



# ARABIAN AEROSPACE

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

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**Editor Alan Peaford** hears inspirational words at the Middle East Business Aviation Conference.

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That is a tall order, but if there is a passion and a commitment then it could go a long way towards that goal.

In the same way, the passion and commitment shown by Abu Dhabi's Mubadala is developing high-end design engineering skills to the region's workforce.

This is a good time for business aviation in the Middle East.

**Alan Peaford, editor-in-chief**  
*Arabian Aerospace*

**COVER: Ali Al Naqbi, founding chairman of MEBA at MEBA show. Picture: Bilypix.**

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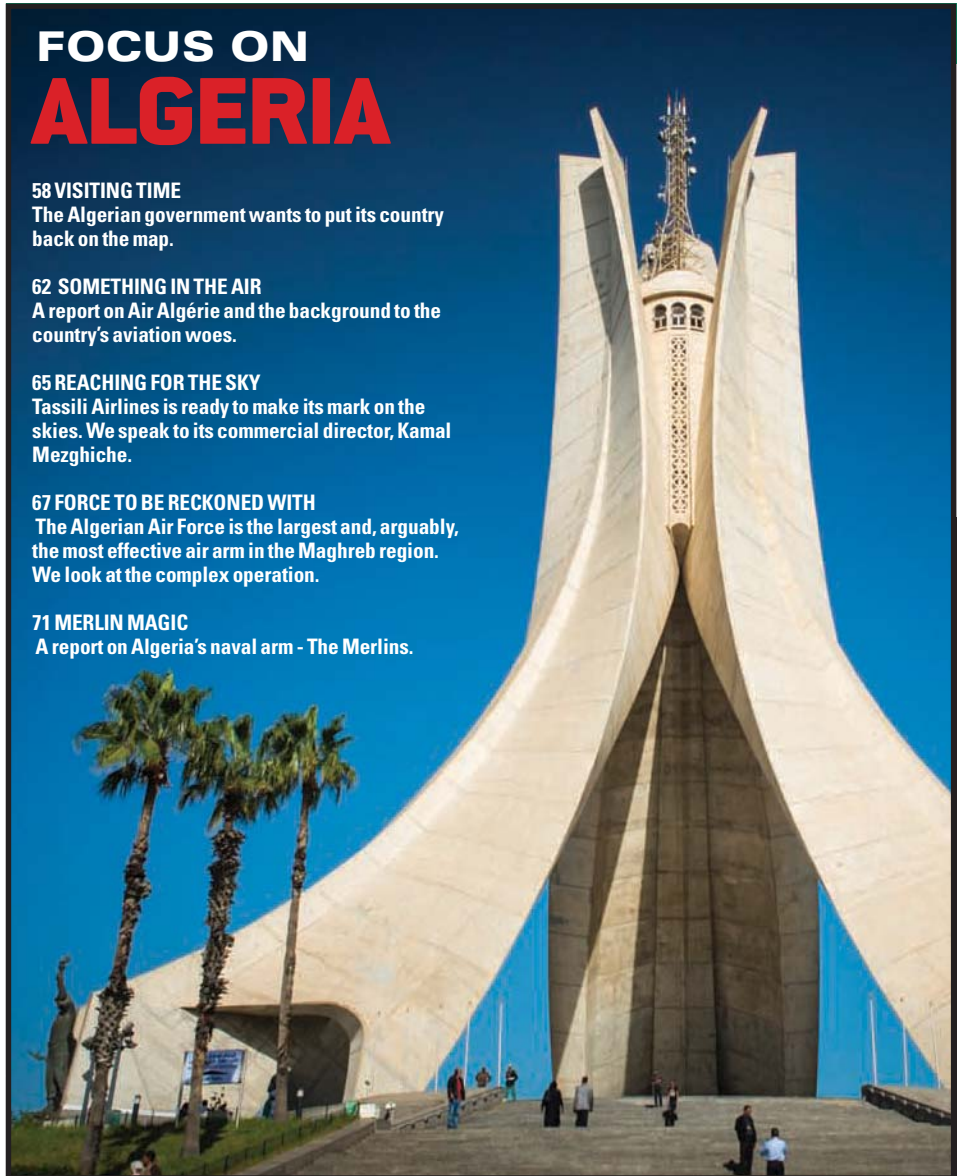
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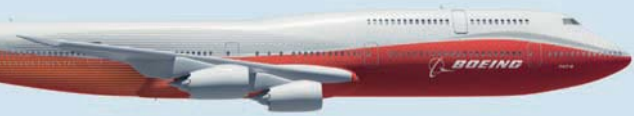
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# LAG



It seems that the 747 has had its day. The latest version, the 747-8, is the 48th derivative of a 1969 certificated aircraft and still produced without the latest full fly-by-wire technologies common to all modern aircraft.

For airlines this means limited cockpit commonality with other wide-bodies.

The 747-8 has no choice of engines. Its constrained performance means it produces more noise, has significantly less range, a higher approach speed and needs longer runways for both take-off and landing.

The fuselage is based on 1960's comfort standards, with only 17 inch wide seats and narrow aisles. It is enough to make a passenger twist and shout!

The 747-8. Based on a 1960's design. A true case of jet lag!

# JET



There are some very good reasons why the A380 is leading the very large jet market.

Having been designed for 21st century growth, it carries 30% more passengers while burning significantly less fuel per seat than the 747-8.

The A380's performance is unbeatable in its class, offering the most modern technology with 25% advanced composite materials. It flies further, needs shorter runways and climbs faster, all while being an aircraft awarded for its quietness.

In the wide-body market, the A380 has by far the lowest seat-mile costs and advanced fly-by-wire technology with renowned commonality across all Airbus types.

It also offers passengers 21st century comfort. The cabin is the quietest and most spacious in the sky, with more floorspace for wide aisles and wider seats, even in economy.

Passengers will opt for the A380 when given the choice. For airlines this means increasing market share and more revenue.

It's no surprise that the A380 has an 86% share of the very large passenger aircraft market.

It takes an A380 to compete with an A380.





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## HD movie first for flydubai

History was made when flydubai became the first airline in the world to show high definition (HD) movies from all six major Hollywood studios.

The airline introduced its in-flight entertainment system in December 2010 with HD films from Paramount Pictures and Walt Disney Studios Motion Pictures. Now, two years later, the HD debut of *The Bourne Legacy* from NBCUniversal has brought the full spectrum on board. The airline also has HD titles from Warner Bros, 20th Century Fox and Sony Pictures Entertainment.

## AJW exchange service for CFM56

Global aircraft spares support specialist A J Walter Aviation (AJW) has announced the introduction of a new exchange service for complete fan blade sets.

The service, which is now fully available, offers a selection of CFM56 engine fan blade sets, ready to ship and fit immediately.

## Iraqi Airways takes first Airbus A330

On behalf of the Iraqi Ministry of Transportation, Iraqi Airways, the national carrier of Iraq, has taken delivery of its first A330-200, becoming a new operator for the type. This will be the first



## Etihad is world leader for 4th year in a row

**Etihad Airways was named the world's leading airline for the fourth year in a row at the World Travel Awards.**

**The carrier also received recognition for its diamond first class product, named the world's leading first class.**

**James Hogan, Etihad Airways president and chief executive officer, said: "I am delighted that we have again been named the world's leading airline. Particularly in our**

**region, the competition is strong, so this is a fantastic way to round out what has been an exceptional year for us.**

**"We have received this award for four consecutive years and every year we have sought to raise our standards even higher. We are consistently good, but we are always considering ways to enhance our guest offering even further and provide the best experience in the skies."**

Airbus wide-body aircraft to be operated by Iraqi Airways. The carrier already operates two A321 aircraft.

Accommodating a two-class configuration of 24 business and 264 economy seats, the aircraft is powered by GE CF6-80 engines and will be deployed on European routes including Germany, Austria and the UK.

## Saudi buys C41 Raytheon system

Saudi Arabia has signed a 'direct commercial sale' contract with Raytheon for a

command, control, communications, computers and intelligence (C4I) system to be delivered by Raytheon's Network Centric Systems business.

Raytheon said the agreement has a value in excess of \$600 million. Under the agreement, the company will provide a national, strategic C4I system, providing capabilities for joint service coordination.

## Turkish Technic signs MRO deal

Turkish MRO company Turkish Technic has signed

a five-year agreement with Azerbaijan Airlines for 10 sets of Airbus A320 landing gear overhaul services.

Landing gear removal and installation and landing gear overhaul activities will be carried out at Turkish Technic's Istanbul facilities. Turkish Technic also supports Azerbaijan Airlines with its spare units during shop visits of landing gears.

## Jordan Aviation has EU ban lifted

The European blacklisting of Jordan Aviation has

been lifted following a meeting of the European Commission to consider its aviation blacklist.

Among the revisions announced, Libyan operators remain banned from European airspace despite making "significant" progress on overcoming the safety issues that led to the voluntary prohibition in 2012.

The Commission said the Libyan authorities have agreed to maintain the voluntary restrictions, which had originally been imposed until November 22.

## Etihad wins Mercury Award

Etihad Airways has won the 2012 Mercury Award for 'On Board Service' for its innovative in-flight culinary programmes, first class chefs and the Mezzoon Grille.

The prestigious awards, recognising accomplishments in travel catering, were presented during the International Travel Catering Association (ITCA) gala dinner on November 27 at the Shangri La Hotel Qaryat Al Beri in Abu Dhabi.

## Qatar moves up to larger A350 XWBs

Qatar Airways and Airbus have signed an amendment to convert the airline's existing firm order for 20 A350-800s, 40 A350-900s and 20 A350-1000s, to 43 A350-900s and 37 A350-1000s, with the Qatar Airways' total order for A350 XWB aircraft remaining at 80.




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## Muscat Airport continues growth

Muscat International Airport, Oman's major gateway, is continuing to witness growth as work on the extension of the airport is stepped up.

In the latest figures issued by the airport there was a 17% growth in passenger traffic during the first 10 months of 2012 to 6,266,484 passengers, compared with 5,345,386 passengers during the same period of 2011.

The airport authorities have said new routes from Ethiopia and Bangladesh contributed significantly to the figures.

However, hopes that the boost from Africa would continue were dashed when Ethiopian Airlines announced the cancellation of its planned service increase to Oman.

Air cargo traffic also rose 15% during the same period, with total shipment of 94,000 tonnes, compared with 82,347 tonnes in the same period in 2011.

## Iran's captured UAV is ScanEagle

The UAV captured by Iran has been confirmed as being an American Boeing ScanEagle.

A Pentagon spokesman said Iran's claim that it had extracted valuable data from the drone was unlikely. He said it was "highly improbable" that useful intelligence could be gained from the relatively unsophisticated drone. He also said it couldn't be determined if it was being operated by the US military or other services.

The three-metre wingspan ScanEagle is used by a number of countries for surveillance.

Iran's state-run TV news showed images of the ScanEagle, which it said



Jeff Roberts: "But I think the real question is how do we create captains?"

## We must rethink civil pilot training – CAE boss

The head of CAE, the world's largest training organisation, has called for a rethink about how the training industry should prepare the next generation of aircraft captains, both in the airline and the business aviation sectors.

Speaking at the MEBA show in Dubai, group president of civil simulation product training and services, Jeff Roberts, said that the threat of pilot shortage for the civil markets is real.

"We are able to produce capable qualified co-pilots. But I think the real question is how do we create captains? I think we are going to have to think differently about how we accelerate the development of judgement and experience from the traditional approach of let's fly an aircraft for 1500, 2000 or 3000 hours," Roberts said.

"I believe we should be putting people through a wholly new designed command course to create captains and against that background have to think about various segments, such as regional operations or business aviation. How do we get a concerted effort to create supply to meet the demand?"

Roberts argues that the accumulation of hours on a C150 or 172 on visual flight rules (VFR) cross-country flights doesn't prepare a pilot for business or airline operations.

"The military creates command pilots within a year-and-a-half with 350 hours in a sophisticated aircraft with difficult environments and with a good safety record. They spend a million or two million dollars to do that and, of course, business aviation and even airlines cannot afford that kind of investment. But that kind of thinking is where we need to be. We have to think differently.

"A rethink about engaging today's technology – e-training, simulation, evidence-based and continuous training – should allow us to go to the regulators and create something new," he said.

was seized after violating the Islamic Republic's airspace.

## Ethihad airberlin alliance success

The year-old alliance between airberlin and Etihad Airways has allowed the carriers to deliver more than 300,000 passengers on to each other's networks and collectively generated more than €100 million in additional revenues, far outstripping the initial estimates.

## Flying Colours gets Saudi green light

Canada-based completions, refurbishment and maintenance specialist Flying Colours has won its first Saudi-registered aircraft maintenance project.

Scheduled to arrive in the first quarter of this year, the Saudi-registered

Challenger 604 will undergo a variety of major inspections, service bulletins, and interior refurbishment at the company's Peterborough, Ontario, facility.

Flying Colours received the required maintenance approvals from the General Authority of Civil Aviation (GACA) in September 2012 and is now permitted to carry out continuous airworthiness and line maintenance on aircraft registered in the kingdom.

## Emirates extends cooperation

Lufthansa Systems has announced that Emirates will continue to use Lido/Route Manual from Lufthansa Systems.

The two companies recently extended their agreement for the navigation charts for another five years. Emirates uses the

Lido/RouteManual navigation charts as well as the electronic Lido/eRouteManual charts on its flights. The airline also relies on the Lido/Flight, Lido/FMS, Lido/AMDB and myIDTravel solutions. The paper-based Lido/RouteManual chart solution and its electronic counterpart Lido/eRouteManual provide Emirates with navigation charts for take-off and landing procedures, as well as airport and route charts.

## Self-serve airport kiosk growing

Self-service check-in at Abu Dhabi International Airport is growing at a rapid pace, according to the latest figures from the seventh SITA/Air Transport World Passenger Self-Service Survey.

The 2012 results found

that 17% of passengers surveyed at the airport used self-service check-in; nearly double the rate of 9% recorded last year.

However, the region is still playing catch-up with other major international hubs. At a global level, self-service check-in now stands at 68% of passengers, with other airports surveyed, including Atlanta's Hartsfield-Jackson at 85%, a record level.

One reason for the lower self-service usage at Abu Dhabi is the strong cultural preference for the personal touch. There are signs, however, that passengers welcome the convenience and control that self-service technology offers. Nearly half of the passengers surveyed at the airport booked their ticket online, rising to 46% from 35% in 2011, although the majority (51%) still prefer to book through an airline shop or high street travel agent

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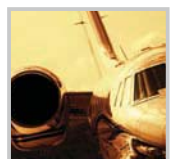
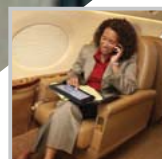
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## Massoud honoured by African airlines

Former Egyptian civil aviation minister Hussein Massoud was honoured by the African Airline Association (AFRAA) at its annual assembly in Johannesburg.

Massoud was formerly the chairman and chief executive of the EgyptAir holding company before becoming the country's civil aviation minister – a post he held until the recent Egyptian elections.

During 2011, he stepped in as chairman of AFRAA and helped the association bring unity and develop a business plan that has enabled it to succeed, AFRAA said at the presentation.

He received a commemorative trophy from South African minister of public enterprises Malusi Gigaba.

## Nexus brings MedAire to MENA

Saudi Arabia-headquartered Nexus has become a strategic partner of MedAire in the MENA region, bringing the US company's life-saving services to the region's fleets.

The Jeddah-based company will be fully supporting sales, training and distribution of the MedAire products and services.

The partnership was announced at the MEBA show in Dubai in December, where MedAire launched its latest medical kit for corporate aircraft, the advanced aviation medical kit, which includes medications and supplies most needed on flights to respond to common medical concerns and life threatening incidents.

The contents of the kit were selected based on analysis of more than two decades of data about the medical events that occur in-flight by a panel of aviation medical, regulatory, and operational experts.

The kit and contents are fully integrated with MedAire's MedLink, providing doctors visibility into the medical equipment on board the aircraft, saving valuable time when administering assistance to a patient.

The partnership will also run medical courses for MENA crew, which teach basic and advanced life support skills. Students also learn crew resource management skills, how to contact the MedLink service for advice, and to use MedAire's medical equipment designed for remote environments.

