs, A320s, Dassault Falcon 2000 and 900-series business jets and the Pilatus PC-12 single-engine turboprops.

"South Turkey is an amazing place," Muhiddin said. "We are confident there are enough skilled people in Turkey who would join the existing local talent pool that will make this venture work."

The company will be developing a number of workshops including battery, avionics, wheels and brakes at the new Bodrum centre.



Fatih Ozmen outlines plans for the revived 328Jet while on the static (right) an existing model was on show.



TRJet to boost Turkish economy

At the opening of the Istanbul Airshow, Fatih Ozmen, owner and CEO of Sierra Nevada Corporation, told the audience that TRJet would connect people and many small cities in the region through direct flights, as well as stimulate the economy through local and international trade and commerce.

"Commerce and trade promotes peace and prosperity for communities with common interest," said Ozmen. "Therefore, this project can launch Turkey into a new economic development era by significantly growing trade, both domestic and international."

He added that high-tech jobs in aviation provide the 'highest return on investment' and results in an economic multiplier of 7%, with significant export potential.

BORAJET INKS DEAL FOR FIVE EMBRAER E2 JETS



Turkish carrier Borajet, which claims to be Europe's fastest-growing regional airline, is to add five of the new Embraer E2 jets to its fleet following a deal inked at the Istanbul Airshow. The agreement, signed with leasing company AerCap, is for two E195-E2 aircraft and three E190-E2s to be delivered in 2018.

The next-generation E2 family is not just a re-engined aircraft but also has a new wing and landing gear among other parts. Embraer claims the aircraft provides an efficient and cost-effective alternative for regional carriers, compared to the larger narrow-bodies.

Borajet chairman, Fatih Akol, said the airline had grown rapidly and utilisation of current Embraer E-Jet models had been a factor in that success.

"Borajet's future plans include the addition of further next-generation Embraer aircraft to our fleet," Akol said. "We are targeting \$1.5 billion investment, which is proof of our commitment to, and confidence in, the Turkish airline industry."

Akol said that the new jets would allow Borajet to continue offering "private aircraft comfort" when they enter service.

The carrier currently operates a fleet of Embraer regional jets, with seven E190s and six E195s. The most recent E195 – painted in the livery of Turkish football giants Fenerbahçe – was on display at the air show.

AerCap is the launch lessor customer of Embraer's second generation of the E-Jets family with a total of 50 Embraer E190-E2s and E195-E2s on order.

"This agreement opens a new chapter in the relationship between AerCap, Borajet and Embraer," said Arjan Meijer, Embraer's vice-president, Europe & Middle East. "For Borajet, the cockpit commonality between the E-Jet generations, which requires less than three days of transition, minimises training costs, reduces complexity, and provides greater operational flexibility in aircrew utilisation."

The E-Jets E2s programme has received 272 firm orders, plus 398 options, purchase rights and letters of intent – a total of 670 commitments for the new aircraft range. Currently, three E190-E2 prototypes are involved in the flight-test campaign. The fourth aircraft, featuring the full interior, will join the certification campaign in early 2017.

The first E190-E2 is planned to be delivered in the first half of 2018.

Traces all over the region

Traces Aerospace was at the Istanbul Airshow for the first time, proud to say it is the only private company in Europe, the Middle East and Africa which can deliver European Aviation Safety Agency (EASA) part 21 and Federal Aviation Administration (FAA) approvals at the same time.

"That alone distinguishes us from other players in the region," said Namik Kemal Kemer, of business development.

The company operates in aircraft safety, specialising in airworthiness approvals and modification engineering.

"We assist airlines, manufacturers, maintenance, repair and overhaul (MRO) facilities, the defence industry and private operators around the world," said Kemer. "We provide complete turnkey engineering services for supplemental type certification (STC), major repairs, major alterations, part repairs, coatings and manufacturer approval (PMA) and EASA technical standard order (TSO) support."

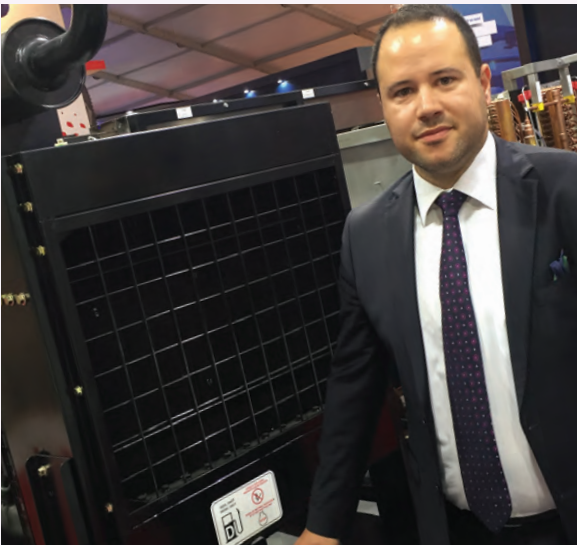
"Our capabilities in aircraft modifications and certification range from heavy aircraft structures to electrical/avionic upgrades and interiors."

Established in 2013, the company is headquartered in Istanbul, and also has teams of engineers located in Ankara, and Indianapolis, USA.

Kemer added that Turkey is firmly on the map when it comes to aviation.

"Turkey has very qualified technical engineers and designers," he said.

"Turkish Airlines and other private operations here in Turkey have almost doubled in the last year. Istanbul is a major player in the country, especially with Istanbul New Airport due to be complete in 2018, enabling a 150 million capacity per year. The more passengers that come to Istanbul, the more fleets we will see, which is great news for Traces Aerospace."



Keeping cool - TMS's Ozgun Unal.

TMS's products could be cool for aircraft

Turkish industrial refrigeration system manufacturer, TMS, is hoping its move into the world of aircraft cooling will pay dividends across the MENA region as well as in its home market.

"We had previously been involved in a number of industrial cooling activities, from the cabins of cranes to food cooling systems," said TMS sales and marketing manager Ozgun Unal. "Then a French company that we worked with questioned why we didn't do aircraft cooling – and so we started."

Two years on and TMS delivered an aircraft-cooling unit (ACU) to low-cost carrier Pegasus at its Sabiha Gokcen base. Unal says the 1.25kg system is ideal for the Airbus and Boeing narrow-body aircraft.

Meanwhile, it has won orders for six other units of the larger 5kg capacity ACU for Russian flag-carrier Aeroflot's wide-body fleet.

An ACU is used at airport aprons or airbridges

where there is no power available. The system brings filtered, cooled or heated air into the aircraft without the need to use the aircraft's more costly auxiliary power unit (APU).

"The use of the ACU is particularly an obvious choice when the aircraft is parked in a remote position," Unal said.

The wheeled TMS units have slotted solid tyres and are easy to operate by the airline's ground handlers.

They have numerous safety enhancements and are powered by a variety of generator set manufacturers including Volvo, Caterpillar, Deutz, Stamford and Leroy Somer.

"Our goal now is to increase our sales," said Unal. "With the capability to operate in hot, humid and high conditions, the system is ideal for airlines and airport operators across the Middle East and North Africa. We are also talking to other ground operators in the many Turkish airlines, so we are fairly optimistic."



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Why the Middle East should home in on Kigali



Kigali's new international convention centre will be the hi-tec venue for the summit.

The relationship between the Middle East and Africa is centuries old and has been interdependent. Last year, the Aviation Africa summit and exhibition was launched in Dubai and was a great success. Now, the second edition is planned to take place in Kigali, Rwanda.

Alan Peaford explains just why it should be on the Middle East industry's agenda.



Brussels Airlines CEO Bernard Gustin will be one of the key speakers from Europe to grace the stage at Aviation Africa 2017.

How African airlines will manage international demand for reduced air transport emissions and how they can adapt practices to gain greater access to international finance are among the key topics for debate at the Aviation Africa 2017 summit in Kigali on February 22-23.

Leaders from top African airlines and from the major government departments and service suppliers will be at the event.

Also, major European players, including Turkish Airlines and Brussels Airlines, will be represented by their chief executives to talk about cooperation, competition and aspiration.

The event is supported by the Rwandan Government, including the Ministry of Infrastructure, Rwanda Civil Aviation Authority (CAA), and RwandAir.

Rwanda is fully committed to supporting Aviation Africa 2017 and ensuring that aviation-related events grow in the country. Speaking on behalf of the Rwanda CAA, director general, Colonel Silas Udahemuka, said: "Aerospace and aviation are extremely important sectors for our country and we are investing heavily in this sector through our airline, airport infrastructure and our people. We are confident that Aviation Africa will attract large numbers of participants and visitors through our invitation programme, and we look forward to welcoming the global aviation industry to Rwanda."

Global exhibitors

The event will host more than 50 global exhibitors and up to 500 delegates from across the African continent and the global aerospace industry, who are looking to grow their business in Africa. A number of Middle Eastern groups are signing up to the event, which takes place at the Radisson Blu Hotel and new international convention centre in Kigali.

The event is organised by Times Aerospace Events. "We are seeing some of the world's top aerospace companies involved in sponsoring and exhibiting at the show," said managing director Mark Brown. "The response has been superb and I am excited by the number of sub-Saharan airlines and business aviation operators who are coming."

"We are confident that our partnership with Rwanda will grow and that the country is the right place for this event."

Rwanda has a uniquely open visa policy for all African and international visitors, operating a visa-on-arrival service. It has a strategic geographical location, a large investment in tourism and hospitality, and high levels of

security, plus an aviation-friendly environment.

According to the latest International Air Transport Association (IATA) forecast, Rwanda is one of the 10 African countries whose aviation market is expected to grow by 7-8% each year on average over the next 20 years, doubling in size each decade.

IATA's vice president for Africa, Raphael Kucchi, along with African Airlines Association (AfRAA) secretary general, Dr Elijah Chingosho, are among the keynote speakers.

Others invited to take to the stage include Ethiopian Airlines CEO, Tewolde Gebremariam; former Ethiopian CEO and current chairman of RwandAir, Girma Wake; and TAAG Angola CEO, Peter Hill, the former Oman Air chief.

With regional and low-cost aviation high on the agenda, Jerome Mailet, deputy CEO at Congo Airways; Ahmed Ahly, CEO Nile Air; Ian Patrick, CCO Air Djibouti and Henok Tefera, Askya Airlines, are among the invited speakers.

Key management

The need for change in maintenance, repair and overhaul (MRO) and support is on the agenda with key management from South Africa, Egypt and Ethiopia preparing for the debate.

Flight safety and pilot evaluation are also key topics for African aviation at this time of rapid growth, along with pilot shortages. Addressing the issues will be former Tunisian Air Force fighter pilot, Samir Maktouf, now a professor of aviation studies in Florida and part of the Embry Riddle University aviation research team. He will be looking at how African airlines and aircraft operators can reduce aviation incidents/accidents through better flight training.