## Etihad starts \$15m training centre

Etihad Airways chief operations officer, Captain Richard Hill, has turned the

first sod to mark the construction of a \$15.3 million extension to the airline's flight training centre at its Abu Dhabi headquarters.

The new 5,300sqm facility will house six flight simulator training bays, classrooms for pilot and cabin crew training, pilots' briefing and debriefing rooms, a new pilots' lounge and offices.

Etihad Airways will install flight simulators for new aircraft types in the expanded facility. The UAE flag carrier has more than 90 aircraft on firm order with Airbus and Boeing, and to match this fleet growth, has plans to recruit 1,000 pilots and 9,000 cabin crew by 2020.

## NasJet sees 2012 revenue increase

NasJet has announced a 6% increase in revenues for 2012, resulting in a total exceeding SR500 million.

Despite the continued political instability in the region and high oil prices, NasJet has seen revenue improve by 6% for 2012, with an expected increase of 20% for 2013.

## Double award for flydubai

Low-cost carrier flydubai has received the Outstanding Contribution to Aviation trophy at the annual Aviation Business Awards, held in Dubai.

The airline also maintained its status as Low Cost Airline of the Year, having collected the same award 12 months ago with the panel of six judges citing flydubai's impressive network growth and innovative services. The annual Aviation Business Awards (ABA) celebrates the achievements within the Middle East aerospace industry and its growing dominance on a global scale.

## South Sudan seeks carrier help

South Sudan is putting out a request for international consultants to help it draw together plans for creating a national carrier.

The country gained independence from Sudan in July 2011 but now the government is to establish a flag-carrier and is formally seeking an international consultant to assist with drawing up a business plan.

The country's ministry of transport, in a public notice, is inviting international consultants to submit offers to formulate the plan for a "national airline to provide public air transport services".

The ministry has not given any details on the airline's potential size or operational scope.

## Gulf Air switches to narrow-bodies

Gulf Air has cancelled its order for 20 Airbus A330s and, instead, is taking eight of the classic A320s ahead of a further 16 Airbus A320neos.

It has also opted for Boeing for its long-haul fleet with a revised requirement for 12-16 Boeing 787 Dreamliners to meet its long-haul needs.

## Qatar lives the Dreamliner

Qatar Airways is celebrating the delivery of the airline's first Boeing 787 Dreamliner. The aircraft, the first of 30 787s ordered by the Doha-based airline, is also the first to be delivered to an airline in the Middle East.

## US firm takes over Oman airports deal

The government of Oman has appointed American consultants Hill International to take over the major expansion and modernisation



**Hassan Al-Mousawi:** "If it is a level playing field then competition is ok, but this is uneven. It is unfair competition."

## Qatar private VIP operator's fury over Doha competition

Qatar's privately-owned VIP aviation company, RizonJet, created a domestic storm when it said it is preparing to take the country's airport authority to court over a row about access by third-party operators to its luxury FBO at Doha Airport.

Rizon's chief executive, Hassan Al-Mousawi, speaking at the region's business aviation show MEBA, said that the monopoly that sees Qatar Airways, business jet operator Qatar Executive, Doha airport and Qatar Aviation Services (QAS), under the same management, is hindering the Qatar government's 2030 vision that called for a greater role for private enterprise in the growth of the Gulf state.

The issue came to a head early in December when Rizon claimed all third-party operators were refused permission to access the RizonJet FBO and sent, instead, to the Doha International ramp owned by the Qatar Airlines group.

"They have the upper hand," Al-Mousawi said. "If it is a level playing field then competition is ok, but this

is uneven. It is unfair competition.

"We are all for clean, healthy competition – that is what brings efficiency and raises standards. But in Qatar we have a world-class airline that also owns a private aviation business and the airport. If you look at the UAE you don't see Emirates or Etihad owning a business aviation operation; in fact Etihad is very supportive of Royal Jet. When you have a delivery of a \$250 million jet every two weeks you have no place in business jets.

Al-Mousawi said RizonJet was aware of the exclusive deal the airport has with QAS for ground handling and is happy with QAS providing the under-the-wing services, catering, towing etc, but the agreement when Rizon first planned to build its multi-million FBO was that it could accept its own aircraft and those of third parties.

Sources in Qatar say this is not the case. "The contract they have signed is for their own aircraft. Not third parties," the source, who asked not to be named, told *Arabian Aerospace*.

projects at Muscat and Salalah airports after cancelling the contract of the Cowi-Larsen joint venture team that has been involved for the past five years.

Cowi-Larsen's contract ended in December and a statement by the Omani government in October 2012 said they would will not be allowed to rebid as Oman Ministry of Transport and Communications had already decided not to renew the contract, saying it doubted the JV's ability to supervise major projects.

The development of Muscat International Airport is worth \$1.8 billion, while the Salalah Airport project requires an investment of \$765 million.

Hill International won the deal to take over the work from Cowi-Larsen and will work in close coordination with various contracting firms already involved in the expansion project.

## Turkish confirms biggest order

Turkish Airlines signed its biggest ever order when it confirmed a deal with Boeing for 15 B777-300ER aircraft worth \$4.7 billion at list prices.

The agreement, first announced in October as a commitment, also includes options for five additional 777-300ERs.

Turkish Airlines' fleet currently includes 12 777-300ERs, the first of which Boeing delivered in October 2010.

Over the past two years, these have formed the backbone of Turkish Airlines' long-haul operations. This latest order will enable the Turkish flag-carrier to continue to serve new destinations worldwide. The airline currently has more than 200 aircraft in operation.



## Middle East VIP 747-8i conversion

AMAC Aerospace has just started work on the VIP conversion of a Boeing 747-8i for an unnamed Middle East private customer at its Euroairport Basel Mulhouse facilities.

This will be the Swiss-based company's largest aircraft completion project to date, and is its third wide-body conversion, following a similar job on a Boeing 777-200LR for another Middle East client, delivered in October.

The two-year contract calls for a full nose-to-tail outfitting of the 747-8i, the latest version of

Boeing's Model 747 'Jumbo Jet'.

The aircraft will have a full VIP interior, with a master bedroom and master lavatory, private work and guest areas and VIP lavatories throughout the cabin, and will feature special mood lighting.

AMAC became an approved Boeing Warranty Service Centre earlier this year and recently achieved European EASA Part 145 approval to undertake heavy base maintenance on the Airbus A330/A340, B747-400, B747-8i and Boeing 777.



## Pegasus selects Family aircraft

Pegasus Airlines has signed for up to 100 A320neo Family aircraft (58 A320neo and 17 A321neo models), of which 75 are firm orders.

Pegasus becomes a new Airbus customer and the first Turkish airline to order the A320neo.

This is the largest single commercial aircraft order ever placed by an airline in Turkey.

Pegasus' new aircraft will be configured in an all-economy layout with 180 seats in the A320neo and 220 seats in the A321neo.

## Oman defence missile success

European defence manufacturer MBDA has confirmed that the Royal Guard of Oman (RGO) has successfully carried out the first operational firing of a VL MICA missile.

The company said that the firing, using the RGO's own VL MICA ground based air defence (GBAD) system, took place at the Abeer test range in the centre of the Sultanate of Oman in the presence of the highest political and military authorities.

MBDA said all aspects of the firing exercise, which included the detection, interception and destruction of an ATARID target flying at more than 14km range from the launcher, were completely successful.

## Yemen to launch Chinese freighter

Yemen's Felix Airways has become the launch customer of the Chinese MA600F freighter.

Xian Aircraft has delivered two of the freighters to Yemen's ministry of transport as part of a government-to-

## Bahrain plans for airport expansion

**Bahrain is set to announce further expansion of the country's international airport and increase the opportunities for business aviation.**

**Kamal bin Ahmed Mohamed, the country's minister of transportation and acting CEO of the Economic Development Board, said the airport will get a \$1 billion overhaul as part of a plan to take capacity from nine million passengers to more than 13.5 million. Work will begin in 2014 with full details to be released "soon".**

**"We welcome foreign investment," he said. "We are 25 minutes away from the eastern province of Saudi Arabia across the causeway and there will be a causeway connecting Bahrain with Qatar. There is a good talented pool of well-educated, bi-lingual people.**



**The kingdom's economy has long been the most free and diversified in the region."**

**The minister said the aviation industry could see the development plans at the Bahrain International Air Show, which takes place in**

**January 2014. He said it would see key delegations from Saudi and the other GCC states. "This is a unique event that maximises fundamental business benefits for all participants and visitors," he added.**

government deal. It is the manufacturer's first customer in the region.

The twin turboprop MA600F is produced on the same assembly line as the regional turboprop MA600 – an upgraded MA60 – but its key difference is a large cargo door on the starboard side of the rear fuselage.

## SAFA day drives pilot recruitment

The first admissions open day event run by Saudi Aviation Flight Academy (SAFA) at the campus in King Khaled National Park at Thumamah was voted a great success with interest from both Saudi nationals and expatriates across the kingdom.

The event was also attended by several

prominent businessmen and royal dignitaries, who took an introductory flight with SAFA's managing director Captain William Roe.

A total of 152 people registered online to attend the open house. Twenty prospective students that qualified for admissions also took the free introductory flight offered by SAFA.

## Top award for Qatar Executive

Qatar Airways' corporate jet division, Qatar Executive, has won the Best Business Aviation Operator of the Year 2012 award.

Qatar Executive was recognised for its strong commitment towards offering a superior in-flight experience and achieving major accomplishments,

such as the recent new partnership with the North American fractional jet programme provider Flexjet and the appointment by Bombardier as an authorised service facility in the Middle East.

## AYLA and JATS strike a deal

Ayla Aviation Academy and Jordan Airline Training and Simulation (JATS) have signed a multi-crew cooperation (MCC) training agreement, for JATS to provide AYLA trainees with a combination of ground school and simulator training hours.

The training curriculum has been approved by Jordan's civil aviation regulators and will be

conducted by JATS instructors. "The advantage of doing our MCC training at JATS is that it enables our cadets to experience full flight simulator flying with qualified and airline-experienced instructors", said Marwan Atalla, CEO of AYLA.

## Dubai opens A380 concourse

Dubai Airports has opened the first stage of Concourse A - the world's first A380 facility - at Dubai International's Terminal 3, with four of its 20 contact gates in operation.

Paul Griffiths, CEO of Dubai Airports said: "We are opening Concourse A in stages with more gates coming online in each successive phase.

"We believe that this approach of gradual transition will enable us and all our partners to ensure smooth operations and help us to deliver on our customer service commitment."

## Turkish order Bell 429 rotorcraft

The Turkish government has signed an agreement with Bell Helicopters for the supply of five Bell 429 rotorcraft.

The 429s will be operated by the Turkish General Directorate of Forestry (TGDF) to protect forest resources and coordinate firefighting operations.

"These aircraft will be performing challenging tasks, including firefighting operations, in demanding environments; the enhanced safety margins and exceptional speed of the 429 are critical advantages for the TGDF operations," said Murad Bayar, the undersecretary of defence industries for Turkey.

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# PHOON BOON

**B**ritain and Oman have been talking Typhoon for many years. The Omani interest in the Typhoon started to emerge in 2004, though it was hard to confirm much more than polite interest until July 2008, when *Flight Daily News* reported that Oman was showing “an unexpected ‘glimmer’ of interest in the Eurofighter Typhoon”.

It quickly emerged that the Royal Air Force of Oman had launched a Jaguar replacement programme and, in November 2008, the *Financial Times* reported that Oman was in talks with BAE Systems to purchase up to 24 Eurofighter Typhoon fighter aircraft in a deal worth at least £1.4 billion. It was reported that Oman was thought to be likely to want 24 aircraft, probably divided between 12 Tranche 2 aircraft (eight single-seaters and four two-seaters) for delivery from January 2013, with these to be followed by 12 Tranche 3 aircraft (ten single-seaters and two two-seaters) for delivery in 2015.

But other analysts and observers were sceptical, warning that the Omanis were merely “looking at what capabilities are available in the market”, and that they might still decide this was not the right time for a major fighter procurement.

It soon became apparent any Omani Typhoon buy would be rather smaller, with predictions of orders for 12 or 16 aircraft. Oman seemed to shift between interest in the Tranche 2 aircraft and the later Tranche 3 standard.

By 2010, the UK MoD was confident that an Omani order was imminent but a deal failed to materialise. In early 2011, BAE Systems sources expected that the deal would be signed “within

*Oman has finally signed a long-awaited contract to acquire 12 Eurofighter Typhoons. The inclusion of eight new-generation Hawk Advanced Jet Trainers in the £2.5 billion package was less widely predicted. Jon Lake reports.*

months” but, again, an order failed to materialise. Later the same year BAE Systems confirmed that negotiations for the Typhoon buy were on-going and heavy hints were dropped that the company was “absolutely certain” that a Typhoon order was imminent.

Weeks later, on December 14 2011, Oman ordered its second batch of 12 F-16 fighters from the USA and some took this as a sign that the Typhoon’s prospects in Oman were dead.

But, in January 2012, Oman issued a request for proposals to BAE Systems for the purchase of Eurofighter Typhoons to equip one squadron (which was taken as meaning 12 aircraft), along with training and support. Behind the scenes, it was suggested that the process was much further along than the issue of an RFP would usually suggest, that Typhoon had been selected, and that only detailed negotiations remained.

But, though Omani dissatisfaction with delays to its Khareef-class corvettes (being built for the Royal

Navy of Oman by BAE Systems Surface Ships at Portsmouth) did complicate negotiations, and though agreeing terms for a complicated support package took time, BAE Systems announced in its half-year results statement (issued on August 2), that contract negotiations with Oman for 12 Typhoons were under way, with a contract possible by the end of 2012.

Finally, on the morning of December 21, Ian King, the chief executive of BAE Systems and His Excellency Sayyid Badr Bin Said Al Busaidi, minister responsible for defence affairs for the Sultanate of Oman, signed a long-awaited £2.5 billion contract. It covers the supply of 12 new, Tranche 3 Typhoons (nine single-seaters, and three twin-seat operational trainer variants) and eight Hawk AJT/Mk 128s to the Royal Air Force of Oman (RAFO). The aircraft will enter build in 2014 and will be delivered in 2017, and will be covered by a comprehensive in-service support package.

There were fears that the Omani order would be diverted from RAF requirements and that the RAF would not receive replacement aircraft, but Chris Boardman, managing director of BAE Systems Military Air & Information, categorically denied this. “They (the Omani Typhoons) are definitely additional to RAF commitments – there is no ‘netting off’ and no reductions in other orders,” he said.

Downing Street added in a statement that the Oman deal was part of a government effort to sell 100 aircraft to the Gulf region in 2013, worth more than £6 billion to UK firms.



# UK continues to grow

Once considered an outsider, at best, and a stalking horse for the Rafale, Eurofighter received a boost in November 2011 when it received a request for proposals (RFP) covering the supply of the Eurofighter Typhoon.

This RFP followed a UK briefing to the UAE on how Typhoon might meet future Emirati fast jet requirements. The briefing, requested by the UAE, took place on October 17 2011.

At the Dubai Airshow, HH Gen Sheikh Mohamed bin Zayed Al Nahyan, the Crown Prince of Abu Dhabi and deputy supreme commander of the UAE Armed Forces, was careful to praise French president Nicholas Sarkozy who, he said, could not have done more diplomatically or politically to secure the Rafale deal, and who had ensured that the Dassault Rafale was sustained at “the forefront of our considerations”.

But, at the same time, he launched a scathing attack on Dassault which, he said, seemed “regrettably unaware that all the diplomatic and political will in the world cannot overcome uncompetitive and unworkable commercial terms”.

Since then, UAE interest in the Typhoon seems to have increased. It is understood that a senior ‘campaign manager’ has now been appointed by BAE Systems and posted to the Emirates, while

*The UK is stepping up efforts to sell the Eurofighter Typhoon to the UAE as the ‘lead nation’ for the Typhoon campaigns in the Gulf. Jon Lake reports.*

the RAF has quietly scaled up the extent of its participation in advanced tactical leadership course (ATLC) exercises at Al Dhafra, affording the UAE Air Force and Air Defence a better and closer ‘look’ at the type.