How Africa can tap into its human capital will also be aired and Captain Martin Chalk, the president of the International Federation of Airline Pilot Associations (IFALPA), will lead a discussion on understanding fatigue management and working together to enhance safety and risk management. (*See All In A Day, Page 128.*)

With breakout events for aviation safety, training and business aviation, the summit is action-packed. There is also a full social and networking programme, allowing unprecedented access to key government, industry and military delegations and representatives.

Full details of the event, sponsorship opportunities and conference programme updates, are available on the event website: www.aviationafrica.aero along with details of reduced airfares with supporting airlines.



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The Wimbledon tennis championship was very popular with passengers.



IN-THE-SKY SPORTS...

In the never-ending competition to differentiate their in-flight entertainment (IFE) offerings, many Gulf carriers are now using live sports TV to entice their passengers, as Steve Nichols found out.

Aircraft equipped with Panasonic Avionics' eXTV satellite service are able to tap into two live sports channels courtesy of a deal between the IFE company and global media specialist IMG.

Panasonic has an exclusive agreement with IMG, as the only aviation provider of the latter's live Sport24 channel, which was launched in 2012.

IMG describes itself as "a global leader in sports, events, media and fashion, operating in more than 30 countries". Its Sport24 is the world's only live 24/7 sports channel for the airline and cruise industries and broadcasts a multitude of events, including Barclays Premier League, Bundesliga and UEFA Champions League soccer, Formula 1 motor racing, major basketball, American football, golf majors, plus the Ryder Cup, and tennis grand slams.

It has access to around 500 live sports feeds from around the world and provided more than 200 hours of coverage from the last Olympics across the 17 days of the competition.

The company says it is responsible for more than 21,000 hours of television and more than 30,000 hours of radio annually.

Sport24 is currently available via Panasonic Avionics' eXTV on 11 airlines, including

David Bruner:
"The interest worldwide is massive and it was a logical step for us to introduce live sports TV to aircraft."



Emirates, Etihad, Qatar, Gulf Air and Turkish.

More than 90 Emirates Boeing 777 aircraft now have live TV and more aircraft are being equipped every month. In June, the 80th Airbus A380 delivered to Emirates was also the first A380 in the fleet to be fitted with live TV.

David Bruner, vice president, global communications services at Panasonic Avionics, said: "Sport never stops and neither do Panasonic and IMG. The interest worldwide is

massive and it was a logical step for us to introduce live sports TV to aircraft."

Statistics from Panasonic Avionics show around 1.4 million passengers were able to watch the FIFA World Cup via eXTV, with 40,000 alone glued to the final between Argentina and Germany.

According to its figures, around three quarters of one Lufthansa aircraft watched their national team take home the World Cup trophy after winning 1-0.

And sports are universal too. IMG has signed a multi-year agreement with the US National Basketball Association (NBA) to broadcast live NBA games.

In September, ice hockey joined the IMG portfolio, too. The channels will be showing three games a week from the US National Hockey League. Sport24 will broadcast each game in the 2017 Stanley Cup play-offs and the 2017 Stanley Cup final.

But how does IMG decide what to broadcast? Tim Wood, vice president, business development, said its programming "tends to follow the sun".

"We might start the day with the National Rugby League from Australia in the morning, before

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on Page 104

CONTINUED FROM PAGE 103

moving to tennis from Wimbledon from noon, and then baseball or American football from the US in the evening,” said Wood, a self-confessed sports geek.

“Our programming tends to follow a passenger’s wants and needs – on the whole, passengers want to be entertained during daylight and sleep at night,” he said.

Wood said scheduling can become a nightmare and takes place many weeks in advance.

“When we have a number of events taking place at once, we have to think about what is most popular,” Wood said. “This happened on July 10 – ‘Super Sunday’ – with the final of Euro 2016, the British Grand Prix and the Wimbledon final all taking place at once.”

To cope with demand, IMG launched a second live sports channel for the in-flight market in June to complement Sport24.

The roll-out of Sport24 Extra began on Emirates and Turkish Airlines, with other carriers soon joining them.

Sport24 Extra provides passengers with a choice of live coverage during busy periods in the sporting calendar and also allows the company to rerun popular events.

Bruner said: “We’re bringing a constantly improving and evolving in-flight experience. The launch of the Sport24 Extra channel reinforced the importance we place on enhancing the in-flight experience for passengers all over the world through continued innovation.”

IMG says it lives, breathes and sleeps sport. “It sounds like a cliché but sport is in our DNA,” said Wood. “We have years of experience in doing this and we ‘get it’. We know the value of sports globally, and although sometimes we play it down, what we achieve is a technical feat.

“At any one time we could be covering up to 10 Premier League soccer games in parallel.”

Niche events

And what of the future? “We want to do more live broadcasts and more special programming from niche events,” said Wood.

So how does the programming get to the aircraft?

The finished Sport24 and Sport24 Extra feeds leave IMG’s London headquarters via 2.5Tbps fibre-optic links to Arqiva, in the city, where it is distributed at light speed to 17 satellite teleports worldwide. From these, the signals are uploaded via satellite links to 30 different geostationary Ku-band satellites sitting around 22,300 miles above the equator. Finally, the signals reach the aircraft before being distributed to the passenger’s seat-back eXTV system, even though



IMG’s headquarters in west London and some of its 500 sports TV feeds.
Left: Seat-back TV on an Emirates A380.



they may be at 30,000 feet and moving at more than 500mph.

It is the use of Ku-band satellites that enables live TV to be viewed – the microwave Ku-band gives the bandwidth needed.

Inmarsat trialled sending shorter recorded video pieces via its slower L-band SwiftBroadband system (known as SBTv), and even tested it on an Emirates A380, but live TV needs the greater bandwidth of the higher frequency Ku- and Ka-band systems to work.

Inmarsat’s Ka-band GX Aviation system, which is due for global launch by the end of the year, will easily support live TV but, as yet, no details are known as to whether any in-flight programming will include it.

Qatar is known to be a GX customer on its Airbus A350 fleet but, at the time of writing, other Gulf carriers remain tight-lipped about their future in-flight connectivity decisions.

FlyDubai also has Ku-band connectivity, provided by Global Eagle Entertainment on its Boeing 737 fleet. Passengers can enjoy live Arabic and English TV shows, but there are no live sports.

The next generation of Ku-band satellites should enable even more live TV sports material to be broadcast, thanks to their greater

bandwidth. So-called high throughput satellites (HTS) use more powerful spot beams. Intelsat already has one of its EpicNG HTS satellites in orbit (Intelsat 29e) and more launches are planned.

Todd Hill, Panasonic Avionics’ senior director GCS satellite service, said that the company’s experience with its eXTV service had proved that Ku-band systems are ideal for streaming TV.

“With the launch of HTS, the economics will get even better,” Hill said. “With HTS spot beams you can use more power over more Megahertz and drive the cost per bit down.”

Economic bandwidth

Frederick St-Amour, Global Eagle’s VP of sales, agreed, saying that Ku satellites could provide more economic bandwidth, which makes it a better solution for live TV. He said that with the upcoming HTS services, such as used on Intelsat’s EpicNG satellites for example, there would be the benefits of both wide and spot-beam technology.

“Ku wide beam also has the benefit of letting you use user datagram protocol (UDP) – one directional transmissions to the aircraft – which makes it better suited to streaming TV,” he added.

UDP is a way of streaming data over the internet with minimal error-correcting “handshaking”. This means it can be sent faster, but with the risk of some errors. Applying “checksum” technology to the received packets goes some way to making sure they are correct. With streaming digital TV any error might be seen as a momentary ‘blip’ before the image moves on.

So the future should see more Gulf carriers’ aircraft carrying even more sports TV coverage.

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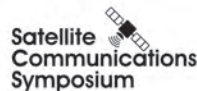
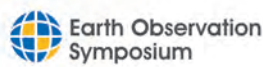
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Bio fuels could change the risk, experts believe.



How not to leave passengers fuming...

Poisonous engine oil can cause plenty of invisible damage to the human body. Is there a solution?

Liz Moscrop
reports.

Touted as delivering the utmost in passenger comfort in terms of cabin pressurisation and interior amenities, business aircraft play a vital role in today's economies by conveniently transporting people across the globe.

However, just like the airlines, this comes at an environmental cost – both outside and inside the aircraft.

The issue is a global one, not confined to any one geographical location.

British pressure group, the Aerotoxic Association, contends that leaky turbine engine oil is poisonous enough to do serious damage. It's website says: "The degree of contamination depends on jet engine type, and how recently it was serviced, among other factors."

Swab-testing both people's skin and the interior cabin surfaces is the way to tell. Symptoms of aerotoxic syndrome include fatigue, tremors and even loss of consciousness. However, the association points out that, for short exposures, the effects are usually reversible and will resolve themselves. In the long term it is worth monitoring systems for such incidences.

Bleed air system

Cabin air usually comes from a half-and-half bleed air system comprising outside air from the engine's compressor or auxiliary power unit, mixed with filtered air that is circulated in the cabin. The problem comes should the engine oil seals fail and hot oil fumes leak into the air supplied to the cockpit and cabin.

To improve air, one answer could be to detoxify the oil. To that end, French oil manufacturer, Nycos, reckons it has created a jet engine lubricant that will be less harmful to humans should an in-cabin fume event happen.

The formula is less volatile than existing products. The firm is also developing better 'elastomer compatibility', which helps engine oil seals become more durable, thus lowering oil consumption and reducing the risk of harmful vapours.

The desire to reduce toxicity tussles with the desire to

ameliorate oil performance, which affects engine wear and tear. However, working on lubricants can also help tackle the issue.

It is also possible to install chemical sensors that identify adulterated air far better than a human nose is able to do.

The International Civil Aviation Organization (ICAO) laid out engine certification standards for air pollutants in 1981, and other manufacturers are working on their offerings. Air BP, for example, has created its Biojet fuel, which offers a minimum carbon emission of 35%. The company also continues to develop and supply unleaded Avgas.

Indeed, European Flight Service (EFS) made history this April by operating its first flight with Biojet from Oslo Gardemoen in Norway to Trollhättan-Vänersborg in Sweden using its Cessna Citation 680 Sovereign.

EFS CEO Stephen Diapère said: "This is a great step forward for us in our aim to be one of the business aviation pioneers in a fossil-free aviation environment of the future. Who would have believed that aircraft could be flown with used cooking oil?" The historic flight had an uplift of 700 litres of Biojet fuel with a blend of 48% Biojet and 52% Jet A1 fossil fuel.

The Aerotoxic Association looks to solutions, such as using electrically driven compressors that take cabin air directly from the atmosphere, as used on the Boeing 787 Dreamliner.

There is an industry drive to address the issue, and owners and operators can ensure that their management companies are diligent in maintaining their aircraft.