The year 2012 has been good for Eurofighter in the Middle East, with Saudi Arabia successfully introducing an air-to-ground capability on its Typhoons, and with Downing Street sources predicting a “substantial” Saudi order for more Typhoons in addition to the 72 aircraft that it has already ordered.

Also the long-awaited Omani Typhoon deal was signed on December 21, while Qatar and Kuwait continue to consider the type to meet their fighter requirements.

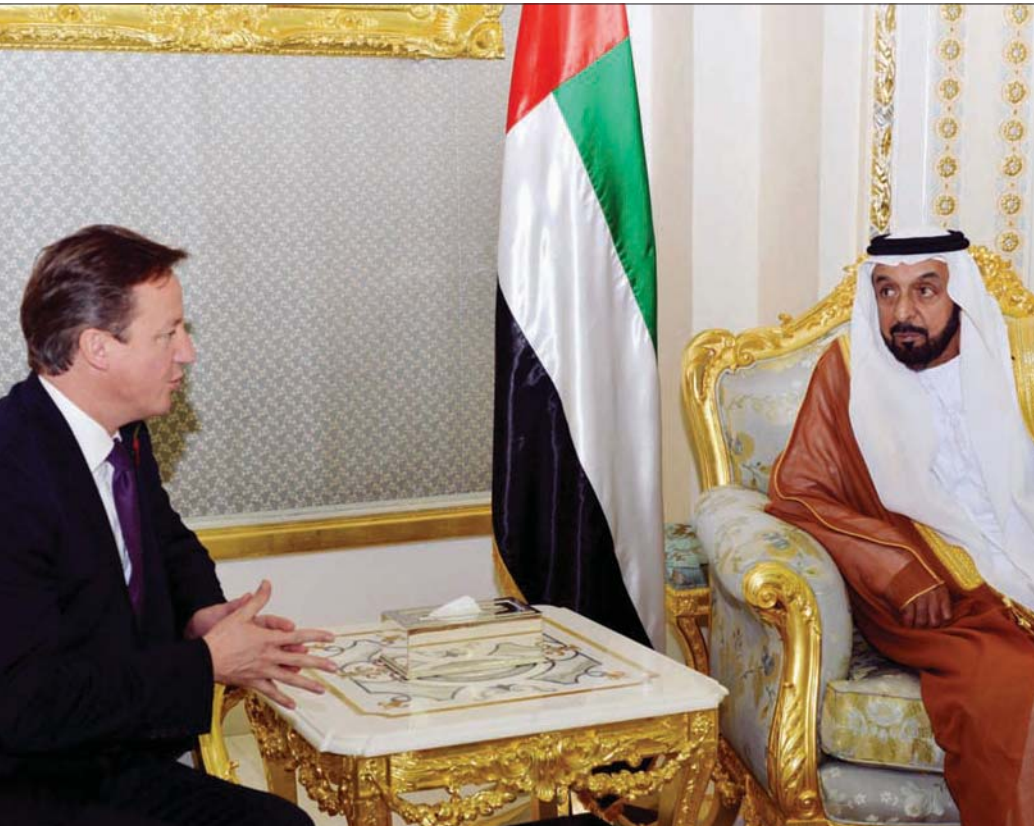
The aircraft’s credibility has been enhanced by

its performance in Libya and in successive ATLC exercises, and by the P1E upgrade that lays the foundations for the kind of multi-role capabilities that the UAE Air Force is most likely to require.

Though British Prime Minister David Cameron laid out plans to establish a defence industrial partnership with the UAE during his two-day visit there in November 2012, he made it plain that this would involve close collaboration around “a number of new technologies”, and that this would include, but would not be limited to, the Eurofighter Typhoon.

The UK has plenty of military equipment to offer the UAE and some of this is expected to be highlighted at IDEX, where British participation is expected to be at a higher level than ever before, and plans are reportedly under way for some Royal Navy participation in NAVDEX, probably with a Type 23 (‘Duke’-class) Frigate embarking an AgustaWestland Merlin HM.Mk 2 or a Lynx HMA.Mk 8 helicopter, and perhaps also a ‘Hunt’- or ‘Sandown’-class mine countermeasures vessel (MCMV).

Britain’s ambitions clearly extend beyond selling 30-60 Typhoons, with Mr Cameron having long been keen to deepen military ties between the UK and the UAE as part of what Downing St sources called a “concerted effort to establish, strengthen and develop a long-term strategic



UK Prime Minister David Cameron visited heads of state in the UAE, Oman and Saudi Arabia to help promote the UK defence industry.

## A long-standing relationship

The UAE's armed forces (the Union Defence Force) were formed from the Trucial Oman Scouts, which had originally been created by the British as the Trucial Oman Levies.

Defence cooperation between the UAE and the UK began immediately with independence in December 1971 and formed a key element in the 1971 Treaty of Friendship.

During the visit by Her Majesty Queen Elizabeth II to the UAE in November 2010, the foreign ministers of the UAE and the UK signed a declaration renewing the commitment of both countries to this agreement. This co-operation has included joint exercises and training, and more than 198 Emiratis have graduated from Britain's Royal Military Academy Sandhurst since 1974 – more than from any other country.

Emirati graduates from Sandhurst include HH Sheikh Mohamed bin Rashid Al Maktoum, vice president and prime minister of the UAE and the ruler of Dubai, as well as HH Gen Sheikh Mohamed bin Zayed Al Nahyan, the Crown Prince of Abu Dhabi and deputy supreme commander of the UAE Armed Forces.

Britain and the UAE signed a defence co-operation accord in 1996, which set out a detailed framework for on-going defence and security cooperation. This represents Britain's largest defence commitment outside NATO and is facilitated by similar military doctrines and training methods, and by shared strategic goals, including counter-terrorism, supporting and enforcing UN sanctions that aim to contain Iranian nuclear weapons capabilities, and supporting NATO's operation Enduring Freedom in Afghanistan, where UAE special forces remain the only Arab personnel undertaking full-scale combat operations in Afghanistan.

In 2009 the UK agreed a memorandum of understanding with the UAE Armed Forces covering arrangements for the use by UK forces of certain air bases in the UAE for sustainment flights to and from Afghanistan.

The UK and UAE continue to undertake shared exercises by land, sea and air, and cooperate on naval operations in the Gulf with coalition taskforce 152. The UK also provides loan servicemen to the UAE, who work in training and advisory roles with the UAE armed forces to help build and enhance their capabilities.

The scope and extent of this co-operation is expected to expand dramatically in the next few years.

# links with UAE

defence partnership" with the UAE, as a core element within a wider joint partnership in defence, trade, economy, education, investment and climate change.

Cameron described the two nations as being committed to maintaining tolerant, open, outward-looking societies and to combating many of the threats to the security of the wider region, and spoke of an ambitious plan to further develop co-operation – military, political, industrial, and economic.

### Business partnerships

He promised to broaden industrial and business partnerships and to aid the UAE in technological development and diversification, investing in the UAE's aerospace, ICT, service, and communications sectors.

He also undertook to increase joint exercises and to invest in the British military presence in the UAE.

It is likely that some kind of agreement will be signed early in 2013 (perhaps at IDEX) formalising arrangements, and this will then open the door to the RAF deploying on ATLC exercises more frequently, and undertaking more ad hoc deployments to the UAE and neighbouring states.

However, it is unlikely that the UK will establish any kind of permanent Typhoon

deployment in the Gulf, unlike France, whose Armée de l'Air maintains a permanent deployment of Rafale and Mirage fighters at Al Dhafra. But Britain is committed to mutual defence in the Gulf and UK defence secretary Philip Hammond reinforced this underlying message, stating that European countries should be prepared to "take a bigger role in relation to north Africa and the Middle East".

While the Eurofighter partner nations are likely to offer the UAE the kind of industrial participation, technology transfer and offsets that it requires, the choice of a fighter for the Emirates is likely to depend on other areas of cooperation.

Many observers believe that the UAE would happily select its 'second choice' fighter if the supplier could offer the right partnership in other areas, most importantly unmanned combat air vehicles (UCAVs) – a field in which the UAE is extremely keen to participate.

"Typhoon could be the UK's reward if it can deliver the right joint UAE/UK partnership on unmanned systems," said one UK industry source. This could be mutually beneficial, since UAE funding could help the UK to complete development of its Taranis UCAV demonstrator programme more quickly, and Taranis could conceivably form the basis of an operational UCAV programme for the UAE.



# SCHOOLING TY

*The first of Saudi Arabia's new batch of Eurofighter Typhoons made its maiden flight from the BAE Systems Warton factory aerodrome on November 30 2012.*

**Jon Lake** looks at the Saudi Typhoon progress.

**T**he Warton flight at the end of November featured the first of 48 aircraft that were originally to have been assembled in-kingdom, final assembly of which was delayed while manufacturing arrangements were finalised.

The first 24 Typhoons delivered to Saudi Arabia (18 single-seaters and six trainers) were aircraft that were taking shape on the Warton production line for the British Royal Air Force, and they were diverted to meet Saudi requirements.

Production was then to have switched to a new facility built by BAE Systems at King Abdulaziz Airbase at Dhahran. Work on this facility, which incorporated a Typhoon Technical Zone for local production, began with the ceremonial laying of a foundation stone by defence and aviation minister Prince Sultan in March 2008.

The facility was supposed to have been completed in August 2009, with assembly work due to begin in the second quarter of 2010 and with the first locally assembled Typhoon due to be completed in 2011. But the in-kingdom industrial programme (IKIP) failed to materialise.

Local production was to have been a vital feature of 'project Salam', and was intended to kick-start the development of an indigenous Saudi aerospace and defence industry, creating thousands of high-value jobs. But time went by and it did not begin. BAE Systems cancelled the Antonov An-124 flights that had been planned to take major sub-assemblies to the Saudi production facility.

Finally, a modification to the 72-aircraft project Salam contract was signed in early 2012 and BAE Systems quietly began assembly of the first aircraft from the new Saudi batch in January 2012.

The six two-seaters from the second batch are being assembled first. Deliveries are expected to begin in mid-2013, finally allowing the stand up of the Tenth Squadron (the second RSAF Typhoon unit) at Taif.

#### **Air-to-ground role**

Meanwhile, Saudi Arabia has also been making progress in getting its first 24 Tranche 2 Typhoons operational in the air-to-ground role, and is doing so before the core 'partner nations', who are waiting for the full release of the phase one enhancement (P1E) software.

The RSAF's No.3 Squadron began air-to-ground operations in December 2011 as part of a phased work-up, which will culminate in the full exploitation of P1E when that becomes available.

Initially, the squadron began building up a cadre of air-to-ground weapons instructors (QWIs) and evaluator pilots, dropping UK Paveway II LGBs in conjunction with Tornados carrying the French Thales Damocles laser designation pod (LDP).

Whereas British, German, Italian and Spanish Typhoons will use the Ultra-built Litening 3 LDP when P1E is introduced, the Litening's Israeli origins make it problematic for Saudi Arabia. Instead, Saudi Arabia selected the French-designed Thales Damocles pod – already built under licence by Saudi Arabia's AEC for use by RSAF Tornados – and decided to integrate it before the full release of P1E.

#### **Full service clearance**

To facilitate this, the RSAF is taking an early 'cut' of the P1E software under a service engineering modification (SEM), exploiting a process like a UK urgent operational requirement (UOR) modification even before the NATO Eurofighter and Tornado Management Agency (NETMA) issues a full service clearance for P1E.

A contract for the integration of Damocles on the Saudi Typhoons was reportedly placed in May 2012, after the RSAF had examined and rejected other targeting pod options, including the Litening 3 (used by other Typhoon operators) and the Sniper pod (used by RSAF's F-15S Eagles).



The first of a new batch of Saudi Typhoons takes off from BAE Systems base in the UK.

After a rapid development and integration programme, BAE Systems flew the Thales Damocles pod on the UK's Typhoon instrumented series production aircraft (ISPA) on Thursday November 29 2012 at Warton. The ISPA is a test asset jointly owned by BAE Systems and the RAF, painted in No.17 (Reserve) Squadron markings, but primarily operated from Warton.

The aircraft made a further flight in the same configuration the following day, probably in support of Damocles/P1E training for two RSAF pilots. It is understood that the contract called for a full, end-to-end self-designated drop of a Paveway II LGB, using Damocles, in Saudi Arabia before the end of 2012, and that this was due to have happened as *Arabian Aerospace* was going to press.

The RSAF's Tranche 2 Typhoons have, thereby, gained an in-service LDP capability up to a year before the UK Royal Air Force, which will wait for a full clearance for P1EA.

The RSAF continues to hope that it will be cleared to receive Raytheon's Paveway IV dual mode bomb (which forms the basis of P1E for other Typhoon operators), though US international traffic in arms regulations (ITAR) restrictions have prevented this up to now.

In the interim, the Saudi Typhoons will use UK Paveway II LGBs and should the Paveway IV impasse prove insoluble, the RSAF is looking at a number of alternative means of providing similar effect, including the French W-AASM Hammer missile, which is already slated for integration on RSAF Tornados.

*On November 9 2012 the US Defense Security Cooperation Agency notified Congress of a proposed foreign military sale (FMS) of 25 Lockheed Martin C-130J and KC-130J Hercules to Saudi Arabia.*

**Jon Lake reports.**



## New Hercules order gives Lockheed a lift

According to Lockheed Martin the agreement, with an estimated value of \$6.7 billion, would be biggest FMS deal for the C-130J so far.

The C-130J has already been ordered by a number of GCC and MENA air forces and Lockheed Martin has reported a backlog of 67 C-130Js and C-130J-30s for 14 international customers, including Iraq, Kuwait (KC-130J), Oman, Qatar and Tunisia.

The Royal Saudi Air Force (RSAF) is a long-standing C-130 operator, having received its first C-130E in 1965. It has requested 20 stretched C-130J-30 tactical transports and five KC-130J air-to-air refuelling tankers, each equipped with Link 16 multifunctional information distribution systems (MIDS) datalink terminals, together with 20 spare Rolls-Royce AE2100D3 engines.

Although the C-130J is externally similar to the classic or 'heritage' C-130 Hercules in overall appearance, the J-model is considerably improved. It has digital avionics, including head-up displays (HUDs) for each pilot, allowing a two-man flight deck, while the new Rolls-Royce AE 2100 D3 turboprops and composite 'scimitar' Dowty R391 propellers confer much-improved performance, including 21% higher maximum speed, 40% longer range and 41% shorter take-off distance.

Like the C-130H, the C-130J is available in a standard-length or stretched 'Dash 30' versions.

The stretched C-130J-30 selected by Saudi Arabia has a 15ft fuselage extension (in plugs fore and aft of the wing) and this increases usable space in the aircraft's hold, allowing two extra pallets to be carried, or 36 extra passengers, 28 extra paratroops, or 23 extra litter patients.

The Saudi order takes C-130J-30 orders to 157, representing about half of the J-model total.

There are some suggestions that the Saudi KC-130Js could be to the same standard as USMC KC-130J Harvest Hercules airborne weapons kit (HAWK)-equipped tankers. These can be fitted with an ISR/weapon mission kit, with a roll-on/roll-off weapons systems operator's console in the cargo area, an AN/AAQ-30 targeting sight system (TSS)

mounted below the port external under-wing fuel tank, and with under-wing hardpoints for a typical warload of four AGM-114 Hellfire missiles and 10 AGM-175 Griffin GPS-guided missiles.

The Pentagon justified the sale on the basis that the new aircraft were required to "sustain" the RSAF's existing fleet of about 50 ageing 'heritage Hercules' models, which face increasing obsolescence. These are primarily sub-variants of the C-130H; the last six serviceable C-130E models were sold to Turkey in late 2011.

The RSAF Hercules fleet currently includes seven KC-130H air-to-air refuelling tankers serving with the 13th Wing's 37th Squadron at Al Kharj, and about eight VC-130H and L100-30 VIP transports and C-130H(AEH) flying hospital versions operated by the 62nd Squadron at Jeddah.

There are also about 30 C-130H tactical transports equipping the 16th tactical transport and 32nd training squadrons of the 4th Wing at Prince Sultan Air Base Al Kharj, and the 4th tactical transport and 20th training squadrons of the 8th Wing at Prince Abdullah Air Base Jeddah. These transport units are all under strength, and it seems likely that the new J-models will equip one Wing, with the H-models being concentrated with the other.

It is not expected that the older H-models will be retired immediately. As recently as October 2008, Boeing announced that its majority-owned partner, Alsalam Aircraft, in Riyadh, Saudi Arabia, had received a \$29 million contract for a three-year period of programmed depot maintenance (repairs, inspections, maintenance, modifications and repainting) for the RSAF C-130 fleet, while in January 2010, Hellenic Aerospace Industries won a \$43 million contract to maintain and repair the Rolls-Royce Allison T56 engines that power the RSAF's C-130H aircraft.

In the longer term, the C-130Hs could give way to further C-130Js, although some expect the RSAF to gain a longer-range semi-strategic air transport capability, perhaps with an order for the C-17 Globemaster or even for the Airbus A400M.





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# C-17



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# Boeing on cloud nine with Eagle contract



*Even as the first of 84 new-build F-15SA (Saudi advanced) Eagles neared completion on the assembly line at St Louis, the US Department of Defense (DoD) was announcing that the US government had awarded Boeing the contract to upgrade 68 existing Royal Saudi Air Force F-15S Strike Eagle fighter-bombers to the same F-15SA configuration.*

**Jon Lake** reports.

**T**he F-15SA represents the most advanced variant of the F-15 Eagle. The US and Saudi governments finalised the \$29.4 billion deal for 84 new-builds of the type in December 2011, when it was also agreed that the 70 surviving F-15S aircraft (of 72 delivered from 1996 to 1998) would be retrofitted to the same standards.

The contract also covered the supply of advanced munitions, spare parts, as well as training and maintenance contracts. Since then, the RSAF has lost two F-15S aircraft in flying accidents, reducing the number to be converted to just 68.

The F-15SA has with an advanced Raytheon APG-63(V)3 active electronically scanned array (AESA) radar, third generation LANTIRN 'Tiger Eye' navigation pods, AN/AAQ-33 sniper targeting pods, AN/AAS-42 podded infrared search and track (IRST) systems, BAE Systems digital electronic warfare system/common missile warning systems (DEWS/CMWS) and the joint helmet mounted cueing system (JHMCS).

Weapons being supplied include 300 AIM-9X Sidewinder short-range IR-homing missiles and 500 AIM-120C-7 advanced medium range air-to-air missiles (AMRAAM), as well as 1,100 GBU-24 Paveway III 2,000lb laser guided bombs, 1,000 GBU-31B V3 2,000lb joint direct attack munitions (JDAM) and 1,300 CBU-105D/B sensor fuzed weapons (SFW)/wind corrected munitions dispensers (WCMD).

#### Harpoon missiles

The US will also supply 400 AGM-84 Block II Harpoon missiles and 600 AGM-88B high speed anti radar missile (HARM) weapons, though the longer range and more capable AGM-84H SLAM-ER and AGM-154 joint stand off weapon (JSOW) will not be supplied, due to Israeli sensitivities.

The first of the 84 new-build F-15SAs was expected to be rolled out at St Louis as *Arabian Aerospace* was going to press.

These new production aircraft account for \$11.4 billion of the total value under a firm-fixed-price, cost-plus-fixed-fee contract. Work is expected to be completed in October 2020.

Though there was never an intention to assemble any of

the 84 new-build aircraft in the kingdom, they will incorporate some Saudi-built parts and sub-assemblies.

In August 2012 it was reported that Saudi deputy defence minister Khaled bin Sultan had said that wings for the F-15SA would be manufactured in Saudi Arabia, and that the Ministry of Defence and Aviation (MODA) was expecting to achieve in-kingdom manufacturing of 70% to 80% of all military-related spare parts within the next five years, having invested 500 million SR in 100 local companies in order to achieve this.

The F-15SA uses a redesigned wing with two extra hard-points, and is capable of carrying heavier payloads, though it is otherwise similar to the basic F-15E wing.

#### Conversion kits

For the existing F-15S aircraft, the DoD has notified Congress of a \$4 billion foreign military sales (FMS) contract covering the development, fabrication, integration and testing of the necessary conversion kits for validation and verification, as well the installation of associated base infrastructure (four base stand-up kits). Further kits will be procured under a separate contract.

The conversion programme will be undertaken at Robins Air Force Base in Georgia and is expected to be completed by December 31 2019.

BAE Systems will receive a further a \$366.547 million under a firm fixed-price contract for 70 of its digital electronic warfare systems, plus associated equipment, while Lockheed Martin Missiles and Fire Control in Orlando, Florida, was awarded a \$410,610,000 firm fixed-price contract for 95 Sniper advanced targeting pods; 35 compact multiband data links; 70 infrared search and track (IRST) systems and spares; and 75 IRST pylons.

The 152 new and upgraded F-15SAs will allow the re-equipment of the existing RSAF F-15S squadrons – the 92nd Squadron at King Abdullah Aziz Air Base Dhahran (3rd Wing), and the 6th and 55th Squadrons at King Khalid Air Base Khamis Mushayt (5th Wing), as well as the formation of three further frontline squadrons, plus a 12-aircraft CONUS-based fighter training contingent.

It is unclear as to whether this will allow the 55th Squadron (presently a training unit) to take on a frontline role.

# Patriot gains

## THE 30-YEAR-OLD SYSTEM KEEPS GETTING STRONGER

*Is the Patriot, as some critics would have us believe, an old and obsolete weapon system that needs to be replaced?*

**Claire Apthorp** talks to **Tim Glaeser**, Raytheon VP Integrated Air and Missile Defense, to find out.

**T**he Raytheon Patriot weapon system has been a mainstay of the US military's air and missile defences since it was first deployed in the early 1980s.

Since then the modernised Patriot, in its latest configuration with high performance and reliability with both GEM-T and PAC-3 missiles, has grown into one of the most advanced systems in the world.

It is also one of the most widely deployed systems in use, with a total of 12 nations fielding more than 200 fire units worldwide, and a number of new upgrade and acquisition programmes under way that will bring new customers into the Patriot family.

However, keeping a 30-year-old system up to world-class standards is a significant task and there are critics among the system's competitors who might argue that Patriot is an old and obsolete weapon system that needs to be replaced.

### Point blank

"I'm going to tell you point blank that nothing could be further from the truth," said Tim Glaeser, VP IAMD. "When you're in the position where you have to fight tonight and you look around at some of Patriot's competition, you realise very quickly that the only thing that can do the job is Patriot."

In order to keep the system upgraded and ahead of emerging threats, including aircraft, tactical ballistic missiles, cruise missiles and UAVs in current and future operational combat environments, Raytheon is carrying out a number of modernisation efforts.



**Tim Glaeser:** "When you look around at some of Patriot's competition, you realise very quickly that the only thing that can do the job is Patriot."

These include the radar digital processor, a critical update that will replace the analogue radar system with a digital one capable of seeing smaller threats at further distances and difficult aspect ratios; the modern adjunct processor, which will enhance the processing capabilities and growth potential of the system; and the modern man station, which will modernise the control and command (C2) aspect of the system.

Critically, these improvements will allow additional improvements to be made through software rather than hardware-based components and will go a long way to ensuring

the system can avoid obsolescence issues in future.

These upgrades are possible in large part thanks to the issue of a substantial contract to the company by the UAE in 2008. That contract injected \$3.3 billion into the Patriot programme for the delivery of brand new units, allowing Raytheon to design out obsolescence and insert new mature technologies into every major end item of the system.

"When we signed the UAE contract we hadn't built ground-up production units of Patriot since the 1980s, when we created units for the Greek Army," Glaeser said. "And it quickly became apparent that the way we built the system in the 1980s was no longer an option. That created its own set of opportunities for improvement for the wider Patriot family."

### Important concept

'Family' is an important concept for Patriot, with all partner nations sharing a vested interest in the system. Via a fair share engineering services contract, each partner nation helps prioritise and decide on the upgrades and improvements to be made, and selects which of the upgrades they will procure for their own systems. This ensures every customer has a voice in how the future growth of the system develops, and that modernisations continue to reflect the relevant concerns of the customer nations.

At the same time as the UAE deal was being signed, the US Army inked a contract to upgrade its Patriot systems. The following year, in 2009, Raytheon was awarded a foreign military sales (FMS) contract to deliver capability upgrades to Patriot systems purchased by South Korea from Germany; as well as an FMS worth \$1.1 billion to fund new production of the system for Taiwan.

Finally, in June 2011, Saudi Arabia issued a \$1.7 billion contract to upgrade its systems to the latest configuration.

"At that point, some folks said, 'that's it, you got lucky, made a couple of good sales, but now you're done'. Well let's talk about that," Glaeser said. "As we look to the future, the opportunities are even brighter: we're in final negotiations with the Kuwait government to upgrade its fire units and provide a number of new units, and we hope to be under FMS contract by the end of the year or early next year."

According to Glaeser, the company is also in discussions with the Qatar government regarding the possible future fielding of the system; and outside of



the Middle East, Raytheon is in an international competition in Turkey, while Poland and India have also expressed interest in the system.

“There’s no doubt in my mind that in the next few years we’ll have the 13th, 14th, even 15th new members to the Patriot family, and the US Army, having taken the decision not to procure MEADS, has come out and said that Patriot will continue to be a part of army formations until the year 2040 and beyond,” said Glaeser.

“The resurgence in Patriot has created a worldwide demand for the system and I think we truly do have a bright future as we modernise.”



Patriot system is tested.

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# E-Type Apache Longbow is scouted by Middle East

*Boeing's updated attack helicopter – the AH-64E – is heading for the Middle East.*  
**James Wynbrandt reports.**

**T**he AH-64D Apache Longbow, the world's most capable attack helicopter, is a staple of defence forces in Egypt, Israel, Kuwait, Saudi Arabia and the UAE.

Now, with Boeing's autumn 2011 introduction of the upgraded AH-64E, the Apache has achieved a new level of performance – capability that's doubtless on its way to the Middle East.

Qatar, Saudi Arabia and the UAE have all filed foreign military sales (FMS) requests with the US Defense Security Cooperation Agency for the new helicopters.

The E-model Apache (formerly known as AH-64D Block III, or AB3, before officially re-designated as the AH-64E in October 2012) incorporates 26 technology insertions into the already formidable platform.

What will these technologies bring to military forces in the Middle East? Oddly enough for a US weapons system, the ability to cut operational costs.



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## CONTINUED FROM PAGE 26

According to General Mike Burke (Ret), Boeing's director of attack helicopter business development, and leader of its Apache programme, one of the US Army's primary directives to Chicago-based Boeing in developing the new Apache was to reduce operational support costs of the aircraft by 30%. "So the majority of the new technologies are focused on accomplishing that."

To be sure, the E model isn't entirely new. Some of the improvements are found in later Block II Apaches, and the aircraft has been in continuous evolution since it went into production 30 years ago.

Developed as the Model 77 by Hughes Helicopters to replace the AH-1 Cobra, and selected by the US Army for its advanced attack helicopter programme, full production for the rechristened AH-64 was approved in 1982. Through ownership changes and upgrades, the Apache has remained in production, now built at Boeing's Defense, Space & Security division in Mesa, Arizona.

Its future was assured in 2004 when the US Army cancelled development of the Apache's presumed successor, the RAH-66

Comanche reconnaissance and attack helicopter, paving the way for AB3 development, approved in 2006. A \$247 million contract for low-rate initial production (LRIP) covering 51 aircraft followed in 2010, with first delivery occurring in October 2011.

The heart of the 64E is the new propulsion system and main rotor combination.

#### Redesigned transmission

The two GE Aviation T700-GE-701D 2,000shp engines and a new composite main rotor blade, linked by a redesigned transmission system, adds 20kts to the Apache's airspeed and 650lbs to its payload, while restoring a nimbleness to the Apache not seen since the original A model – all while delivering 10,000 hours of service life against the 4,500 for D-model engines.

The new composite main rotor has an identical increase in service life, and is less expensive to produce and service than metal rotor blades. The combination is considered well suited to 'high and hot' operations and the dusty environment of the Middle East.

Boeing developed a patented transmission design for the 64E with a split torque face gear

that allows a reduction in the size and complexity of the transmission, while increasing its service life, like the engine, from 4,500 to 10,000 hours.

The transmission can accommodate more power than it's currently handling. "GE is very quickly trying to build engines to take all the torque of that transmission," Burke said.

The Apache's advanced health and usage-monitoring system (HUMS) brings predictive capability to maintenance trouble shooting. Sensors on dynamic components and embedded

and control UAV sensors and weapons systems via an unmanned aerial systems tactical common data link assembly (UTA).

Boeing also developed a ground fire acquisition system (GFAS) for the -64E that informs the crew when, from where, and what weapons are firing at the aircraft. Electro-optical sensors around the airframe measure muzzle flash and, with a library of recognised weapon signatures, can differentiate between an M-16 and AK47.

When fire is detected, the FAS immediately alerts the crew via the cockpit monitors of the type and location of the weapon(s) and provides an aural indication, simulating the sound of the fire in surround sound, which "really improves situational awareness", Burke said.

The Apache AH-64E completed its initial operational test and evaluation (IOT&E) at Fort Irwin, California, in the spring of 2012 and the helicopters are currently being inducted into service in the US.

The US Army plans to buy 690 Block III Apaches between now and 2026, 634 of them remanufactured Block IIs and 56 new builds. Boeing expects robust FMS activity as well.

In late 2010, Saudi

Arabia requested up to 70 -64Es: 10 for the Royal Guard, 24 for the Army, and 36 for the National Guard. Some would have the Longbow mast-mounted sights, and mounted weapons would include laser-guided rockets and AGM-114R Hellfire II missiles.

#### Redesigned transmission

The following month the UAE asked to buy 30 of the new Apaches, and upgrade 30 of its AH-64Ds into the new configuration. The UAE's helicopters, training and logistical support are worth approximately \$5 billion.

In July 2012 Qatar sought permission to buy 24 of the new Apaches, along with parts, training and ancillary services with an estimated value of \$3 billion.

In all three cases, the US government said the sales "will contribute to the foreign policy and national security of the United States by helping to improve the security of a friendly country that has been, and continues to be, an important force for political and economic progress in the Middle East".

No word on the sales decisions and/or timing has been announced.



The heart of the 64E is the new propulsion system and main rotor combination.

in the airframe feed data to the HUMS, which can identify anomalies in these vital signs and alert crews to an impending part or component failure before it occurs. With "phone home" capability, the system simultaneously alerts base and ground crew, identifying the problem, the replacement parts needed, and providing repair instructions. "It makes ground maintenance that much more efficient," said Burke.

The Morel E's open architecture future networked force computer platform features 'plug and play' design, making upgrading the system and integrating new technologies simple, and eliminating the need to requalify aircraft after field upgrades.

#### Substantially reduced

The weight, size and complexity of the computer system have also been substantially reduced, and the installation redesigned for ease of maintenance and repair.

Level 4 interoperability allows the flight crew to take direct command of an unmanned aerial vehicle (UAV), termed manned/unmanned teaming (MUM-T). The crew can receive real-time high-definition video on the cockpit MFDs

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*With on-going political turmoil in neighbouring countries and regional low-cost airlines increasingly making inroads into its domestic market, it might seem an inopportune time for a small charter operator to make the leap into scheduled services. Alan Dron meets one airline determined to buck the trend.*

## Niche work if you can get it!

Independent Jordanian carrier Petra Airlines believes it can carve itself a niche as the country's first low-cost carrier (LCC).

Amman-based Petra will inaugurate scheduled services in March after receiving the go-ahead from the Jordanian Civil Aviation Authority to switch its activities from the charter to scheduled sector.

Petra was set up as part of Jordan's Rum Group of tourism-related companies, whose activities include hotels and running inbound package tours of the country.

Although created in 2005, it did not begin flights until October 2010. Since then it has

operated charter; aircraft, crew, maintenance and insurance (ACMI); and ad hoc services throughout the Middle East, north to Turkey and Armenia and west to Italy.

"We are not only going into the scheduled market but the LCC concept," said Petra's director of communications and international affairs, Marwan Shennara.

The reason for the decision is that Jordanian passengers, like those in many other countries in the region, are increasingly adopting LCCs for their travel requirements.

However, at the moment, no Jordanian LCC exists, with the

Continued  
on Page 32



Petra Airlines plans to operate five Airbus A320s by 2014 as it moves into the scheduled market.