Following the lead taken by pioneering companies is also useful. EFS' Diapère concluded: "We are able to show other business jet operators the possibilities that are developing rapidly. We are continuing our work in increasing the demand for Biojet fuel, and will continue to work in close collaboration with airports and fuel manufacturers in developing the necessary infrastructures and supply chains."

Making rain while the sun shines

A Royal Jordanian Air Force Airbus Defence and Space C295 has been used in a new series of rain-making operations over the kingdom, writes Jon Lake.

Climate change over the past two decades has caused a drastic drop in rainfall, leading to prolonged dry spells in the kingdom, according to a recent study by the country's water ministry.

The available water resources in Jordan offer 800-900 million cubic metres of water annually, which is enough for about three million people. But, as Jordan's population continues to expand, it now has more than 10 million water users.

This year, Jordan's 10 major dams were left at just 59% capacity after the wet season.

It has been predicted that Jordan will witness a 15-60% decrease in precipitation and a 1-4°C increase in temperatures over the next few years, according to the 2013-2020 Jordan climate change policy. There will be a corresponding impact on the country's natural ecosystems, river basins, watersheds and biodiversity.

Artificial rain-making is, thus, of great interest to Jordan, though early experiments conducted between 1989 and 1995 were unsatisfactory.



The Royal Jordanian C295 has been involved in artificial rain-making.

More recently, on March 23 this year, Jordan and Thailand signed a memorandum of understanding allowing Jordan to benefit from Thailand's rain-making experience.

Thailand's current rain-making technology was developed by King Bhumibol Adulyadej in 1969, and relies on introducing chemicals in cloudy areas to 'seed' the clouds in a way that then promotes precipitation.

Two basic groups of chemicals are used depending on whether a cloud is cold or warm. These chemicals are generally environmentally friendly materials, including calcium chloride, compressed carbon dioxide dry ice, silver iodide, salt powder and a compound of urea and ammonium nitrate.

The Jordan Meteorological Department (JMD) sent a

team of six meteorologists, a pilot and an engineer from the Royal Jordanian Air Force, to participate in artificial rain-making operations in Thailand and to learn the techniques used.

In March, the JMD carried out an initial rain-making experiment over the catchment area of the King Talal Dam, in northern Jordan and, after the visit to Thailand, conducted another rain-making attempt in August 2016.



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AAR is a global company serving customers in more than 100 countries worldwide and recently signed an agreement to provide nose-to-tail management of components and repairs for flydubai's NG B737-800 fleet.



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Joramco: surprise deal of the DAE

Acquisitions and new deals have been all the rage in the region's maintenance, repair and overhaul (MRO) sector, as Mohammed Ali Ahli reports.

Dubai Aerospace Enterprise (DAE) made a surprising re-entry into the MRO sector when it announced the acquisition of 80% of one of the region's most established maintenance businesses, the Jordan Aircraft Maintenance Company (Joramco) from the Abraaj Group.

Terms of the transaction were not disclosed, but, with more than 50 years in the MRO business, Joramco has a solid track record and developed into the leading independent commercial aircraft maintenance facility in the region serving a wide range of customers in the Middle East, Europe, South Asia, Africa, Russia and the CIS countries.

From its base in Queen Alia International Airport in Amman, Joramco offers services on several aircraft models manufactured by Airbus, Boeing and Embraer.

It is certified by a number of regulatory authorities, which include the Jordan Civil Aviation Regulatory Commission (JCARC), the US Federal Aviation Administration (FAA), the European Aviation Safety Agency (EASA), and the UAE General Civil Aviation Authority (GCAA).

High-quality

DAE managing director, Khalifa AlDaboos, said: "Joramco, with its experienced staff, provides a high-quality product at a very competitive price to regional and global airlines. We welcome Joramco to the DAE family and look forward to working with the management to accelerate the growth trajectory of the company by expanding its product offerings, customer reach and geographic area of focus."

Another company that has seen a significant expansion of its commercial footprint in the Middle East is AAR.

Dubai-based, low-cost carrier, Flydubai, signed a long-term, multimillion-dollar contract with the American company for power-by-the-hour component inventory management and repair services.

Under the deal, AAR will assume nose-to-tail management of components and repairs for Flydubai's current Boeing 737-800 fleet, starting with 53 aircraft and increasing to 60. The deal is expected to help the airline reduce aircraft-on-ground (AOG) time and contribute to its on-time performance.

Last year, Flydubai carried more than nine million passengers across its network of more than 85 destinations, becoming the second largest carrier, by passenger numbers, operating out of Dubai International.



Khalifa AlDaboos: "Joramco, with its experienced staff, provides a high-quality product at a very competitive price to regional and global airlines."

"As Flydubai continues on its robust growth trajectory, it must optimise its fleet's performance while minimizing costs and AOG time," said Deepak Sharma, president of AAR's international supply chain.

Airbus components

Meanwhile, aircraft support and services specialist, Avtrade, which has its regional base in Dubai, has bolstered its multi-million dollar inventory of Airbus components.

The company, which services more than 800 airlines worldwide, bought a former Air France A320-200, (MSN 285).

Purchased complete with CFM56-5A engines, the aircraft is being disassembled.

Components will be fully serviceable and certified to both EASA and FAA release, and parts will be available for immediate shipment on sale, loan or exchange basis, via Avtrade's sales team, at Dubai and other strategic global locations and its 24/7 AOG service, the company said.

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Major contracts in recent months mark a further milestone in Al Ain-based Strata Manufacturing's journey towards becoming a major player in the world aerostructures market, as well as becoming an increasingly important employer in the UAE. Alan Dron reports.

Strata takes Emirati jobs into a new sphere

It was a busy couple of days for composites aerostructures manufacturer, Strata, at this summer's Farnborough International Airshow in the UK.

First, Airbus announced that Strata would manufacture the horizontal tail plane for the A320 narrow-body twinjet, together with the inboard flaps for the new A350-900 twin-aisle airliner, in an agreement worth more than \$1 billion.

The following day, Boeing followed this up with a multi-year contract to manufacture vertical fins for the 787 Dreamliner.

The contract award was the latest in a series of agreements signed by Boeing and Strata, and with Strata's parent company, Mubadala, since 2011.

Vertical fin

The vertical fin expands the organisation's role as a direct supplier of primary aerostructure components to Boeing Commercial Airplanes' programmes. It was another significant step towards meeting commitments that Boeing and Mubadala made in 2013 that included the supply of up to \$2.5 billion in advanced composites and aerostructures to the programmes.

Strata is already Boeing's first direct composites supplier in the Arab world and is currently delivering 777 empennage ribs and 787 vertical fin ribs. The new contract for vertical fins will give Boeing an additional source for that component, with it still being made in the US.

"This contract reflects significant commitment and investment by UAE and Mubadala leaders to expand their aerospace manufacturing capabilities and support their



Ismail Abdulla: "The ambition is to be one of the top aerostructure companies in the world."

long-term economic vision," noted Ray Conner, president and CEO of Boeing Commercial Airplanes.

"The announcement is a reflection of the long-standing relationship between Strata and Boeing, and is testament to the trust that one of the world's largest aerospace companies has placed in its partnership with Strata," added Badr Al Olama, Strata's CEO.

Strata has expanded rapidly since its

inception late last decade. The latest two contracts will see a considerable growth in the company's workload and the company has already built an extension to its existing facility in the Nibras Al Ain Aerospace Park.

The new deal for the A320 tail plane will see Strata using cutting-edge automation and high-rate production technology to help meet Airbus' plans to increase production of its popular A320 family to 60 aircraft a month in mid-2019.

For such a young company, winning such a large component as the A320's tail plane is a major achievement. Strata's deputy CEO, Ismail Abdulla, said: "Nothing was granted to us, this was given to us based on our ability to deliver. Over the last six years we've built our credibility and have proven that we can deliver on time and on cost for the largest manufacturers in the world.

Successful projects

"However, despite our achievements, our team is eager for more successful projects. The ambition is to be one of the top aerostructure companies in the world.

"Our aim is to double our revenue: last year it was 400 million dirhams (\$109m). This year we are on target to exceed this number. By the end of the decade it should be close to 1 billion dirhams.

The A320 tail plane and 787 vertical fin will be built in a new facility at the company's Al Ain site. The company has acquired a 175,000sqm plot adjacent to its current facility to cope with the necessary expansion and is working with both Boeing and Airbus to define the precise timeline for starting production there. It is anticipated to be towards the end of 2018.

The new products will see the introduction of

“Our commitment was that we would have half of our workforce drawn from Emiratis.”

ISMAIL ABDULLA

automated lay-up of the composite material, which today is still done by hand and is manpower-intensive. “We’re investing in automation and are currently looking at a number of projects,” said Abdulla.

“This is in line with what’s happening around the world. At the end of the day, we need to differentiate ourselves in the market; manufacturing is available around the world, so what’s the differentiating factor we can offer? It’s going to be automation. That’s a key selling point.”

Strata’s expansion plans are on track and the integrated project teams (IPTs) for the respective new products have begun engagement with the customers to ensure robust plans are in place to continue Strata’s legacy of delivering quality products on time and cost.

Another major selling point is the same one that has been a factor behind the phenomenal rise of Gulf airlines, namely the region’s geographical position.

“People refer to this region as the Middle East, but I refer to it as ‘Middle Earth’. A seven-hour flight from here covers two-thirds of the world’s population,” said Abdulla.

“In the UAE we have three of the fastest-growing airports in the world and two of the fastest-growing airlines.”

Abdulla put one of the reasons for Strata’s

success down to its use of IPTs for each individual product. Each has a programme manager, plus talent from the company’s various departments, such as procurement, operations and engineering. They are shadowed by a counterpart team from the customer and the arrangement enables both sides to work closely together on projects.

Strata is particularly proud of its role in providing employment, said Abdulla: “It was agreed with Mubadala that Strata would be not only financially viable but would also create new job opportunities in Al Ain, which has the highest unemployment rate in the emirate.

Jobs are scarce

“Jobs in Al Ain are very scarce; there aren’t a lot of opportunities for Emirati nationals. For many local residents the only options are to commute to Abu Dhabi or Dubai.” This was one of the reasons why Mubadala Aerospace and Engineering Services made the strategic decision to place the factory in Nibras.

“Our commitment was that we would have half of our workforce drawn from Emiratis. Today, our Emirati rate has reached 48% in just six years [since we started operations] and 86% of that number are women.” Of 48 team leaders at Strata, 28 are Emirati women, as are four of 11 team supervisors.

On the wider front, Strata’s role aligns with

that of the late Sheikh Zayed bin Sultan Al Nahyan, the former president of the UAE, who realised that the country had to move away from its dependence on hydrocarbons and diversify its economy into sustainable industries that would provide it with a long-term future.

In addition, more than 50% of Strata’s suppliers are local and UAE-based suppliers contribute 40% of the company’s total procurement – a figure that has grown by 10% in just two years.