CONTINUED FROM PAGE 30

nation's citizens having to use foreign carriers such as flydubai, Air Arabia and Nas Air.

To cope with its planned increase in services, Petra is buying a third Airbus A320, which is due to arrive in March 2013. It plans to acquire a further two of the type by 2014. The first three A320s will operate in a single-class, 165-seat configuration.

Amman's Queen Alia International Airport will be the airline's base, following last year's agreement between the country's government and the national airport authority that stipulated all scheduled flights should use the capital's main airport, rather than the smaller, but more central Marka, which now specialises in charter and freight services.

Petra's initial scheduled destinations will include Istanbul and Jeddah. By 2015, it plans to have expanded to Milan and Moscow in Europe, Alexandria and Tripoli in North Africa, plus Dubai, Ras Al Khaimah, Erbil, Najaf and Khartoum.

Shennara believes the company will have two strong cards to play when competing with the region's existing LCCs. "Being a Jordanian carrier with a Jordanian flavour, we will attract Jordanians living outside the country as well as those flying outbound," he said.

On-board service would also be important, he added. "Passengers will pay for food, but it will definitely be of a better quality than other carriers."

#### Choose meals online

Unusually for an LCC, passengers will be able to choose meals online before they fly as well as having a larger baggage allowance than other carriers. Details of on-board service were still being finalised as Arabian Aerospace was going to press.

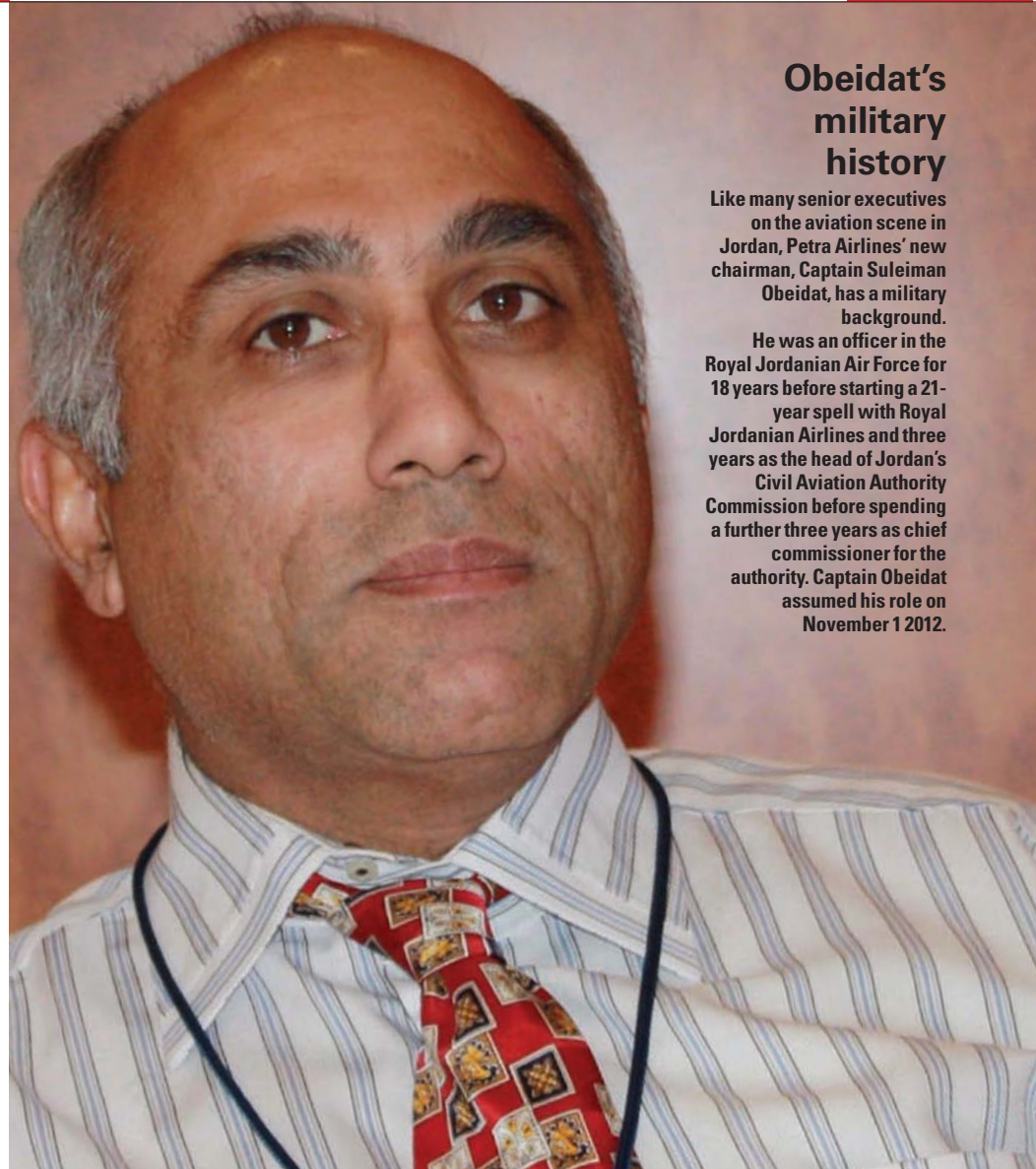
Having smaller overheads than national flag-carrier Royal Jordanian, Shennara believes that Petra's ticket prices will undercut those of its bigger rival. Indeed, the company aims to fill gaps in Royal Jordanian's route network caused by the latter's recent retrenchment.

Shennara noted that Petra had posted respectable figures in its first two years of operation, breaking even in the first and making a profit last year, when it flew more than 150,000 passengers.

Despite its move into scheduled services, however, Petra will not completely abandon its roots: "We will definitely still offer charter flights," said Shennara.

With an established customer base in this field, it would not make sense to abandon that revenue stream. The northern Italian commercial centre of Milan and the Armenian capital Yerevan are among charter destinations that will continue to operate.

Shennara is confident that the catastrophic civil war in neighbouring Syria, which threatens to spill over into Lebanon, together with the tense situations in Egypt and the Gaza Strip, will



## Obeidat's military history

Like many senior executives on the aviation scene in Jordan, Petra Airlines' new chairman, Captain Suleiman Obeidat, has a military background.

He was an officer in the Royal Jordanian Air Force for 18 years before starting a 21-year spell with Royal Jordanian Airlines and three years as the head of Jordan's Civil Aviation Authority Commission before spending a further three years as chief commissioner for the authority. Captain Obeidat assumed his role on November 1 2012.

not affect Petra's progress, as Jordan remains among the safest destinations in the Middle East.

The company is in talks to appoint consultants to map out its future course and develop a medium-term business plan.

Notably, it is keen to explore the possibility of engaging a strategic partner through a link-up with a European LCC, perhaps through a codeshare arrangement. This would give the European carrier greater access to Middle East destinations via Amman and potentially open up many western routes to Jordanian passengers.

#### Joint venture

Shennara said Petra had been the subject of an approach from an unnamed European national carrier two years ago that wanted to set up a 50-50 joint venture airline that would have involved a complete rebranding exercise. Petra declined.

The consultants will also investigate the possibility of Petra making an initial public offering to raise funds, although Shennara said it

was too early to go into details. But it plans to list itself on the Amman stock exchange.

Its parent Rum Group's shares are already traded on the exchange but Petra issuing its own shares would bring in funds to underwrite expansion.

A figure of \$70 million has been mentioned in the local press, but Shennara said it was too early to go into details: "That's why we have consultants."

Petra aims to use the 'open skies' agreement between Jordan and Saudi Arabia and the European Union to grow its services. That, together with recent deregulation in Jordan that has seen the ending of exclusive traffic rights for Royal Jordanian, should allow Petra to become a viable alternative to the national carrier.

The airline has also recently joined the Arab Air Carriers Organization (AACO). This provides Petra with opportunities for possible synergies with other AACO airlines, as well as simply raising awareness of its services in the region.

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*Dubai low-cost carrier, flydubai, is celebrating three years since it first turned its sights eastwards towards destinations in central and eastern Europe and the Commonwealth of Independent States (CIS). CEO Ghaith Al Ghaith tells Mohammed Ali Alia that this is now the cornerstone of the carrier's network.*



## Russian evolution lets flydubai grow

Three years since launching operations to Baku, Azerbaijan, on November 22 2009, Dubai's innovative airline has established flights to 16 destinations across 11 countries in central and eastern Europe (CEE) and the CIS region.

It now has the most comprehensive network of all Middle Eastern carriers to this area and is the only scheduled operator flying direct to Dubai from Belgrade, Skopje, Bishkek, Kharkiv, Donetsk and Tbilisi.

Key to the airline's growth has been its strategic approach to drive expansion. Through adding new aircraft and destinations each year, flydubai has opened up previously under-served markets, bringing affordable travel to more people, more often. New figures that highlight its remarkable regional development include:

- Witnessing a 45% year-on-year growth in the total number of flydubai's annual flights to the CIS and CEE markets between October 2011 and September 2012; and

- Increasing the number of monthly flights to this market by 109% in September 2012 compared to September 2011.

The airline's CEO, Ghaith Al Ghaith, said: "More than 40% of our route development this year has taken place in central Europe and the CIS. The geographical prioritisation of these markets has been key to our continued growth and highlights our commitment to offering real choice and excellent quality service for passengers, while boosting tourism and trade between our regions. We have also been instrumental in increasing air traffic between the UAE and Russia by 85% and the UAE and Ukraine by 112%."

### Passenger traffic

The latest figures from Dubai International Airport reveal that passenger traffic from the CIS and Russia climbed 54.4% in the first half of this year compared to the same period in 2011, in large part due to flydubai's on-going expansion in this region.

Developments in the past 12 months include launching a twice-weekly service to the Russian cities of Kazan and Ufa late last year, along with starting the first-ever direct service to Kharkiv, Ukraine from Dubai in addition to Kiev and Donetsk. The carrier continues to increase its frequency to the region, adding a fourth weekly flight to Yerevan from November 29 2012.

Offering 58 regular flights per week, flydubai's CEE and CIS network includes Armenia, Azerbaijan, Georgia, Kyrgyzstan, Macedonia, Romania, Russia, Serbia, Turkey, Turkmenistan and Ukraine, providing an array of destinations appealing to the leisure industry, business travellers and those visiting friends and family.

Al Ghaith also sees the prospect of taking the relationship further by developing routes that may not, at first, seem to be linked to the CIS strategy. He explained: "We have recently announced that flights to Malé, the capital of the Maldives, will begin in January 2013. This latest addition to our network has proven particularly popular among travellers from Russia and CIS with figures revealing a 15.7% increase in tourist arrivals in the first quarter of this year compared to the same period in 2011."

In parallel to its expansion plans, flydubai has also grown its fleet to 27 Boeing 737-800 NG aircraft to cater for increasing demand from the business and leisure passengers across its route map.

Also, with the January 2012 launch of flydubai Cargo, the carrier has established an affordable and reliable freight network.

Ghaith Al Ghaith – Looking east for flydubai expansion.





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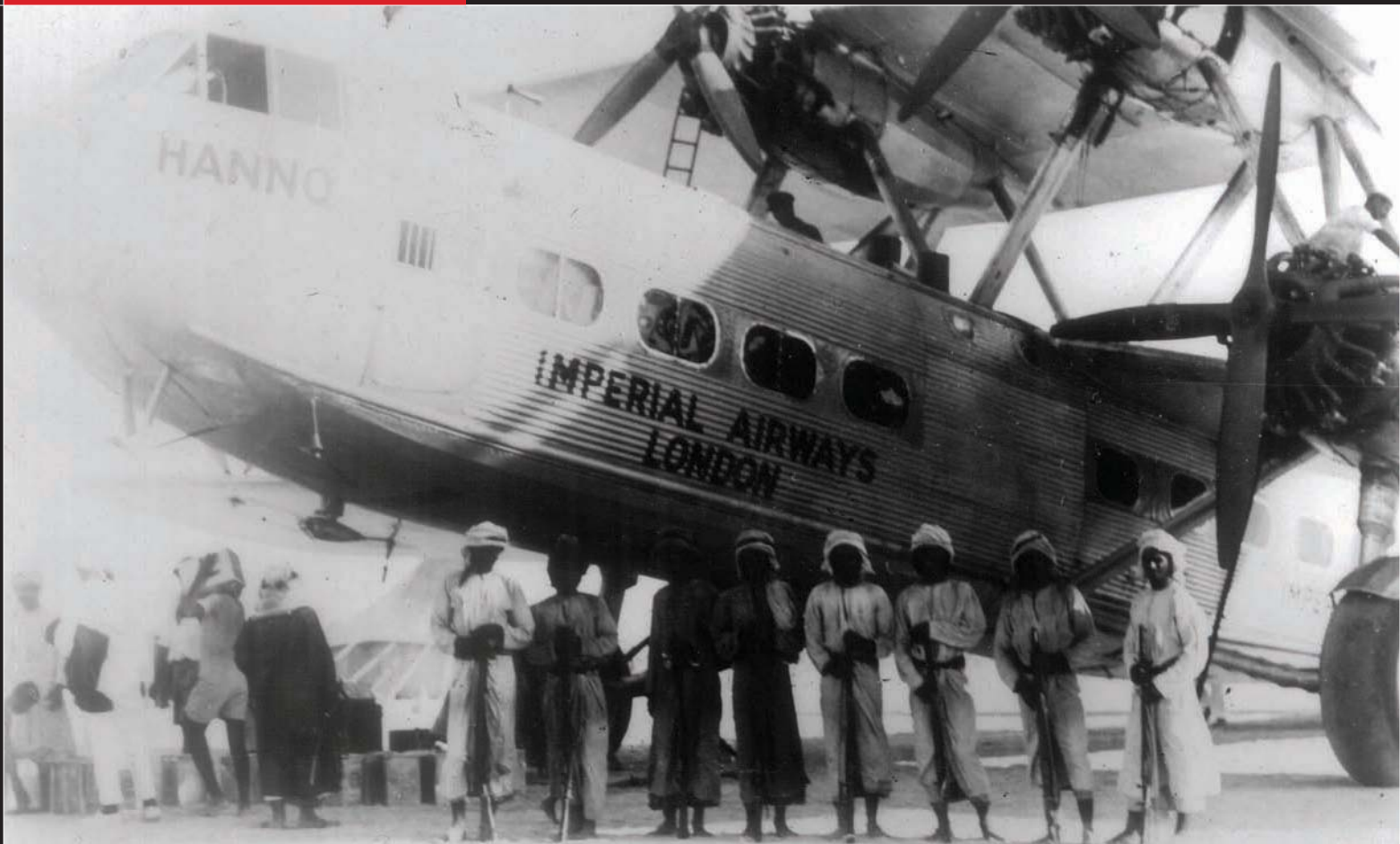
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# Six days to 6½ hours – what a difference 80 years makes

*British Airways is celebrating the 80th anniversary of flights to the Middle East. Kelly Green takes a nostalgic look back.*

**A** lot has changed in the Middle East over the past 80 years but one thing has remained constant – the presence of UK flagship carrier British Airways in the region.

In 2012, British Airways celebrated its 80th anniversary of flights to the Middle East from its UK hub.

It was on October 7 1932 that the airline's first flight to the region touched down in Sharjah, under the banner of Imperial Airways, a predecessor to British Airways.

The Handley Page HP42 aircraft took off from Croydon, just south of London, on October 2 and took six days to reach its final destination. The aircraft travelled at just 160kmh and carried fewer than 20 passengers, travelling on a route via Italy, Athens, Palestine, Kuwait, and Bahrain, before finally landing in Sharjah.

What a difference 80 years makes. Today, the same journey on a British Airways flight from London Heathrow to Dubai on a Boeing 747-400 takes approximately six-and-a-half hours. The aircraft travels at 988kmh and can carry up to 345 passengers across four classes.

"The growth of the aviation industry has been one of the most significant developments in travel and we are especially proud to have been a part of it in the Middle East," said British Airways chairman Sir Martin Broughton.