Strata manufactures composite components, performs assembly of the components and manages its supply chain from its facility in the Nibras Al Ain Aerospace Park, where it is expanding its capabilities to meet the growing demands of world-leading aircraft manufacturers.

The aerospace park is a multi-faceted 5sqkm development that is supporting the establishment of a sustainable aerospace industry in Abu Dhabi. Jointly created by Mubadala and Abu Dhabi Airport Company (ADAC), and in line with Abu Dhabi economic vision 2030, Nibras is a key driver in diversifying the emirate’s economy. The park will be a hub for key aerospace-related activities, including manufacturing, pilot training and maintenance, repair and overhaul.



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Etihad has been leading the way with training of its own supply of female pilots with role models proving inspirational to young Emiratis.



Airlines put pilots in the driving seat

The race is on to train pilots for the Middle East's booming airline industry.

Dave Calderwood checks out the situation, as another big player is about to enter the market.

The Cirrus SR22 gives Enirates ab-initio trainees a glass cockpit environment from the start of core flight training.



Two years ago, Etihad acquired the fixed-wing training centre of Horizon International Flight Academy at Al Ain and launched the Etihad Flight College.

And, in just a few weeks' time, the brand new Emirates Flight Training Academy will open at Al Maktoum International Airport.

Both airlines are expanding and need pilots urgently – as many as 500 in the next year alone for Emirates.

Middle East airlines as a whole need an incredible 6,000 pilots a year to meet expansion plans, according to the most recent Boeing pilot and technician forecast. That's why the leading carriers are keen to expand their existing training centres as well as putting students through established flight schools in the west.

The Emirates Flight Training Academy and Etihad Flight College are state-of-the-art, world class training facilities. Both are taking delivery of new aircraft and both are using the latest Embraer Phenom 100E business aircraft for jet training.

Etihad Flight Academy took delivery of the first of four Phenom 100E jets earlier this year – the aircraft making a 10-day, 12,500-mile ferry

flight from the Brazilian manufacturer's HQ at Sao Jose dos Campos.

"Our flight college is a world-class training facility producing a constant stream of well-trained, highly skilled pilots – the majority of whom are Emirati – for the growing operations of Etihad Airways," said Philip Chandler, Etihad Flight College's general manager.

"The Phenom 100E is an exciting new asset for Etihad Flight College. The airline-grade technology, performance and reliability make it an ideal initial training aircraft to prepare our students for line operations."

The Phenom 100E will be used to teach students on the multi-crew pilot licence (MPL) course that Etihad prefers. The MPL is an innovative competency-based approach to flying training that concentrates on training pilots for airline employment. Other aircraft in the Etihad training fleet include 10 Cessna 172SP Skyhawks, six Diamond DA42NGs and two Extra 300 aerobatic aircraft for upset recovery training.

Over at the nearly finished Emirates Flight Training Academy, it is effectively a private airport with its own air traffic control tower, fire service, hangar and apron for 30 aircraft and a runway capable of handling hundreds of movements daily.

Emirates has no fewer than 27 new aircraft on order, a mix of Cirrus SR22 single-engine piston aircraft for ab-initio flight training, and the very latest Embraer Phenom 100EV.

The 100EV was officially launched at last July's EAA AirVenture show in the USA and Emirates upgraded its previous 100E order. It has a new

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avionics suite with the Prodigy Touch flight deck, based on the Garmin G3000, and modified Pratt & Whitney Canada PW617F1-E engines, offering more speed with superior hot-and-high performance, which is perfect for training at Dubai's desert airport.

"We selected the Phenom 100 because we considered it to be the entry-level jet that will offer trainees unmatched systems integration and ease of operation, a high utilisation design, low operating costs, airliner-grade performance and docile flying characteristics," said Adel Al Redha, Emirates' executive vice president and chief operations officer.

"Our cadets will benefit from next generation technology, speed and thrust for their training missions in the Phenom 100 EV."

Emirates has also partnered with Boeing to collaborate on a comprehensive training curriculum and software infrastructure. Under the agreement, the academy will receive an integrated software system, based on the Peters software system acquired by Boeing, for managing cadet learning and training flight operations, and an enhanced curriculum customised for Emirates.

Highly interactive

Cadets will learn with highly interactive digital content delivered in purpose-designed classrooms and on personal tablets.

"Our programme is designed to produce career-ready pilots," explained Captain Alan Stealey, principal, Emirates Flight Training Academy. "Exceeding regulatory requirements, the curriculum will, for instance, see cadets complete at least 1,100 hours of ground and 315 hours of flight training using a competency-focused approach.

- "Emirates designed the academy to promote advancements in four key areas of pilot training:
- interactive learning for theoretical subjects in classrooms;
 - practical learning in the most capable training aircraft;
 - practical learning in advanced flight simulators; and
 - airline-focused line-oriented flight training."

Captain Stealey continued: "When fully operational, the academy will be able to accommodate more than 600 students at a time."

Of course, Middle East carriers will be taking pilots from other training facilities, too. Oman Air, for example, has tied up with Egnatia Aviation Training Academy, the largest flight-training organisation in Greece, and one of the biggest in Europe. They have created an airline-oriented pilot training course complying with both Oman Air and European Aviation Safety Agency (EASA) requirements. Captain Mark Davies has been appointed as head of training.

Davies has more than 25 years' international experience in the industry, holding similar roles at Oxford Air Training School, Western Australian Aviation College and recently as the head of training for the Qatar Aeronautical



Sophisticated simulators - like this one from CAE - create a realistic environment.

College. He said: "I'm delighted to have joined Egnatia and welcome the opportunity to share in their growing success. I've worked closely with them for a number of years now and have witnessed first-hand their commitment to the delivery of quality flight-training in what is a very demanding market sector."

Earlier this year, Airways Aviation – now established at its new global HQ at London Oxford Airport in the UK – launched the Kuwaiti Cadet EASA frozen airline transport pilot licence (fATPL) programme with Kuwait Airways. The first class started in February at Airways Aviation's flying base in Spain. Airways Aviation is an ambitious company following a different model to other training organisations. It holds aviation foundation courses local to students – including in Baghdad, Beirut, Dubai and Kuwait – then offers flight training in either Europe or Australia. Airways' boss, Iain Cooper, says it allows students to discover if they really want, and have the aptitude and mental skills, to become an airline pilot.

Window for applications

CTC Aviation is another UK-headquartered flight training organisation with Middle East connections. It recently opened the latest window for applications for its CTC Wings multi-crew pilot licence (MPL) in partnership with Qatar Airways.

The programme takes aspiring pilots with little or no flying experience directly to the first officer's seat of Qatar's Airbus A320 aircraft within two years.

So far, there have been 34 graduates through the CTC-Qatar scheme since it started in 2012.

It consists of six months of theoretical knowledge work in the classroom, followed by five months of core skills flight training at CTC Aviation's Crew Training Centre in either Hamilton, New Zealand or Phoenix, USA. Pilots then return to the UK for further training on A320 full-flight simulators at CTC Aviation's

Crew Training Centre in Southampton, before completing the course with A320 aircraft base and line training with the airline.

A world leader in flight simulators, CAE has expanded its training contract with Turkish Airlines. The agreement covers initial type-rating training, cross-qualification training and initial synthetic flight instructor/type-rating instructor courses. The programmes cover all of the airline's aircraft fleet, including A320, A330/340, Boeing 777 and Boeing 737NG.

The training will be delivered across CAE's training centres in Amsterdam, Barcelona, Brussels, Copenhagen, London Gatwick, Madrid, Rome and Stockholm.

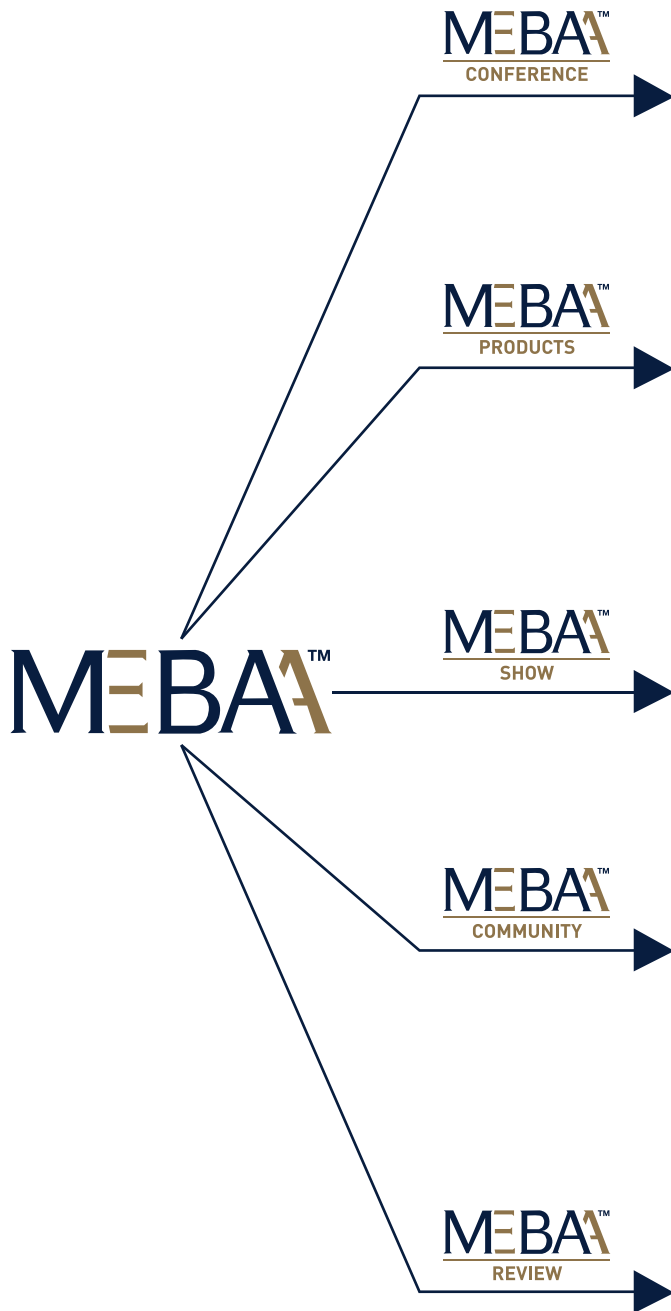
"We are delighted to further expand our relationship with CAE to support our growing training need," said Captain Sedat Sekerci, SVP flight training of Turkish Airlines. "We are confident that CAE's complete range of training programmes will provide a substantial added value to our crews' professional competences."

Ayla Aviation, based at King Hussein International Airport, Aqaba, Jordan, recently started its Global 4 EASA programme offering an EASA (Europe) air transport pilot's licence (ATPL).

Ayla is approved by both the Jordan Civil Aviation Authority and EASA and has trained more than 800 pilots since it started in 2006, many now working for Middle East airlines.

Ayla recently launched another interesting initiative – 'A week at Ayla' – to allow newcomers to experience the world of aviation. "Participants will spend time in the maintenance department, the operations department, back seat in an instructional flight, fly the simulator, and enjoy other activities with our staff and cadets at our location in Aqaba," said a company spokesperson.

The world needs plenty of pilots over the next 20 years with the Middle East taking a large share thanks to the ambitious expansion plans of its carriers. All the signs are that the world's pilot training industry is gearing up well to meet that demand.



REGIONAL FOOTPRINT

MEBAA hosted conferences in several cities such as Dubai, Jeddah, Riyadh, and Amman. These conferences, with complimentary access for MEBAA members, provide a platform for discussion among members with a particular focus on the host country.



SAFETY, INSURANCE AND REGULATION

Emergency response planning workshop, free sample ERP manual and discounted customized ERP manual, discounted IS-BAO and IS-BAH certifications as well as new competitive insurance products through MAIS, exclusively for all MEBAA members.

The Middle East and North Africa's premier business aviation show will be held at DWC in Dubai, 6-8 December 2016. MEBAA Show 2014 showcased 44 aircrafts, 8,314 attendees, and 422 exhibitors. The show also had educational sessions, panel discussions and IS-BAO/IS-BAH certification workshops. MEBAA has also launched MEBAA Show Morocco, the first business aviation show in North Africa.



FLY AND FEED

GIVING BACK

With the support of its members, MEBAA has raised USD 25,000 within the first year of launching its donation program, Fly and Feed, in partnership with the United Nation's World Food Program (WFP.)

The annual business aviation review for the Middle East and North Africa addresses major issues and updates in the region for the year. In addition, the magazine showcases the profile and accomplishments of the association's 240 members.

Just when you thought there were enough new military training aircraft in the world, with the Beechcraft T-6 Texan II, Super Tucano and Pilatus PC-21 dominating the market, there is now another, as Alan Warnes reports.

Free bird flies into the market

Turkish Aerospace Industries (TAI) is moving ahead, probably a bit slower than originally planned, with its Hurkus (free bird), which it terms as a basic trainer aircraft.

It has been designed to meet the training and light attack/armed reconnaissance aircraft requirements of the Turkish Armed Forces – just as the T-6 and Super Tucano has.

However, potentially, it has a huge domestic market and fits into the Turkish Government's indigenisation programmes as it strives for self-sufficiency.

Three different configurations are being built:

- Hurkus-A is the basic civilian version, recently certified with the European Aviation Safety Agency (EASA) CS-23 requirements.
- Hurkus-B will be an advanced military training version with integrated avionics, including hands on throttle and stick (HOTAS), head-up display (HUD), multi-function displays (MFDs) and mission computer with virtual weapons.
- Hurkus-C is a new generation light attack/reconnaissance aircraft.

Since the prototype Hurkus-A – TC-VCH – made its first flight on August 29, 2013, followed by the second – TC-VCI – on September 10, 2014, both have been flying extensively. The focus has been on getting the Hurkus-A certified by Turkey's Directorate General of Civil Aviation (DGCA) and EASA.

TAI finally achieved that goal on July 12, 2016

when EASA ratified the aircraft, the day after the DGCA's validation. The aircraft had performed 570 flight hours in 534 sorties up to the certification.

The third and fourth prototypes are non-flyers; the third used for static tests and the fourth for fatigue and damage.

The Hurkus-A is powered by a Pratt and Whitney PT6A-68T 1600shp turboprop engine and has a five bladed aluminium Hartzell HC-B5MA-3 propeller, launching the aircraft to a maximum cruise speed of 310 knots (574km/h). It has a maximum rate climb of 4370ft/min and a stall speed of 77 knots (143 km/h). It is being developed purely for the civilian market.

Started production

At this year's Farnborough International Airshow TAI's CEO, Muharrem Dortkasli, said the company had "started production of Hurkus-B and deliveries will start in mid-2018".

This variant is exactly the same as the -A version, except that it will be configured with a glass cockpit for military use, housing a HOTAS, HUD and three MFDs developed by Aselsan.

Ozcan Ertem, senior vice president executive of TAI's aircraft group, added: "We won't be going through EASA or DGCA certification again as it's ostensibly the same aircraft but, because of the new cockpit, we will be subject to a military supplemental type certificate (STC)." The Turkish Government contract was made

effective in 2014 for 15 Hurkus-Bs, with options on a further 40, to equip the Turkish Air Force (TurAF) flying training wing at Izmir-Cigli, the home of the newly opened Multinational Military Flight Crew Training Center (MMFCT-C).

The new military trainer will work alongside the South Korean-designed Korean Aerospace Industries KT-1T basic trainer, which currently equips the TurAF's 122 Filo. There are 40 KT-1Ts based at Izmir-Cigli, fulfilling a basic trainer role.

The TurAF is keen to receive an aircraft that should have been delivered, according to original plans, a year or so ago. With its 1,600shp powerplant it offers a higher performance than the KT-1T's 1,100shp engine, while the more advanced avionics will ensure an easier transition to fifth-generation fighters like the F-35 Joint Strike Fighter or Turkey's new TF-X.

Ertem continued: "The first Hurkus-Bs will be delivered in June 2018 with the 15th and last one by June 2019. Then we hope the options for 40 more will be exercised."

During June, TurAF test pilots/instructor pilots tasked to report on the aircraft's flying characteristics, started operating the Hurkus-B. "Aselsan will hand over the new cockpit by the end of 2017, when we hope to make the maiden flight. We will qualify the cockpit and start deliveries in June 2018," said Ertem.

Martin-Baker will supply the crew escape system for the Hurkus-B turboprop trainers as

The second prototype Hurkus-A in flight during a test flight. The aircraft could gain substantial orders from the domestic market as Turkey heads for total self-reliance.

PICTURE: TAI



part of a deal signed during July 2014. The agreement covers the supply of the very successful Mk16 ejection seat, designated T16N for all Hurkus-B series aircraft for the TurAF. The company's project manager, Chris Brooke Izzard, said at the time that the system would be slightly adapted from the Mk16 equipping the two Hurkus-A trainers.

Meanwhile, TAI is also developing the armed Hurkus-C, capable of carrying a 1,500kg (3,300lb) payload.

This additional weight will comprise munitions across seven hardpoints, as well as sensors and extra fuel weight.

Reconnaissance requirements

The variant is being developed to meet the Turkish Land Forces (TLF) light attack/armed reconnaissance requirements.

Dortkasli said at Farnborough that the first flight of Hurkus-C, and the firing of at least one weapon type from the platform, should take place in May 2017, in time for the IDEF defence exhibition in Istanbul.

While the second Hurkus-A prototype (TC-VCI) will remain, the first version (TC-VCH) will be converted to the -C demonstrator in time for the IDEF Exhibition.

"The demo weapon launch means firings will happen before then, when we want to make one release from one of the aircraft's stations," explained Dortkasli.

A name to remember...

As the Hurkus is the first aircraft to be validated by Turkey's DGCA, it has been given certificate No 0001. However, it is not the first Turkish aircraft to be certified.

That honour went to one owned by Mr Vecihi Hurkus, who the new aircraft is named after, with letters from his first name, Vecihi, making up the two prototypes' registrations – VCH and VCI.

He started flying his own designs in 1925 and then took an upgraded aircraft he built himself to Czechoslovakia in 1930 to gain the necessary paperwork before it returned to Turkey.

According to Ozcan Ertem, senior vice president executive of aircraft group: "He is a gentleman who will now be remembered by the Turkish community, as he had become a forgotten man."

Hurkus shot down a Russian aircraft in World War I, as well as a Greek military aircraft [during the 1919-1922 independence war] before designing his own aircraft.

By the end of the 1950s, he had given up on the design side and acquired a Dragon Rapide to start his business, Hurkus Airlines.

"The TLF wants us to put the T129 ATAK helicopter's weapons on Hurkus and, of course, we can. It will be a complementary aircraft – for armed reconnaissance.

"Because of the external fuel tanks it can stay aloft for four hours, allowing it to escort convoys, which a jet fighter or helicopter support cannot do – their maximum is 1-1.15 hours. So we are working out the TLF's operational requirements covering such aspects as to where they will operate, what it will need to carry and, of course, the threat."

Civilian cockpit

The Hurkus-C aircraft will comprise a B cockpit, HOTAS and weapons. At IDEF it will still have the civilian cockpit, as there will not be a full -C version until a contract is signed.

Currently, the weapons being integrated are the Roketsan Cirit 2.75 guided rocket system, Roketsan UMTAS long-range anti-tank missile and a podded machine. The FLIR Systems camera, which will also equip the aircraft, will be operated by a weapons systems operator in the rear seat.

In terms of delivery, Ertem said: "If the TLF were to place an order by end of the year, it could well be delivered in June 2019 following the 15th aircraft for the TurAF. That's when the first slot becomes available, but we will have the capability to call upon additional tooling, to speed up production."



Islamic finance is a part of the global financial services industry that is continuing to expand, both geographically and in terms of the industries and sectors that it services. As further expansion is anticipated, particularly in the aviation sector,

Michael Savva, from legal firm, *Watson Farley & Williams (Middle East)*, explains what is involved.

Why Islamic finance is good for aviation

Financiers of various types are active in the aircraft finance market, from commercial banks and operating lessors through to private equity firms, all of whom are looking to invest in the sector.

The last 24 months alone has seen GECAS' \$1.775 billion acquisition of Milestone Aviation Group and multi-million dollar revolving credit facilities made available to LCI and Waypoint.

There are, therefore, many options available to lessors and operators alike offered by financiers in the conventional finance space.

While Sharia-compliant, Islamic financing of aircraft is not a new phenomenon, Islamic banks and financiers, like many of their conventional counterparts, are now increasingly looking at the aviation sector with a great deal of interest and optimism.

Islamic finance need not be, and is not, confined to Muslim countries or to Muslim customers; rather it is a global phenomenon that, while being prevalent in the Middle East and other predominantly Muslim countries, including, for example, Malaysia, is also used extensively in the Far East, Europe and the USA.

In the aviation market, potential expansion

into Iran following the lifting of sanctions will see the need for Islamic finance techniques to be used to back growth still further.

■ ISLAMIC FINANCE ENTITIES

The principles of Islamic finance are not, in fact, at all unfamiliar. They are similar to many conventional banking techniques – in particular, asset and project finance.

Islamic finance involves the application of the Sharia (Islamic) law – the law revealed in the Quran, the central religious text of Islam, through Hadiths, a collection of reports of the sayings and actions of the Prophet Muhammad, and through the Sunnah, a traditional portion of Islamic law, based on the words and acts of the Prophet Muhammad, and preserved in the traditional literature – to the finance sector.

Financing structures and techniques that conform to, and comply with, Sharia principles and which are legal, valid and binding under conventional laws, and which are enforceable in the secular courts or through arbitration, are central to the concept.