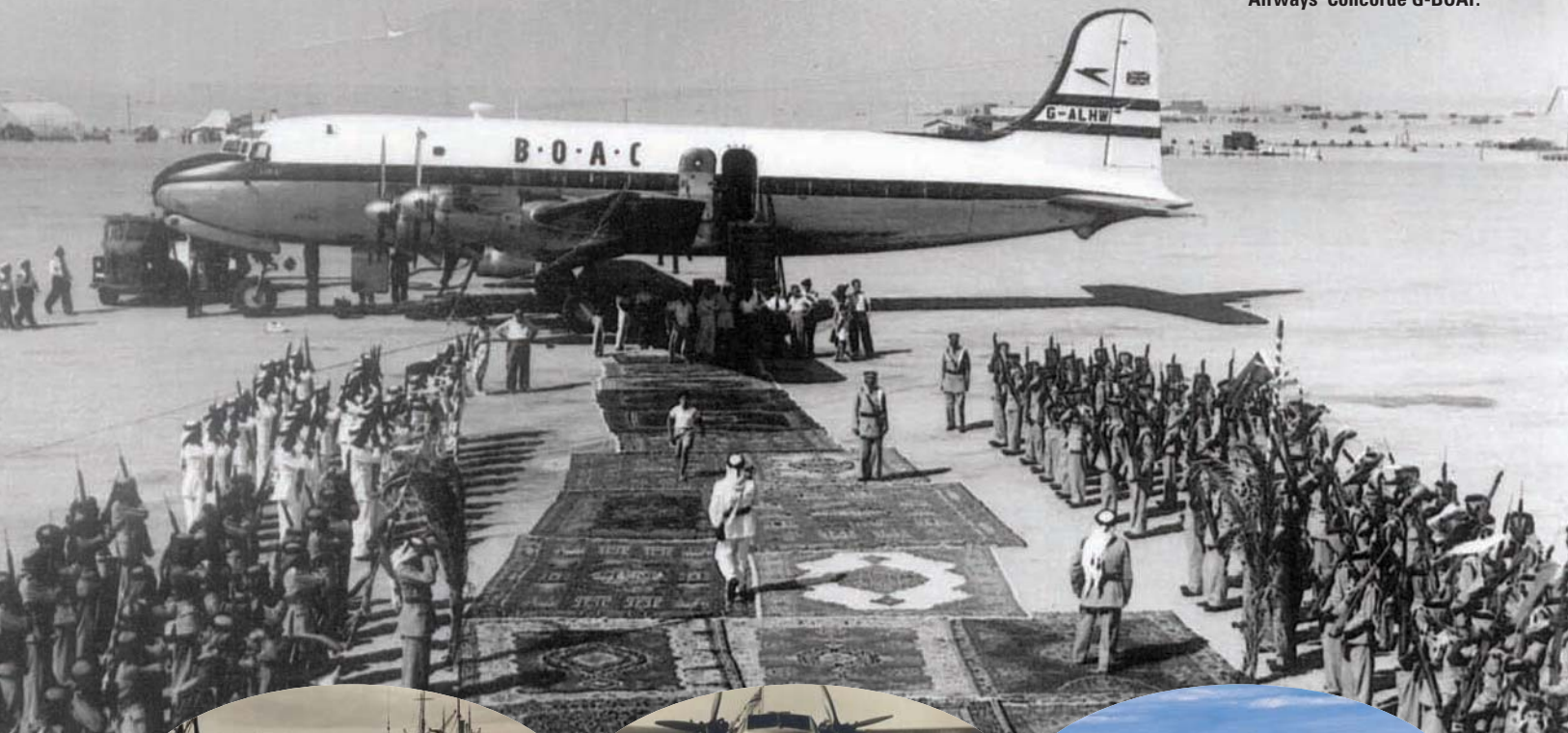
"British Airways has always been committed to using our expertise, experience and knowledge to make flying an enjoyable and exciting experience for customers. We've pioneered many aviation firsts and are currently two years into a £5 billion investment plan that includes new aircraft, smarter cabins, elegant lounges and new technologies."

To celebrate its long heritage in the Middle East, British Airways held special events in the UAE, Kuwait and Bahrain – the original destinations served by British Airways.

"Celebrating British Airways' 80th anniversary in the United Arab Emirates has a special taste," said Laila Ali Bin Hareb, executive director of strategy and international affairs at the General Civil Aviation Authority (GCAA).

"British Airways has been flying uninterrupted to the region for 80 years now and celebrating this momentous occasion here makes a perfect match. It was the first airline to ever fly in UAE airspace back in 1932, and since then it has been witnessing the impressive growth of the UAE aviation sector."

Since that first flight in 1932, the Middle East has been a key market for British Airways. Currently, the airline flies to eight cities in six GCC countries with 68 flights per week during the winter schedule, including three daily flights between Dubai and London Heathrow. The



Far left: Imperial Airways' Handley Page HP42 G-AAUD Hanno.  
 Left: BOAC Canadair Argonaut G-ALHW Aeolus.  
 Insets, from left: Imperial Airways' Empire flying boat G-AEUA Calypso alongside its sister ship VH-ABD Corio of QANTAS, Imperial Airways' Handley Page HP42 G-AAUD Hanno, British Airways' Concorde G-BOAF.



carrier has recently added Lebanon and Jordan to its network.

Paolo De Renzis, British Airways' area commercial manager, Middle East and Central Asia, said: "We have celebrated many great milestones in the region during the past 80 years. In this time, some of the most iconic aircraft have flown here, from the flying boats that landed on Dubai Creek to the Concorde, which served Bahrain from 1976 to 1980, and more recently the Boeing 747, which is commonly referred to as the jumbo jet."

Imperial Airways began flying to Dubai in October 1937. The C-Class flying boats flew from Southampton to Karachi, via Marseilles, Rome, Brindisi, Athens, Alexandria, Tiberias, Habbaniyah, Basra, Bahrain, Dubai and Jiwani.

British Overseas Airways Corporation (BOAC) – which was the result of a merger with Imperial Airways – started services from London Heathrow to Dubai in 1966. Two years later, BOAC began flying to Abu Dhabi.

The airline's Concorde service flew between

London Heathrow and Bahrain from 1976 to 1980. In February 1979, Her Majesty Queen Elizabeth II flew to Kuwait on Concorde at the start of a three-week Middle East tour that also included Bahrain and Saudi Arabia. The Concorde flight from Heathrow to Kuwait took less than four hours.

**90 years young**

"British Airways is 90 years young and we have been present in the Middle East for 80 of them. It is definitely one of the most important regions for us globally and we have a very strong relationship here," said De Renzis.

British Airways may have been the first airline to fly in UAE airspace all those years ago but today the Middle East airspace is crowded with the region's own premium airlines. However, De Renzis believes that the carrier's impressive home at London Heathrow's Terminal 5, along with the investments it is making in new aircraft, new cabins, new technology and new routes, is

insuring it remains stiff competition for the likes of Emirates, Etihad and Qatar Airways.

"We've grown a lot in the region and we currently have the biggest capacity we've ever had here," he said.

"We are growing the number of destinations but also we are growing in terms of capacity. This winter we returned to three daily flights Dubai-London Heathrow and we upgraded one of the aircraft from the 767 to 777. So now we operate three daily flights – one 747 and two 777s – which is a capacity increase compared to last year. We also moved to a 747 in Kuwait, another capacity increase.

"There are also plans for to review our capacity in the region next year."

Looking to the future, De Renzis is positive about British Airways' continued success. "As the aviation industry in the Middle East continues to grow, we look forward to being a part of its development for the next 80 years and beyond," he said.





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**Qatar Airways is a keen promoter of biofuel plans.**  
Above: Honeywell used a Gulfstream aircraft to prove a transatlantic crossing with 50% biofuels.

# MISSION EMISSION

*As airlines fight to maintain profitability in increasingly testing economic conditions (particularly in Europe), they must combine the search for operational efficiencies with increasing demands to demonstrate that they are operating in a sustainable fashion.*

**Alan Dron reports.**

**T**he airline industry currently accounts for 2% of world CO<sub>2</sub> emissions. Without further action, this is forecast to rise – although only to 3% by 2030 despite the huge growth in passenger numbers as the burgeoning middle classes of China and India take to the air. As a high-profile sector, aviation is under huge pressure from the environmental lobby and governments to limit its footprint.

Most notably, the European Union has initiated its highly-controversial emissions trading system (ETS), which allocates CO<sub>2</sub> allowances to airlines that have to buy extra capacity if they overshoot their quota of emissions.

Last November, the EU temporarily ‘stopped the clock’ on imposing the measure on non EU-based airlines that fly in or out of EU airports but the pressure is now on the ICAO to come up with an acceptable emissions plan at its autumn 2013 general assembly.

ICAO is studying a series of ‘market-based measures’ and assessing these options as part of a global scheme for the civil aviation sector.

Aviation has been well aware of these growing environmental pressures for years and is aiming globally to achieve carbon-neutral growth from 2020. It also has a long-range target of actually reducing net CO<sub>2</sub> emissions by 50% by 2050 over a 2005 baseline figure.

The nature of the aviation sector means that the fight to wrest the greatest efficiency from new or existing designs is never-ending. For example, winglets improve aerodynamics and reduce fuel consumption by anything up to 5%; more efficient engines consume less fuel and the replacement of steel brakes with carbon saves several hundred pounds of weight in every aircraft.

Charting the way ahead for sustainability – conducting business in a way that has minimum adverse effect on resources or the environment – was the focus of a Boeing seminar in London late last year.

Following the event, Richard Mills, Boeing Commercial Airplanes’ director of environmental policy & strategy for Europe, spoke about various aspects

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of sustainability, notably the search for new bio-fuels that would cut airlines' dependence on fossil fuels.

Boeing also published details of various technologies now flying on its ecoDemonstrator aircraft, a Boeing 737-800 loaned by American Airlines for several months as a test bed designed to showcase advances in aerodynamics and equipment aimed at cutting noise and fuel consumption (and thus emissions).

Alternatives to fossil fuel-derived kerosene have been under study for many years and pilot or small-scale plants for various substitutes are now up and running.

Several airlines have taken advantage of these initial supplies to win publicity through flights in which varying percentages of bio-fuels have been added to the fuel tanks of their aircraft for demonstration flights.

Currently, aircraft fuels are only certified to a maximum of a 50% mix with kerosene. "It's a 'drop-in fuel', which means it can be mixed with kerosene," said Mills. "It has very similar properties to kerosene."

"At the moment, the approvals don't permit 100% bio-fuels. People are looking at future pathways that could lead to 100%, but given its limited scale of production we would be doing

tremendously well to get a 50% blend in the near-term.

"From a technical point of view the approval has been [limited] to 50% because fuels currently approved don't contain aromatics and, in order to meet the requirement for jet fuel, we have to blend it. Aromatics are important because they provide certain properties regarding the seals in the engine and around the system."

One of the major – but extremely basic – problems facing the increased use of bio-fuels by the world's airlines is that there is simply not enough of it. Getting to the point where it is a normal component of fuel stocks will require governmental intervention and support, said Mills.

**Early stages**

"At the moment we're at the early stages of the development of a new industry and, as with many newly emerging industries, the initial production is an area where government can play a key role in helping to reduce investment risk.

"Getting full-scale commercial plants up and running is often a major challenge and that's where we feel that governments, for example, through development banks such as the UK's Green Investment Bank, can play a key role.

"We also believe governments can play a key role

in supporting research and development, both in productivity of existing processes and developing new processes for creating bio-fuel and new sources of feedstocks.

"We believe the role of government should be in collaboration with the private sector, in private-public partnerships."

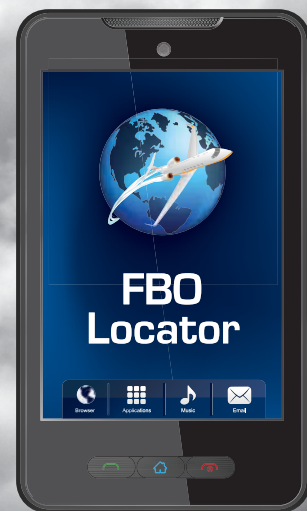
Several different feedstocks can be used as the base material for bio-fuel and Mills said this is the preferred solution to increasing worldwide stocks: "We believe that a range of different feedstocks, using a number of different conversion pathways in bio-fuel, will be successful and these feedstocks will be developed in different places around the world."

Suitable feedstocks range from waste vegetable oils and animal fats to oil-bearing plants, such as rapeseed (otherwise known as camelina) and jatropha. Plant-based feedstocks have to meet a sustainability requirement of their own, demonstrating that they do not cause adverse environmental or societal effects, such as taking up agricultural land that would otherwise be used for food. Nor should they be grown in areas that require deforestation to accommodate them. The plant feedstocks should also generate benefits for the communities in which they grow. Waste carbon monoxide can also be used as a feedstock, undergoing a chemical process that

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converts it into ethanol that can, in turn, be turned into bio-fuel.

However, the most promising next-generation biofuel seems set to be derived from types of algae. This has several advantages, including the fact that it can be developed on waste land or even seemingly unpromising locations such as sewage farms. Additionally, algae yield more fuel per ton of feedstock than other sources.

“At the moment, production [of bio-fuels] is at a small scale,” said Mills. “As it scales up, more feedstock sources are going to be needed. We are trying to connect people who produce it with people who process it.”

Bio-fuel derived from different feedstocks can be mixed together, which at least makes best use of currently limited supplies, but the point at which commercially substantial stocks are available is some time off.

“We don’t expect there to be a single ‘silver bullet’ to provide industry’s needs,” accepted Mills.

Just as different types of feedstocks are expected to be required for bio-fuels, so a multiple pathway approach is also to the fore in the ecoDemonstrator 737, which aims to use new technologies to increase the efficiency of aircraft.

Among the most interesting pieces of kit on board is a regenerative fuel cell built by Japan’s IHI Aerospace.



Richard Mills believes Government has a major role in partnering with the private sector to ramp up bio-fuel production.

Remarkably, the basic ‘fuel’ that powers the cell is water. Power from the engines is used to break the water down into oxygen and hydrogen, which are stored in separate tanks. In turn, the hydrogen is then converted into electricity, which can be used to power on-board systems independent of its engine-driven generators. This reduces power demands on the engines, giving a reduction in fuel consumption.

While the system is still some years away from production (for one thing, it will have to be made smaller, to minimise its on-board space demands), it offers the potential for a completely closed-cycle system with no emissions.

Among other features on the ecoDemonstrator are adaptive wing trailing edges that can alter shape to accommodate different phases of a flight, again allowing reduced fuel consumption through making the wing more aerodynamically efficient. It is also designed to reduce take-off noise by improving the aircraft’s climb performance.

The aircraft also incorporates a variable area fan nozzle, by which the engine exhaust area can increase by up to 10% to accommodate the varying phases of a flight, from take-off and climb through the cruise and into the descent. Again, this reduces fuel consumption by optimising fan airflow during take-off and landing. Reducing the fan exhaust airflow also cuts noise.

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# GREY HOUNDS

The Middle East Business Aviation Conference (MEBAC) in November saw a firm resolution for action against the grey market.

*The Middle East business aviation community is coming together in a concerted effort to stop illegal 'for hire' flights. James Wynbrandt reports.*

**B**usiness aviation is again on a growth path in the Middle East but an unhealthy portion of that growth is coming from grey market, or illegal charter operations.

According to local aviation experts, the grey market accounts for as much as 25% of all charter flights in the region.

Now the business aviation community is fighting back in a concerted effort to root out the illicit activity. "We'll continue fighting until we stop it totally," said Ali Al Naqbi, founding chairman of the Middle

East Business Aviation Association (MEBAA) and the foremost voice in the battle against the grey market charter.

Grey market charter represents flights arranged for hire aboard aircraft and/or with flight crews that are not properly certified and licensed for air charter. Passengers are drawn to the low cost, yet they are essentially flying without insurance, as any policy would typically be voided if an aircraft or crew not properly certified for air charter were used for hire.

Pilots could lose their licenses and aircraft

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owners and operators may also be liable for civil or criminal penalties in the event the activity is discovered.

Nonetheless, unscrupulous or ill-informed owners and operators profit from the activity, and thus Al Naqbi recognises that many people “will be very unhappy” with the community’s abolition campaign.

“Guess what? I don’t care,” he said. “We need to deliver our message, and our message is very clear: we need to clean up the Middle East market.”