There is, of course, nothing particularly new about Islamic finance as a concept and it has

been a source of finance for many products and in many sectors for a significant period of time. However, it is fair to say that, in the aircraft finance sector, at least, it is not as prevalent as financing using conventional techniques.

In summary, an Islamic finance transaction must be free from unjust enrichment, form an integral part of a trade or economic activity (for example, sale, lease, manufacturing, partnership) and comply with certain restrictions relating to the payment and receipt of interest (riba), uncertainty of contractual terms (gharar) and gambling/speculation (maysir). In addition, it must not be used to promote businesses that are viewed by the Sharia as inherently harmful for human health or spirit, or the social fabric (such as alcohol and gambling).

■ PROVISION OF ISLAMIC FINANCE

Islamic finance may be used where both customer and bank have a requirement or wish for transactions to be documented and conducted in a Sharia-compliant manner. It may also be used in circumstances where an Islamic finance institution is providing finance to a customer who, while having no particular need



to raise money in a Sharia-compliant manner, is offered the best deal as to pricing and terms from an Islamic financing institution.

Equally, it may be used where an Islamic financing institution offers an alternative source of funds in circumstances where, for example, the customer may have already exhausted available conventional credit lines.

Islamic finance products are offered by a range of Sharia-compliant banks and financial institutions.

They may also be provided by financiers who are, for the most part, non-Islamic finance providers, through Islamic ‘windows’ – Islamic departments within conventional banks. (There is, however, some debate as to whether this constitutes Islamic finance and there is a clear divergence of opinion on this in academic circles.)

It should be noted that it is also possible to harness both Islamic structures and structured finance products within the envelope of a specific transaction. On this basis, it is possible, for example, to have both Sharia-compliant and conventional tranches within the same financing facility.

■ ISLAMIC FINANCE TECHNIQUES

There are a number of Islamic financing techniques that can be used to finance aircraft. Those most pertinent to and commonly used in aircraft finance are:

- Tawarruq/Reverse Murabaha;
- Ijara; and
- Sukuk.

■ TAWARRUQ/REVERSE MURABAHA

Murabaha is, perhaps, the simplest Islamic finance technique used and originates from trade finance. The technique, in its basic form, involves a contract for the purchase and resale of a physical asset.

The bank purchases the asset that its customer has identified and sells it to the customer at an agreed profit on deferred payment terms (instead of charging interest).

The murabaha concept has been adapted using a series of back-to-back commodity trade transactions, to form a structure (known as tawarruq or reverse murabaha) that can best be described as a means by which financial institutions can fund transactions in a manner that is Sharia-compliant, rather than using conventional loans from the interbank markets.

Under a reverse murabaha, a series of transactions takes place by reference to the buying and selling of a commodity, the net effect of which is that the customer is obliged to pay a sum of money to the bank at a future date and that sum represents the bank’s outlay, plus a profit element. On the settlement date, the customer can either pay the full amount outstanding to the bank or pay a portion of the outstanding amount and enter into a new transaction with the bank but for the (lesser) outstanding amount, thus amortising the debt over time. The net effect of all of these arrangements is akin to a fully drawn amortising revolving credit facility.

This technique can, for example, be utilised to provide pre-delivery (PDP) financing for aircraft under construction. The customer uses the funds from the commodity trade to pay the PDP instalments owed to the manufacturer and the bank takes security over the underlying manufacturer’s purchase contract (istisnaa) and, if applicable, any related bonds or guarantees.

This structure was utilised by the Bank of London and the

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Middle East (BLME) and Lloyds last year in a facility for LCI which was used to finance PDP payments for a number of Airbus H175 and H225 helicopters. That facility was structured so as to include both a master murabaha facility from BLME and a conventional facility from Lloyds, with Lloyds acting as mandated lead arranger under both facilities.

■ IJARA

An ijara is a lease. Different types of leases (operating leases, finance leases), as well as a form of hire purchase (ijara wa iktina), are possible in Islamic finance.

Sale and leaseback is also possible, although, certainly for the acquisition of new aircraft, there is a preference for the title to pass directly to the bank, as owner, from the manufacturer.

Ijara can also be linked with other Islamic finance techniques so as to enable PDP financing by linking the ijara to the istisnaa contract, with the lease being a forward lease or agreement to lease and the customer being appointed as the owner's agent to supervise the pre-delivery and completion stages in the usual manner.

Some of the common features of an ijara financing include the following:

- Floating rate rent and other obligations: The methodology for the calculation of rent must be determined at the time of contract for the whole period of lease, but the rents themselves – including a profit element (or return) for the owner – and other amounts payable may be calculated by reference to a conventional benchmark rate (for example, LIBOR).

- Liquidated damages/late payment charges: The lessee would be expected to pay liquidated damages or late payment charges if it defaults or is late in performing its obligations under the ijara. However, as the owner is not permitted to retain more than the loss suffered, or costs actually incurred by it as a result of the lessee's default, any excess is required to be paid to charity.

- Insurance and maintenance: Contrary to the position in a conventional lease financing, in an ijara financing, the owner is required to assume responsibility for certain insurable risks and to perform or contract heavy maintenance – the major checks an aircraft has to pass periodically. This is in contrast to the position for light maintenance, which falls on the lessee. Given the above, it is customary for the owner's liabilities and obligations arising from ownership to be assumed by the lessee as the owner's agent through a separate "service agency agreement".

- Sale and purchase undertakings. A typical ijara financing would also include separate undertakings by the owner to sell, and by the lessee to purchase, the aircraft should the financing unwind for any reason. This gives the owner comfort that the lessee would purchase the aircraft in such circumstances and, therefore, avoiding the issues – delays in repayment, costs, practicalities, lack of expertise/market



Sheikh Ahmed rings opening Nasdaq bell for sukuk finance deal.

knowledge etc – that the owner may face in having to remarket the aircraft itself following a default by the lessee.

■ SUKUK

A sukuk is, in effect, an Islamic bond, although it has a number of differentiating and defining characteristics.

It can be used in conjunction with other Islamic structures such as ijara.

The underlying asset can be any halal asset – an asset permitted or considered legitimate by the Sharia – and, while the majority of sukuk have tended to be real estate-backed, this type of financing is being increasingly explored in the aircraft finance sector as well.

At its simplest, a sukuk involves the amount subscribed by investors being used to purchase an asset (such as an aircraft) using a single purpose company, for the purpose of leasing out the asset and charging rental. The rental stream, which is the only income of the single purpose company, is distributed to the subscribers according to their interests. The subscribers hold certificates (sakk certificates) of proportionate entitlement that represent the pro rata ownership interests of the subscribers in the underlying assets.

The Emirates \$913 million UK Export Finance-backed sukuk last year (the first time that a sukuk has been used to pre-fund the acquisition of aircraft and the first ever sukuk financing for A380 aircraft), is a prime example of the use of sukuk in the aircraft finance sector.

This involved the issuance of certain certificates (due 2025) by Khadrawy Limited, guaranteed by the export credits guarantee department of UK Export Finance. The proceeds from the issuance of the certificates were to be used to fund the acquisition of four Airbus A380-800 aircraft for operation by Emirates.

For corporates looking to the public debt markets, using a sukuk potentially taps a wider

market than a conventional bond, as the differences between a conventional bond and a sukuk are minimal. A downside is that some conventional investors may be put off by the references to Sharia compliance in certain markets.

Sukuk is also often used as a means to sell down bilateral transactions, either on an individual basis or on the basis of a series of bilateral transactions packaged as a sukuk. This often looks more like a private placement.

■ OTHER STRUCTURES

It is worth noting that other Islamic finance structures, such as musharaka (akin to a partnership or equity financing) and modaraba (akin to a funded participation arrangement), are not particularly prevalent in the context of aircraft finance transactions.

In part, this may be due to the perceived relative complexity of such structures as well as, in the context of musharaka at least, the fact that the requirement for a partnership arrangement may be off-putting for some financiers.

■ SUMMARY

Islamic finance is a part of the global financial services industry that is continuing to expand, both geographically and in terms of the industries and sectors that it services. Further expansion is anticipated, particularly in the aviation sector, as a result of, among other things, the potential for growth of the aviation market in Iran.

From a legal and commercial perspective, Islamic finance structures (including those noted in this article) are now robust and tried and tested.

For both reasons, Islamic finance should be considered as an alternative source of funds for aircraft lessors and customers/operators alike.

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Arabisation has been a buzzword in the aerospace industry for the past decade, as governments have aimed to develop the region's human capital.

Barbara Saunders looks at the progress being made and asks if Arabisation is soaring or stalled?



Arabisation: a challenge

Arab governments have prioritised aerospace and aviation as local employment drivers and vaunted the success of the region's growing aviation market, which is constantly outstripping average global growth.

According to Boeing, Gulf region airlines are expected to receive 3,310 new passenger and cargo aircraft, worth \$770 billion, over the next 20 years.

In the UAE, the pursuit of Emiratisation has been signalled from the top. Recently, the country's Minister of Economy, HE Sultan bin Saeed Al Mansoori, said: the UAE's "vibrant and robust" aviation sector is "well positioned to continue to make significant contributions to the UAE's economy, human resource development and support the UAE Vision 2021 strategy".

But is the growth delivering local employment opportunities and ensuring that aviation is a preferred local career path with adequate 'fit-for-purpose' training?

Some see the issue as a major challenge, others as a huge opportunity. Across the region, efforts are under way to put Arab aviation on course to being a sector characterised by its very Arabness.

Arabisation of the industry is an economic and political necessity, according to Osama Fattaleh, CEO of Joramco, the Jordanian commercial aircraft maintenance, repair and overhaul (MRO) leader, which was recently acquired by DAE.

He believes the sector has a role in addressing job creation for the region's expanding youth segment, with some experts estimating its MRO segment alone will require around 66,000 new technical personnel by 2034 – 11% of the industry total.

"One of the biggest challenges in the Arab world is youth unemployment and, among the biggest issues we face is that in some Arab countries, some youth do not look favourably on certain types of jobs on offer – semi-skilled production work, for instance. We are lucky in that there's a growth in maintenance engineering, which is viewed favourably by a large segment of Arab youth."

Joramco is a workforce Arabisation success story, with all of its near 1,000 employees being Jordanians. "We probably give the best career opportunities for two-year college degree holders to earn a very good standard of living," said Fattaleh.

Training momentum

However, the Joramco CEO believes the training momentum laid out in the synchronised system of the early Arab aviation years has been lost.

"If you look back at the 70s and 80s, when we had growth from Gulf Air, Royal Jordanian and, to a certain degree, Kuwait Airways, they all had an eco-system for the entire industry spectrum, including pilot training. Many nationals worked within this eco-system. Today, with Emirates, Etihad and Qatar Airways, this eco-system is not generating sufficient jobs for the national workforce. If you look back at the 70s, many of the local students went to the west to train and developed extensive careers within the industry. Now there is a disconnect.