That clean-up campaign took a major step forward when grey market charter issue was put centre stage for a panel discussion at the MEBA Conference (MEBAC), held at Dubai Marina in conjunction with MEBA in early December.

Moderated by *Arabian Aerospace* editor Alan Peaford, the discussion brought together experts representing the worlds of air charter, law and insurance. Panellists were Dave Edwards, managing director, Dubai-based charter provider Gama Aviation; Dr Mark Pierotti, chief operating officer, Al Jaber Aviation, an Abu Dhabi-based charter provider; James Dowlen, partner, Chartis Insurance of New York; and Aoife O’Sullivan, of London aviation legal firm Gates and Partners.

To be sure, the Middle East is far from alone in facing illegal charter, a bane of legitimate operators from the States to the ‘Stans. Taking place in the shadows, and virtually indistinguishable from legal flight operations, grey market charter (also called “Part 134 ½ in the US, to distinguish it from Federal Aviation Administration-approved Part 135 charter operations) has proved difficult to eradicate.

### Unique challenges

But the Middle East has unique challenges in confronting the problem. The region’s triumvirate of major commercial carriers – Emirates, Etihad and Qatar Airways – consume the bulk of the regulatory resources of the UAE’s General Civil Aviation Authority (GCAA) and other regional regulatory authorities; the GCAA doesn’t even have a unit dedicated to business aviation.

The patchwork of at least 22 aviation authorities in the MENA region allows many regulatory and enforcement issues to fall through cracks. And the large number of foreign-registered aircraft operating in the region further exacerbates the problem. Saudi Arabia, for example, has almost 800 aircraft based there but only 130 are domestically registered, the rest operating under various certificates in international jurisdictions. These foreign-registered aircraft are less likely to draw regulatory scrutiny, or to be examined locally on any relevant regulations that they are bound by.

Also, many owner/operators in the region have a single registered aircraft; a pool that is more likely to be used for grey market missions than aircraft in properly managed fleets, according to Al Naqbi.

The MEBA chairman has called for authorities to increase ramp checks on private jets operating into the GCC area. But, unlike commercial operations, which operate at scheduled times, air



(L-R) James Dowlen, Lou Sorrentino, Aoife O’Sullivan and Ali Al Naqbi at the MEBAC event.

charter happens any time. Indeed, its flexibility and responsiveness is among the chief selling points. “We fly on demand,” Al Naqbi noted, “so we need inspectors to be present at all times to check aircraft documentation.”

But in the UAE, the GCAA doesn’t conduct ramp checks on business aircraft at all. “We do conduct ramp checks for commercial operators,” said Aqeel Al Zarouni, director of foreign operators at the GCAA. “For the private sector, we don’t conduct such services. But we are here to receive comments and complaints.”

However, receiving a comment or complaint about a potentially illegal flight operation is far from being on hand to ramp check an aircraft departing at the break of dawn, or landing in the middle of the night.

At this point, some armchair charter customers may be asking: Great deals on charter flights on private jets – what’s the problem?

As briefly indicated earlier, the problem is twofold. First, licensed charter providers are subject to rules above and beyond those applied to aircraft and crews that do not fly for hire. These rules include crew training, aircraft maintenance, insurance minimums and other requirements to ensure a minimum level of safety and consumer protection. These costs are reflected in the price of legitimate air charter. Utilising illegal charter deprives legitimate operators of compensation for the costs of meeting these standards.

Secondly, illegal charter deprives customers of the minimum standards of safety and maintenance they are entitled to when hiring an aircraft. And, more problematic, in the event an incident or accident does occur, the customer is likely to be left holding the bag in trying to recover damages or compensation for injuries or other harm caused, as the insurance company will void its coverage of the aircraft.

At the MEBAC discussion, panellists zeroed in

on additional issues associated with illicit charter. “We don’t have a [concise] definition of what is illegal,” said O’Sullivan. The grey market, she said, “has to be black or white”.

O’Sullivan believes regional regulators are too cautious and need to identify where accountability lies. She suggested that simply defining responsibilities and informing aircraft owners of their liability could help reduce the problem. “In terms of risk transfer, who is the operator of the flight? Is it the operator? The owner? The air operator’s certificate (AOC) holder? Who is legally liable if anything happens? Make somebody responsible.”

### Legal liability

Under most law, O’Sullivan said, that responsible party is the aircraft owner. “Most owners don’t know that ownership defaults back to them and they are taking all the legal liability if something happens.”

Edwards believes educating both customers and owners could help reduce illegal charter activity. “We need to educate owners about the difference between private and commercial operations,” he said. “If customers knew what they were getting involved with in chartering certain aircraft, many corporations would never get on board.”

Some conference attendees expressed the view that those engaging in illegal charter wouldn’t change their ways until an accident involving such a flight brought the legal ramifications to the fore – as foolish as that stance is. “Are you that good – or that lucky?” Louis Sorrentino, managing director of safety, security and ops for consultancy ICF SH&E, rhetorically asked grey market operators. “Don’t take for granted that we had a great run, and zero accidents.”

Dr Pierotti suggested customers ask one simple question of the charter operator: “Does he have an AOC?” If the aircraft has the equivalent of the



FAA's Part 91 certificate, which allows only private flight operations, it cannot be legally chartered.

In the aftermath of the MEBAC session a working group was established "to stamp out grey market within three years" in the words of Dr Pierotti, who proposed the group, which now includes the his co-panellists, O'Sullivan, Edwards and Dowlen.

Meanwhile, MEBAA has unveiled an online public awareness campaign, "Is my flight legal?" for air charter customers. Based on a campaign created by the European Business Aviation Association (EBAA), it spells out passenger rights for charter flights and other key issues in charter, such as the AOC, flight permits, aircraft registration, crew qualifications and safety considerations.

The campaign also explains the consequences of using illegal charter in the event of an accident.

Al Naqbi also recommended creating a handbook to distribute to all member associations within the MENA region to apprise them on how to deal with grey market charter, and a guidebook for consumers on basic charter pricing. "Passengers who fly on a trip that costs 10-20% less than normal should understand that their flight may not be legal," he said.

Al Naqbi also advised aircraft owners in the region to seek MEBAA's help in locating an operator that can put the aircraft under management in order to fly charter legally and safely. "Put the aircraft with a sound AOC-holder and operator to manage the aircraft for you," he said. "This is more cost-effective and safe. Do not cut corners. Trust the big operators. Put the aircraft under management."

Whether the community can stamp out illegal charter in three years remains to be seen but with more attention and efforts such as these, the future seems a few shades brighter for grey market charter's Middle East foes.





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*Increased visitors and a rise in exhibitors saw the MEBA show make an impressive debut at the Dubai World Central venue.*

# Partnerships are the name of the game

**T**he business aircraft industry is too fragmented; consolidation must occur and the UAE is ready to step in.

That was the message delivered by Homaïd Al Shemmari, executive director, Mubadala Aerospace, in his keynote presentation at the Middle East Business Aviation Conference in Dubai ahead of the MEBA show.

He added that this could bring great opportunities – his task was to ensure that the Middle East, and Abu Dhabi in particular, were at the centre of any growth.

Shemmari said that was not going to happen overnight. “Change is a long-term process,” he said. “Emirates, Etihad, and Qatar are a model for the future success of this region. But their success didn’t happen overnight.

“We must be patient but there will be game-changing events in this region.”

Shemmari said that the success of Mubadala is an example of what the UAE could do if it put its mind

to the task. Shemmari said that while the UAE was a large buyer of business aircraft, it doesn’t want to “continue the same game”.

“We now want exchange. We will buy 100 planes but we want something in return. We want investment in this region in terms of manufacturing, support and supply.”

He added that the challenge today for business aviation was to have a global dimension. Shemmari said that business aircraft manufacturers have no choice – they are going to have to focus on MENA and the Far East.

“So,” he asked, “what kind of manufacturing can we have in the UAE? We have a talented, educated workforce. We have specialist skills – just look at our \$1 billion composite manufacturing plant in Al Ain.

“If it requires capital, if it requires energy, if it requires land, guess what? Abu Dhabi has it all.

“We must all align to address those challenges and be ready to grow. But we will need patience,” he concluded.



**Homaïd Al Shemmari: “We must be patient but there will be game-changing events in this region.”**

## Go ahead for VIP Dreamliner designers

Boeing Business Jets has now released the technical data and specifications for the 787 BBJ, allowing the waiting customers and completion centres to begin work on the interior design of the cabin.

Captain Steve Taylor, president BBJ, said: "We have sold 12 as private aircraft, with the first expected to be delivered a year from now. There will be more in 2014. We have customers and completion centres working on them now."

Completion centres and designers have been anxiously awaiting the technical details and load information for the aircraft to ensure that the designs will work. Boeing believes that the VIP Dreamliner will be a great hit once the deliveries are made.

Meanwhile, the company is cementing its wide-body position with leaders in the Middle East with the delivery of two BBJ 747-8s to head-of-state customers in Kuwait and Qatar.

## Satcom1 launches app for smartphones

Satcom1 launched its new app for smartphone satellite connectivity use on an aircraft at MEBA.

Called AvioPhone, the app is available for the iPhone, iPad and Android mobile platforms.

The app acts as an interface between your smartphone and the aircraft's satcoms installation – Satcom1 is a distributor for Inmarsat SwiftBroadband, Iridium, Thuraya and other Ku-band suppliers.

Satcom1 says it "provides an outstanding calling experience ensured by very reliable and secure voice communication during flights".

Karina B Larsen, chief executive, Satcom1, said: "In today's corporate world, it is vital to stay connected while on the go in order to conduct business easily and efficiently, and this is exactly what AvioPhone is able to do."



## Wallan swoops to buy two Falcons

Dassault Falcon was celebrating at MEBA when it sold two business jets to Wallan Aviation, marking the Saudi company's first entry into the Dassault Falcon range and large cabin segment.

A pre-owned Falcon 900EX EASy II was due to be delivered by the end of 2012 and a new Falcon 900LX in the second quarter of 2013.

The aircraft, to be based in Riyadh and Dubai, will be operated by Wallan Aviation for the company's own use, with the option to offer one or both aircraft to the charter market.

The two Falcon 900 jets will be added to Wallan Aviation's current fleet of six Cessna Citations.

Saad Wallan, chairman of Wallan Aviation and a

board member of MEBA, said: "We chose the Falcon 900LX because of its advanced technology and efficient performance and range, its go-anywhere flexibility and its resale value. Falcons are increasingly proving themselves with operators in the region and this helps develop experience and build confidence in the Falcon range, which also has attractive emissions and environmental credentials."

Over the next 18 months Dassault plans to deliver six Falcons to Middle East customers, growing its fleet by 10%. More than 60 Falcon business jets operate in the region, with Empire Aviation and Saudia Private Aviation already operating the type in Saudi Arabia.

Francoise Chazelle with the private ACJ319 at MEBA's static park.



## Gala designed for performance in Middle East market

Airbus Corporate Jets has revealed its new VIP cabin concept for wide-bodied corporate airliners, designed with an eye to the growing Middle Eastern market.

"The Middle East is the biggest market for true wide-bodied business jets," said Francois Chazelle, vice president commercial. "This new concept, called Gala, will enable customers to buy the aircraft knowing what they can get, when they can get it and at what price."

The design enables the completions centre to build a VVIP cabin between doors two and three of the airliner. It features a master bedroom with lavatory, an office and a dining room/conference area. Aft of door three, aircraft seating can be retained in a business or economy configuration for staff.

The concept has been fast-tracked for the A340-500s being returned from Singapore Airlines, as part of the deal to upgrade to Airbus A380s, but can also be installed into A330s and all versions of the A340s.

The Singapore Airlines aircraft will be returned to Toulouse is the fourth quarter of 2013 and Chazelle said fitting the Gala cabin would take a year to complete.

There is a desire for used wide-bodied airlines for VVIP conversion. Chazelle said: "These aircraft – particularly the Singapore ones – have a lot of life left in them and they are available quickly."

# nexus



INTERNATIONAL SECURITY, INC.



## **Service launch by Rizon Jet**

Qatar-based Rizon Jet is to launch a new VIP flight support services operation based in Sharjah in the UAE.

The new service specialises in supporting flight operators that fly into the Middle East, Europe, CIS, Africa, Asia and Pacific regions.

The team assists aircraft operators in obtaining relevant overflying and landing clearances, provides regional flight planning advice and makes the necessary arrangements for aircraft handling services, hotel reservations and ground transportation.

Rizon Jet's CEO, Captain Hassan Al-Mousawi, said: "The increase of flight planning enquiries we get only shows the need for this additional service offering and we are now proud to be able to offer an excellent one-stop service with international standards for corporate and charter flight operation."

## **NasJet plays a new card**

Riyadh-based NasJet has launched a corporate jetcard. It comes with two options – lease and block.

The lease version has zero ferry charges within the Middle East.

NasJet says it has seen the number of business flights in the region increase 12% year-on-year since it started up in 1999, and that 42% of trading groups and large corporations based in the Kingdom of Saudi Arabia use corporate aircraft.

The company also launched the Honeymoon Jetcard at MEBA – a pre-paid hourly debit card for newlyweds embarking on honeymoon.

## **Innovative MRO project takes flight**

Al Habtoor Trading and Altran, in cooperation with ADPI (fully owned subsidiary of the Group Aéroports de Paris), is to build an innovative service maintenance centre dedicated to business jets and helicopters at Dubai World Central.

The new facility will have a maintenance capacity of 60 business jets and 40 helicopters per month, offering customised expertise to aircraft owners and crews, with the aim of being the most innovative MRO in the world.

The project has been designed to create an eco-friendly showcase with sustainable infrastructures, ranging from positive energy buildings to a recycling centre.

## **DWC to be Dubai's business aviation hub**

Dubai World Central is to become the new business aviation hub for Dubai as early as next year.

Rashed Bu Qara'a, the chief operating officer of Dubai Aviation City Corporation (DACC) revealed the decision at a Dubai Airports briefing ahead of the MEBA show.

Rumours that business aviation – like cargo movements – would be encouraged to move away from Dubai International airport in Deira to DWC have been rife within the aviation community for some time.

Neighbouring Sharjah International Airport – just 15 minutes from Dubai International – has worked with the UK's Gama Aviation to develop FBO services for private aviation that they believe will choose to fly to Sharjah rather than DWC as it is closer to Dubai's business centre.

But, speaking at the pre-MEBA event, Bu Qara'a was adamant the move was going ahead.

"This is part of the long-term migration strategy of shifting general aviation from Dubai International Airport to Al Maktoum International Airport," he said. "During this initial phase we will utilise the VIP terminal within the passenger terminal. Shortly thereafter, we expect the first business aviation operations to commence out of DWC's Aviation District in mid 2013."

Dubai Airports – operators of DWC – are understood to have talked to the Middle East Business Aviation Association (MEBAA) to make sure the services will work.

Founding chairman of MEBAA, Ali Al Naqbi, described DWC as "a landmark venue".

He said: "In the future, this airport will grow into an important gateway for business aviation and it has been a privilege to involve ourselves with its development so early in the process."



Saudia Private Aviation presented STC with a gift to mark its support.

## **New SPA-ring partner backs iPad app**

Saudia Private Aviation (SPA) has launched a new iPad app for customers to use on board its business aircraft. The new app is installed on 64Gb Apple iPads, which come pre-loaded with content for passengers to use.

The content can include Hollywood movies (for which SPA has a special licence), music, newspapers, games and even a flight time calculator. Other material includes information about SPA's fleet and partners, such as hotels and car hire companies, plus surveys for passengers to complete.

Dubai-based Solutions 4 Mobility developed the app and the Saudi Telecommunications

Company (STC) sponsored the project. Solutions 4 Mobility managing director Bachar Kassar said the app could be adapted to suit individual customers. It could also display content in English or Arabic, including an Islamic d'ua (prayer for travel).

"Each iPad can hold up to 10 movies or 500 songs," he said. "SPA can also hold a profile for each of its customers that shows their individual preferences as to content. This can then be loaded before they board the aircraft."

The app was launched at MEBA and STC was presented with a gift by Saudia Private Aviation to mark its support.



Executive Sky's Naila Hmgidan, Khaled Akkawi, Christine Mdawar and Rasha El Masry at the unveiling.