"Having a steady supply of employees coming from the Arab world to the Arab world is commercially and politically beneficial."

For some, though, workforce multi-nationalism is an essential reality, at least for

now. John Bowell, CEO of aviation consultants, ADA Millennium, says in the GCC aviation workforce expats outnumber locals.

Bowell believes the UAE leads in workforce localisation but the transition is more a marathon than a sprint. "With the government emphasis to increase the number of Emiratis employed by 5% per annum, it's clear that there has been a big push. Etihad announced at the start of this year the successful reaching of its Emiratisation target implemented in 2007. This can only be the start. It's important to note that, especially for aviation, one of the main challenges is the absence of experience and competence amongst nationals, hence the reason for expatriates in the current environment.

"In such a highly specialised industry, it takes time to prepare these national future leaders with the skills and expertise to be able to carry out the roles currently filled by foreign nationals.

"The implementation of a specialist, integrated and concerted government initiative to build a platform for a knowledge-based national economy, generating proper jobs for qualified national professionals, can only help. There needs to be awareness that all localisation policies are not about just filling quotas, but empowering nationals and growing local economies."

Operators can point to endeavours to build a training eco-system. Emirates-CAE Flight Training was launched in 2002 as the region's first training facility to be approved by European, US and UAE aviation authorities. It provides courses for commercial and business carriers aimed primarily at flightdeck and maintenance personnel.



...or an opportunity?

The Emirates Group has its own national recruitment and development strategy and employs nearly 3,000 Emiratis among its overall group workforce of 95,000, comprising 160 nationalities.

“We’ve spent years developing and establishing a strategy that would give us a structured framework, allowing us to measure and evaluate the effectiveness of our programmes,” said Amira Al Awadhi, Emirates’ VP national recruitment and development. The group’s four-stream rehlaty Emiratisation programme is aimed at ensuring national employees are matched with the right opportunities and given the development tools to grow.

Rehlaty, explained Al Awadhi, has an overall aim, rather than a specific quota goal. “We have set an Emiratisation target to recruit and retain UAE nationals and offer a range of career opportunities and scholarships to ensure our new recruits are well equipped for a dynamic career with the Emirates Group. Our aim is not to simply fulfil a quota, but to build, invest and contribute to the development of this nation through its people.”

In the past year, the group has introduced three new Emiratisation training programmes and its national recruitment department selected 831 UAE nationals this financial year – the highest since its establishment.

Low-cost carrier Flydubai, where the multi-national staff register now tallies 3,393, says its Arabisation is influenced by UAE General Civil Aviation Authority regulations, which require an Arabic-speaking cabin crew member on every flight. Almost a quarter of its cabin crew are now Arabic speakers.

“We are seeing strong interest from Arabic-speaking candidates from across our network and receive an average of 1,000 applications a day,” said the airline’s spokesperson.

For Dubai Airports, which manages the operation and development of both Dubai International and Al Maktoum International, Emiratisation starts at the top. Meshari Al Bannai, SVP human resources, Dubai Airports, says the company has a target to have Emiratis represent 40% of its leadership.

Executive positions

“We recently appointed four Emiratis into executive positions within the company to strengthen our senior management team and augment our ability to deliver our long-term strategic plan to support our future growth. We are proud to have reached 35%, and are confident that we will achieve our ultimate goal of 40% in the near future. This group makes up almost 20% of our total workforce, with 8% of leadership positions held by female Emiratis.

“The target forms part of the Dubai Airports’ strategic people and culture plan, which is aimed at providing a fertile ground for employees to flourish and to facilitate a culture that encourages innovation, customer centricity and best practice service delivery throughout the company.

“The plan also incorporates a range of initiatives that are in development to support the target, including the introduction of a formal Emiratisation policy in 2016 and work to improve our employer brand proposition to attract future Emirati employees.”

Despite the endeavours, Al Bannai admits there are hurdles to fulfilling Emiratisation targets. “The main recruitment challenge we face is attracting employees with the right combination of skills and experience. Each role within Dubai Airports has an element that ultimately contributes to delivering a great passenger experience. In a fast-growing business, with a complex two-airport operation, we need talented individuals that can become game-changers at the forefront of customer innovation.”

Abu Dhabi Airports Company (ADAC) said that Emiratisation was one of the distinguishing features of its sustainable growth and development plan and that recruitment and retention of UAE national talent was integral to the company’s success. “Abu Dhabi Airports exceeded its target for Emiratisation in 2015, with 50% of its workforce now being UAE nationals. Moreover, the number of Emiratis in our higher management positions has reached 72%,” a spokesperson said.

The airport has developed its national development programme (NDP) for employing and training UAE graduates.

“The programme is delivered over an 18-24-month period and focuses on enabling candidates to obtain practical experience and occupational skills. This is done by placing the trainees in various departments according to their major of studies, delivering on-the-job training, and monitoring their progress through a structured assessment system, to ensure a stable and productive programme,” the company said.

“Aviation will play a significant

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role in the diversification of the economy, as outlined in Abu Dhabi's economic vision 2030. It is, therefore, imperative to develop national expertise within the industry to deliver sustainable growth.

"A total of 90 UAE nationals have been enrolled in the NDP so far, and 38 of them have now been confirmed as permanent employees of Abu Dhabi Airports. In addition, since the launch of Abu Dhabi Airports' stipend programme in 2013, 56 students have enrolled in various universities and colleges across Abu Dhabi, with the objective of employing them in the company upon graduation."

Talent, ambition and experience are the challenges that seem to surface time and again and, for most, education and training opportunities are the answer – providing they are packaged in a coordinated and industry-targeted manner.

Some say progress has been made, pointing to an increase in the number of colleges and universities now offering aviation courses.

Dubai Civil Aviation Authority (DCAA), Dubai Air Navigation Services (dans) and Emirates Aviation University (EAU) this summer pencilled a long-term strategic partnership to train and develop human resources and provide fully-fledged technical academic programmes for aviation students and professionals.

Global demand

Dr Ahmad Al Ali, EAU's vice chancellor commented: "There is global demand for operational and technical roles, such as air traffic controllers and navigators – particularly in this part of the world, where air traffic is expected to continue growing. This new joint venture allows us to capitalise on dans' technical expertise in air navigation and traffic management to provide a highly specialised resource that our industry needs for future development."

This kind of industry-academia collaboration is a start in plugging what Joramco's Fattaleh says is "a disconnect" between education and the sector.

"The infrastructure exists. There are training facilities in many of the Arab countries and universities are now offering a range of aviation-related courses. The problem is that no-one is bringing the training organisations and the airlines together; to assure success there has to be some kind of long-term view in this regard," he said.

Fattaleh has no doubts about where that responsibility lies: "The large airlines have the most vested interest in this."

Joramco set up its own independent, non-sectarian, co-educational academy in 2008. It provides comprehensive education to prepare graduates for productive careers and responsible citizenship, with special emphasis on the needs of aviation, aerospace, engineering, and related fields.



Etihad: half nationals employed are women

Etihad Airways marked Emirati Women's Day in August by announcing that more than half the UAE nationals employed by the airline are female, including nearly 50 pilots.

A total of 11 Emirati women are fully operational as pilots with the airline, while 38 others are navigating their way through cadet pilot training.

Mona Walid, vice president, human resources for Etihad Airways and Etihad Airways Engineering, said: "Since Etihad's launch in 2003, the company has focused on attracting and developing both male and female Emirati talent. As we nurture the leaders of the future, we are committed to elevating Emirati women to the forefront of aviation to play their part in the growth of the economy."

There have been much-touted successes though, including Mubadala's entry into specialised aero-structures manufacturing in Al Ain through Strata Manufacturing.

Homaid Al Shimmari, Mubadala's chief executive officer of aerospace and engineering services, has said that the company will see its employee numbers grow from 700 to 1,200 by 2020, with an Emiratisation rate above 50%.

In the defence sector, the region's offset policies play a role in national development, with bids now being sought that include a focus on technology transfer and employment of nationals.

Business aviation

But things aren't so rosy within business aviation, according to Josh Stewart, founder and CEO of XJet. He says, currently, the region is fully focused on commercial travel, leaving business aviation trailing behind and representing missed opportunity, particularly for new career paths for nationals.

"There is a huge demand for people in business aviation. We are quoting half a million pilots and half a million engineers and yet, when people think of an aviation career, they automatically think commercial or defence and that doesn't translate down to business aviation."

Ali Alnaqbi, founding chairman of the Middle East Business Aviation Association (MEBAA) says business aviation's manpower dilemma

stretches beyond pilots, engineers and mechanics and MEBAA is addressing it through a dedicated education campaign, which is bringing governments, schools and universities into the mix.

"During our MEBA show, we have a futures day where invited students attend and speakers try to impress upon them the importance of business aviation and the opportunities it offers," he said. "We are also talking to universities in Morocco about an aero club for business aviation."

MEBAA is also going into institutions and campaigning for business aviation to be included in the curriculum. "We would also encourage the big companies and original equipment manufacturers to host or give scholarships to students who are really interested to learn about business aviation."

One seasoned aviation HR and change-management specialist, Karen Storey, whose clients have included Dubai Airports and Abu Dhabi Airports Company, says that though the sector has progressed workforce localisation more than some other regional segments, challenges are still on the horizon.

Young talent

"Helping young talent to see the sector as critical to the region's economic stability and to consider aviation as the career path of choice needs more focus. The sector proposition needs to be made more compelling and those conversations need to start much earlier.

"New sectors such as aerospace and technology will continue to compete for the same talent pool. The industry needs to get creative to attract those in (STEM) science, technology, engineering and maths, who are unclear about the sector's varied and long-term career prospects.

Storey proposes a regional aviation skills and career alliance, where all sector players, public and private, work together to "sell" the sector to local job-seekers, forecast skill requirements across all disciplines and develop accredited and standardised national occupational skills standards and career pathways. "There is a huge opportunity with such an alliance to create a hub where talent can understand career development opportunities and have evidence that aviation can be a sound career choice."

A holistic cross-industry approach could find favour with Joramco's Fattaleh, who believes a new eco-system will benefit all.

"There's probably about 1,000 people working in the Gulf who went through our eco-system inherited from Royal Jordanian. They are highly skilled. If there's a way to match supply and demand in an organised fashion it will be a win-win for airlines such as Qatar Airways, Etihad, Emirates, as well as governments, which are seeking to create employment opportunities," he said.



Emerging Young Emirati Space Professionals Observe the Launch of OSIRIS (right).

UAE's national programme – it's out of this world...

A group of UAE nationals are emerging as leaders in space, thanks to a programme developed by the UAE Space Agency, Mubadala, and Lockheed Martin. Marcelle Nethersole reports.

The UAE's vision for its 50th national anniversary is to be a leading space sciences nation and to reach Mars.

That's according to Dr Khalifa Al Romaithi, chairman of the UAE Space Agency, who said that the national space sector policy stems from that leadership vision.

And, already, a group of young UAE nationals are emerging as leaders in the UAE space industry, thanks to a space-based workforce-training programme developed earlier this year by the UAE Space Agency, Lockheed Martin, and Mubadala.

Generation space: the space fundamentals training programme, was produced for early career professionals across the UAE aerospace industry.

The programme runs for four months and includes training in the UAE and the US.

Beginning in the UAE, the training is in 'space foundations' and moves into more technical topics, covering more than 200 hours of coursework. Participants will also complete mentor-guided research projects.

Courses will cover technical topics like 'Satellite 101', as well as leadership skills and business acumen.

By the time *Arabian Aerospace* went to press, participants had wrapped up the first phase of programme, based at the UAE Center for Innovation & Security Solutions in Masdar City, Abu Dhabi, and were in the US to complete the final project phase. This is hosted by Lockheed Martin and immerses participants in the US space industry.

"In addition to attending NASA's OSIRIS-Rex launch in Cape Canaveral, Florida, participants are shadowing US space professionals, touring Lockheed Martin's virtual reality engineering lab, and seeing satellite production facilities," said Kara Schoeffling, head of communications Middle East, Lockheed Martin.

The end goal for the students, as well as the UAE Space Agency, is to develop a pipeline for the UAE's space talent and support the overall aerospace educational eco-system in the UAE.

Al Romaithi said: "This latest initiative represents and

realises the long-term strategic vision of the UAE Space Agency, which seeks to bring together Emirati stakeholders, as well as maximising international cooperation in the space sector. Furthermore, we are committed to instilling a sound scientific understanding among up-and-coming Emiratis as part of our efforts to develop a knowledge-based economy."

Both Mubadala and Lockheed Martin were keen to support the UAE Space Agency and the future space students from the UAE.

"Mubadala is proud to be a part of generation space, which will provide the UAE's next generation with hands-on experience across the UAE and US space industries," said Homaid Al Shimmari, chief executive officer of aerospace and engineering services at Mubadala. "The future strength of the UAE's aerospace industry depends on the development and innovation of the young professionals who will lead our country into space for the benefit of the people of the Emirates."

Space ambitions

Schoeffling added that Lockheed Martin admires the UAE's space ambitions.

She said: "In line with the UAE's national vision, the programme was developed as part of Lockheed Martin's growing collaboration with the UAE Space Agency. We want to support its growth by collaborating to develop tomorrow's Emirati leaders for future careers. The programme supports the UAE's strategic vision to create an indigenous talent pipeline of students and young professionals inspired towards long-term careers in the field of space."

The UAE's mission to Mars programme is the first by an Arab, Islamic country.

It will be one of only nine countries with ambitions to explore Mars and the unmanned probe, named Hope, will travel more than 60 million kilometres in nine months to coincide with the UAE's 50th anniversary in 2021.

So, will any of these students one day help the UAE reach the Red Planet? Watch this space...

Bouteiller CEO for Salam launch

Former CEO of Saudi Arabia's successful low cost carrier Nasair, Francois Bouteiller, has been appointed chief executive of Oman's first budget airline, Salam Air.

Bouteiller has more than 30 years experience in the industry. The former Swiss Air pilot was the co-founder of FlyBaboo.

Salam Air is due to begin operations before the end of the year with three leased A320s.

Mueller innovation role at Emirates

Former Malaysian Airlines (MAS) and Aer Lingus chief executive, Christoph Mueller, has joined Emirates as its chief digital and innovation officer.

Mueller resigned from MAS in April, after less than a year in the job, citing personal reasons. His previous career included senior roles at TUI, Sabena, Lufthansa, DHL and Daimler-Benz Aerospace.

Scherer takes helm at ATR

ATR has appointed Christian Scherer, as its CEO for a four-year term. He succeeds Patrick de Castelbajac, who will become company secretary

Abu Dhabi's luxury executive jet provider Royal Jet has a new President and CEO. Canadian, Rob DiCatri brings to the company more than 25 years of international aviation and hospitality leadership, including over 10 years in the Middle East, where he played a key role in establishing National Air Services (Flynas) and Net Jets Middle East (now NasJet) in Saudi Arabia as CFO and head of strategy.

After leaving Saudi he was appointed chief financial officer of Atlantic Aviation but returned to the Gulf to take up the job with the Abu Dhabi-based VIP operator.

DiCASTRI HAS THE ROYAL TOUCH



and chief of staff as well as member of the executive committee of Airbus. The transition became effective on November 1, 2016.

Scherer was previously executive vice-president and head of Airbus Group International.

Air BP CEO

BP has appointed Jon Platt as chief executive of Air BP, the oil company's global aviation business.

Platt assumed his role on October 1 2016, taking over from David Gilmour, who successfully led Air BP since 2013.

"Air BP has a strong focus on safe and reliable

operations, growth and supporting the needs of our customers through quality, technical expertise and innovation," said Platt. "We will continue to be a key business in BP's growth strategy, deeply committed to the aviation industry, our customers and investment in their future."

New man at the IATA helm

Alexandre de Juniac officially took on the role of International Air Transport Association (IATA) director general and CEO in September. The 72nd IATA AGM confirmed his new role in June. Bringing

diverse experience to the association, including leadership roles in the airline and aerospace sectors, as well as in government, he becomes the seventh person to lead the organisation.

Chuah lands DAE sales VP role

Dubai Aerospace Enterprise (DAE) has hired Leonard Chuah to support its growth agenda by expanding client coverage activities in the Asia Pacific region.

Chuah joins DAE Capital as senior vice president, marketing and will be part of the team responsible for DAE's Asia Pacific aircraft leasing and sales origination.

Edwards and Wells join Synergy

Dave Edwards, former executive VP at Qatar Airways Executive and MD Middle East and Asia at Gama Aviation, Dubai, has joined Synergy Aviation.

He is joined there by Tom Wells, previously managing director Europe for Gama Aviation.

Dubai Airports' four Emirati executives

Dubai Airports, operator of Dubai International and Dubai World Central, has announced the appointment of four Emiratis to executive positions in airport administration.

Mohammad Al Hamli, director HRD planning and design, steps up to vice president HRD planning and design, while Mona Al Abdoli, who was director of the legal department, steps up to vice president there.

Samya Ketait, who was working with the company as vice president of learning and development, has been appointed VP of government excellence and national identity. Also, Najla Al Ghammai has been appointed as director of category management in corporate services.

"These appointments strengthen our senior management team and augment our ability to deliver our long-term strategic plan to support future growth and world-leading customer service," said Paul Griffiths, CEO of Dubai Airports.

ALL CHANGE FOR EMIRATES



Omar Al Banna is Emirates Airlines' new country manager Kuwait. Al Banna joined the carrier in 2006 as part of the UAE national commercial operations management trainee programme.

Mohammed Al Nahari Al Hashemi (left), who has worked for Emirates for the last 12 years and previously held country manager roles in Kuwait, Syria and Indonesia, has a new corporate sales manager role.

Tariq Almutawa is new country manager Qatar. Almutawa has been with Emirates since 2012 and had previously been country manager in Bahrain.

Omar Alhemeiri takes over as country manager Bahrain, while Saeed Bin Hafez has been appointed as manager Oman. Previously he was country manager of Qatar.



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Marcelle Nethersole *speaks to the president of IFALPA.*

1

■ What is IFALPA and why is it important to aviation?

The International Federation of Air Line Pilots' Associations was formed in 1948 in response to the creation of the International Civil Aviation Organization (ICAO). Its mission is to promote the highest level of aviation safety worldwide and to be the global advocate of the piloting profession; providing representation, services and support to both our members and the aviation industry.

In practice, this means providing the combined knowledge and experience of more than 100,000 professional pilots as advice and support to the work of the ICAO, as well as supporting our members, more than 100 professional pilot associations, as they seek to ensure full implementation of the ICAO standards and recommended practices (SARPS) in their countries.

2

■ The Middle East is primarily non-unionised. Does that create a conflict?

Yes – and no! Of course, for those whose culture does not include the union or worker representation model, then IFALPA can be seen as a threat to the wellbeing and order in that culture. However, this is a misunderstanding, as there is no correlation between being a union and IFALPA membership.

Many of our members are solely professional associations, which do not have a role in any employment discussions, and IFALPA, itself, has no ability or desire to become involved in organising such activity in the Middle East or anywhere else.

However, the Gulf area is a large and growing part of the world's aviation system and we certainly would like to ensure that the unique perspective of the professional pilots based in this area is not denied to the policy-makers at the ICAO.

3

■ How do you feel IFALPA can improve safety?

IFALPA has experts in all technical areas of aviation and we draw from an astoundingly broad diversity of knowledge and experience in our industry.

ICAO is responsible for providing the forum where the world's aviation regulators come together to work to raise safety standards and practice.

Together, we have been phenomenally successful and, despite the greater challenges of aviation versus other transport modes, we provide the safest form of transport the world has ever known.

IFALPA, along with the other global level industry associations, brings experience of what works and what is impractical to the ICAO debate. In fact, it is not uncommon for the International Air Transport Association (IATA) and IFALPA, along with other relevant industry partners, to author the guidance material, which enables ICAO member states to turn the SARPS produced by ICAO into practical and effective regulation.

Upset recognition and recovery training, fatigue risk management systems and multi-crew pilot licence are just some recent examples.

4

■ What change can we make to help the future of aviation?

ICAO has the right direction already set, with its 'no country left behind' policy. It is clear that around the world we now have a tremendously comprehensive understanding of what is necessary to run safe and efficient airlines.

There are significant parts of the industry that have suffered no fatal accidents in years. The challenge is in ensuring that we are able to communicate, coordinate and consolidate that knowledge so that all areas attain the same high level of safety performance. IFALPA still has a lot to do!

5

■ Tell us about your day job...

I am proud that, when I speak as IFALPA president, I do so also as a working professional pilot. During my 33-year career I have flown military, commuter, regional, short and long-haul aircraft. I currently fly the A380.

My work as a professional pilot is based on a single promise – that I will do everything to ensure my passengers, crew and aircraft travel to their destination safely.

The most important safety feature on a modern, well-designed aircraft is the flight crew. There is nothing more satisfying than looking back on a day's work where you know you have made a real difference to the lives of hundreds of people, by ensuring they did not have to worry about their safety while in your care.

Equally, there is nothing more frustrating to a professional pilot than having the system or circumstances deny you the ability to discharge that promise to the very high standards we set ourselves.

“ The most important safety feature on a modern, well-designed aircraft is the flight crew. There is nothing more satisfying than looking back on a day's work where you know you have made a real difference to the lives of hundreds of people, by ensuring they did not have to worry about their safety while in your care. ”



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