### < New look, new logo, new lines

Broker support company Executive Sky revealed a new look, new logo and a new line of business at MEBA 2012.

Due to a change in conglomerate management and a new corporate investor, the former Lebanese company has now become Swiss, and changed to a Swiss red livery. The Swiss connection has allowed the company to develop and market a new product, the Business Associate Package, which was launched at the show.

Christine Mdawar, sales & marketing co-ordinator, said: "This is an innovative package designed to reduce financial risk and boost business opportunities for members of the programme by giving credit insurance, credit facilities and other benefits, including fractional ownership programmes, owners management programmes and acquisition and sales programmes."

The company signed its first members to the new programme during the opening days of the show. Around 65-70% of Executive Sky's business is in the Middle East.



Growing: Ahmad Abu Ghazaleh.

### Arab Wings booms out a 21-gun salute

Arab Wings is booming after it increased its fleet to 21 aircraft just ahead of the MEBA show.

"In 2005 we had just two aircraft and today we have 21. We signed a deal for two new Challenger 604s just last week," said Ahmad Abu Ghazaleh, CEO.

The aircraft charter and management company is based in Amman, Jordan.

Together with Dubai-based Gulf Wings, which opened in 2009, they operate one of the largest managed and owned fleets in the region, ranging from Gulfstreams and Challengers to Hawkers and King Air.

Arab Wings is part of the International Wings Group, which is also the parent company of Royal Jordanian Air Academy.

"We are the largest flight academy in the world with 1,300 students in both Amman and Aqaba and we have provided 28,000 training hours a year on 23 training aircraft," said Ghazaleh.

The company is also a Bombardier maintenance centre and is looking at a joint venture with an international MRO company.



Teaming up: Mohammad Al Koori, (left) with Michael Rucker

### Jet Aviation in FEAG link-up

Jet Aviation Dubai and First Emirates Aviation Group (FEAG) have signed an agreement to offer a full range of interior refurbishment services out of Feat's specialised facility in Abu Dhabi.

Mohammad Al Koori, chairman, FEAG, believes that this is the best move for the UAE company: "This is a strategic alliance that will benefit both companies," he said.

Michael Rucker, vice president and general manager, Jet Aviation Dubai, added: "This service expansion is in direct response to increased customer demand for interior capabilities. We are now able to offer the whole range of services under one roof."

### Aviation Link brings Boeing 777-200LR into service

Jeddah-based aircraft management and consultancy group Aviation Link has brought into service the first Boeing 777-200LR to be delivered in a VIP configuration.

The 777 joins an Airbus A320 already in operation, with two Airbus Corporate Jets due to enter service in the first and second quarter of 2013.

"Aviation Link has led this unique Boeing 777-200LR programme from the beginning with the acquisition, the design of the interior, oversight of the completion and now the management of the aircraft," said president and CEO Abdulaziz Al Rowaished.



# UNITED WE STAND

*A new pavilion featuring 'made in America' products and services made its debut at MEBA. James Wynbrandt took a look at what was on offer.*

It wasn't exactly East meets West but the US meets UAE sidebar to MEBA 2012 made history nonetheless. While the focus at the aviation trade show was on new aircraft and the event's new site at Dubai World Central, MEBA also featured a new US pavilion. Set within the main exhibition hall, the pavilion showcased ten US aviation companies that provide goods and services ranging from aircraft manufacturing to in-flight catering.

All ten were first-time MEBA exhibitors and, according to the companies, the common display area provided numerous advantages over exhibiting on their own.

"From our previous experiences like [exhibiting at] EBACE, we didn't want to get lost in the shuffle," said Joe Celentano, president and co-owner with brother John of Rudy's Inflight Catering, one of the pavilion's tenants. "We're not a giant manufacturer or service company, we're

Continued on Page 54



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CONTINUED FROM PAGE 52

truly a Mom and Pop company, very boutique. Being in the American pavilion enables us to not get lost in a sea of other exhibitors.”

Indeed, all the booths in the pavilion, equally visible in identical white panelling with red and blue trim, had about as much space as a car rental counter. No products were displayed and that was a plus for most of the exhibitors.

At Aero Specialties, manufacturers and global suppliers of aircraft and airport ground support equipment, Derek Rose, director of international sales, said the company was at the pavilion “to feel out the new venue” in lieu of mounting its usual full trade show display. “We spend tens of thousands of dollars bringing over equipment,” Rose said. “So this will give us a good idea if we do want to bring equipment in the future.”

For MEBA attendees, the US pavilion provided quick, concentrated access to manufacturers and service providers from a part of the world whose products they admire and respect, according to Kallman Worldwide, which organised the pavilion. Buyers in the Middle East “like the American quality, they like our technology”, said Carole Lotito, the exhibition company’s media manager.

In the days before the event, anticipation and excitement among exhibitors was apparent. North Dakota’s Fargo Jet Center (FJC) already does good business with customers from the Middle East and Europe, thanks to the full service FBO’s strategic location on the great circle route between Europe and the West Coast of the US. But Darren Hall, FJC’s vice president of marketing, was eager to take his show eastward. “We have relationships, and we see opportunities [in the Middle East] for Fargo Jet

Center in both operations and aircraft sales, or FBO-type operations,” he said. “We’ll have some discussions about all these services we can provide.”

In Duluth, Minnesota, home of Cirrus Aircraft, Dubai’s embracing warmth doubtless sounds good to just about anyone in early December. But Jon Duplais, vice president fleet and special mission aircraft for the composite single-engine aircraft manufacturer, sounded most excited about the hot leads he planned to pursue for “specific fleet opportunities and some individual” aircraft sales at MEBA.

**Established relationships**

Did Duplais think anyone would question why the company was in the US pavilion, given its purchase by the China Aviation Industry General Aircraft (CAIGA) in 2011? “Cirrus is still officially a US company that just happens to be owned by a Chinese investor,” Duplais said. “And prior to 2011, Cirrus was owned by a Bahraini investment bank for the previous nine years.”

The fact that all the companies, though new to MEBA, already have established relationships in the region, made it less critical that they presented their product along with their faces. Even Rudy’s Inflight Catering, with kitchens solely in Teterboro, New Jersey; White Plains, New York; and Chantilly, Virginia (all on, or hard by major business aviation airports), does business with the Middle East. And these enterprises sensed MEBA was the place to nurture those relationships.

“A tremendous amount of clients from that region come through New York, New Jersey, Washington, DC, so we felt it was a very important

opportunity to be able to show face time and see some of these folks in their own backyard,” said Celentano.

And if a brochure and a handshake weren’t enough, leave it to American ingenuity to find a fix. The Vision Safe Corp (VSC) manufactures smoke displacement systems that enable pilots to see within and operate an aircraft with a smoke-filled aircraft – a “daily occurrence”, according to Jonathan Parker, the company’s COO. “Here in Dubai, a 747 was lost due to in-flight smoke,” he said. (UPS Airlines Flt 6, September 3 2010).

In addition to its indoor booth, Vision Safe had on the flight line a static display of a cockpit that could be filled by a smoke simulator to demonstrate the company’s emergency vision assurance system (EVAS). “We felt having it inside here might create some problems,” Parker deadpanned at the company’s pavilion booth. The EVAS is installed in more than 3,000 aircraft and the company sees rich potential in the Middle East. “We’re planning and expansion into Emirates and Etihad airlines,” Parker said.

If the display area looked surprisingly quiet during convention hours, that’s because the bulk of the contact and meetings were taking place off-site or behind closed doors. And exhibitors sounded pleased with the results.

“Yesterday we were able to meet with a number of clients, talking about our facilities,” said Fargo Jet Center’s Hall on the last day of the show. “And not just about FBO services. We’ve had good conversations about aircraft sales; people are looking to buy ‘copters. If we weren’t here, we wouldn’t have had this opportunity.”

**EXHIBITORS AT THE US PAVILION**

**■ AERO SPECIALTIES**

Manufacturer and supplier of industrial grade new, used and refurbished ground support equipment (GSE) for corporate, FBO, MRO, military and GA customers worldwide. The Idaho company’s towbars/heads, oxygen/nitrogen systems, lavatory/watercarts, ground power units and other GSE are operated by more than 11,000 active customers worldwide.

This Seattle company’s advanced winglet technology and patented performance enhancing blended winglets can provide a 5-7% improvement in fuel consumption on equipped aircraft. More than 5,000 are in use on business and commercial jets including Boeings, Falcons, Gulfstreams and Hawkers, saving an estimated 3.4 billion gallons of fuel while helping reduce greenhouse gas emissions.

The Duluth manufacturer of the popular all composite SR20 and SR22 single-engine piston aircraft; the turbocharged SR 22T, and the Vision SF50 personal jet currently in development. Outstanding performance, advanced avionics and safety technologies have made this line-up today’s best-selling piston aircraft.

Dakota FBO and maintenance facility and popular stopping point for international travellers bound for the West Coast of the US. It is a premier 24-hour Avfuel-branded FBO that specialises in tech stops, operates an aircraft maintenance and avionics repair station, aircraft dealership, flight school and an ARGUS gold-rated charter fleet.

aircraft catering service serving the north east US, from New York to Washington DC. All facilities are HACCP approved and FDA inspected, operating 24 hours a day. There is an onsite, same-day linen service, fresh floral and customised gift basket arrangements, international cuisines including Halal, foreign and domestic media selections and other services.

**■ AVFUEL**

The global supplier of aviation products and services supports more than 600 branded FBOs and more than 2,000 fuelling locations worldwide. In addition to fuel, the Michigan-based company provides innovative programmes and services such as equipment provision, contract training, flight planning, aviation insurance, and pilot incentive fuel sales programmes.

**■ BANGOR INTERNATIONAL AIRPORT AND BANGOR AVIATION SERVICES**

A popular point of US entry and exit for international private aircraft flights, this airport and FBO in Maine comprises one of the most experienced full service ground handling organisations worldwide. It is renowned for 24/7 quick turn service and coordination of arrivals and departures with customs and immigration.

**■ COBHAM/THRANE & THRANE**

This Boise-based communication equipment manufacturer specialises in meeting demand for data, connectivity and bandwidth with technologically diverse and innovative products. The more than 11,000 employees work with customers and partners in over 100 countries.

**■ KALLMAN WORLDWIDE**

New Jersey’s exhibition services provider Kallman has earned awards and a reputation for quality and innovation in serving the trade show industry. Its proven marketing techniques, management experience, support services and a strong partnership with the US Department of Commerce, have helped companies around the globe do business.

**■ VISION SAFE CORP.**

The Hawaii company’s patented emergency vision assurance system (EVAS) is the only FAA-tested and certified cockpit smoke displacement system that ensures pilot vision in the presence of dense continuous smoke. The self-contained, battery-powered EVAS takes only minutes to install and enables pilots to see the flight path and vital instruments in a smoke-filled cockpit.

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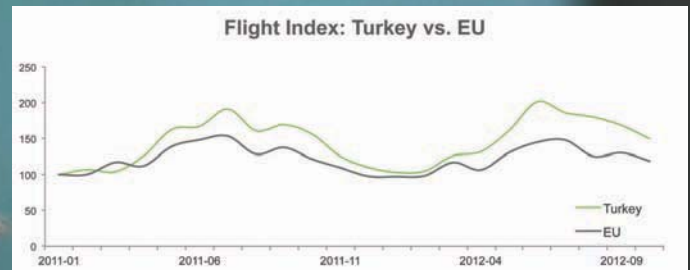
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Avinode's Magnus Henriksson sees Turkey as a rising star.

# Domestic travel the Turk key to growth

**T**urkish business aviation is doing very nicely thank you, according to charter specialists Avinode. "While much of the European business aviation market is slogging through a rather unimpressive year, Turkey has emerged as a rising star in the region," according to Magnus Henriksson, business unit director of the Swedish-based Avinode Business Intelligence.

"This strong upward trajectory is clear in a year-over-year business jet traffic comparison, which shows an overall increase of 4.8% for the period of January through October," he said.

According to the Avinode report, domestic travel is the major driver in the Turkish market, accounting for almost 60% of all arrivals and departures in the nation. However, this strong domestic market for business aviation indicates that the geographically large country has an underdeveloped infrastructure and poor domestic travel connections.

The Turkish economy is strong, despite these infrastructure issues, with a GDP growth of 8.5% in 2011 and, according to Organisation for Economic Co-operation and Development (OECD) forecasts, an additional growth of 3.3% by the end of 2012.

Because of its large geographical area, Turkey relies quite heavily on business aviation to stimulate its economic growth.

"With such strong growth in the Turkish economy it's no wonder that the domestic travel market has seen a 6.65%

*With Turkey straddling Europe and the Middle East, the country's private aviation sector could be expected to suffer from Europe's worsening economy, the after-effects of the Arab Spring and the on-going civil war in neighbouring Syria.*

*However, as Alan Peaford reports, business is booming.*

increase year-over-year and shows no indication of slowing down in 2013," said Henriksson. "That said, following the onset of hostilities with Syria in early October, Turkey has seen a 13.6% decline in the domestic market and a 4.1% decrease in overall business jet traffic. This may just be a bump in the road for Turkey, whose future appears otherwise bright, but those looking to map traffic trends in the country would be wise to keep an eye on how the conflict develops."

#### International travel

Henriksson said that international travel appears unaffected by the unrest, having experienced an uninterrupted growth of 3.9% for arrivals and 3.5% for departures, over the last year. "This increase can be attributed to Turkey's fortunate geographical placement between Russia, Africa and the Middle East. Inbound traffic to Turkish airports comes from around the world, with the majority traffic originating in Germany, Russia, Italy, the UK, the UAE, the Ukraine and Saudi Arabia," he said.

Henriksson said he could see continued strength in the Turkish market. "It's important to note that individually these top departure countries only account for around 1.5-3.5% of all inbound traffic to Turkey. In other words, the Turkish business jet sector doesn't rely on traffic from any single country or region but experiences a healthy diversity that gives weight to the argument that the country will continue on its growth trajectory," he said.

*The next Global Space and Satellite Forum (GSSF) is being held at the The Ritz-Carlton Grand Canal in Abu Dhabi on May 7-8 this year.*

*Steve Nichols previews the event.*

## Space is filling up at the Abu Dhabi forum

**T**he biennial summit is the Middle East's leading space and satellite event, attracting more than 1,000 global experts from across 30 countries for two days of intense knowledge sharing and networking.

The forum provides an opportunity for international experts to meet with regional leaders and tap into the multi-billion dollar satcom, space tourism and Earth observation programmes under way across the Middle East, Africa and South Asia.

Running concurrently is Milsatcom, a two-day conference developed specifically to meet the satellite communications needs of the Middle East military, government and security agencies.

Now in its fourth year, GSSF 2013 will host top-ranking officials from more than 50 regional national space programmes and research centres and feature two parallel conferences, numerous technical seminars, a product showcase area and a number of networking events.

Space is fast becoming a hot topic in the MENA region and the event will discuss the latest developments in Earth observation, disaster management and geo-information services.

It will also look at the economics of commercial space transportation, space tourism and suborbital flights and the many ways in which satellite systems are improving lives – from life-saving developments in the field of disaster

management to the delivery of entertainment media via hand-held consumer devices.

Over the last year there have been some exciting developments in the Middle East space arena.

In April 2012 Virgin Galactic announced it was to set up Spaceport Abu Dhabi in the UAE. Chief executive George Whitesides said that the facility would become a hub for space tourism, research and education in the region.

The company is currently looking for a suitable location and start the regulatory processes needed to allow space flights to take place.

Virgin Galactic's New Mexico spaceport should also be finished in less than 12 months and flights look likely to start in 2014. The new spaceport in the UAE is a logical step as the company's biggest backer is Abu Dhabi-based Aabar Investments, with which it paired in 2009.

Virgin Galactic has now signed up more than 500 passengers for its future sub-orbital flights out of the USA. It has also signed its first space research agreements, one with NASA, and is producing parts for another spacecraft.

### Successful launch

Abu Dhabi also made its mark with the successful launch of its Yahsat 1B Ka-band satellite. It provides Yahsat's 'YahClick' internet service, providing connectivity to residents in unserved and under-served areas across 28 countries in the Middle East, Africa and south west Asia.

Yahsat is working closely with key telecommunications providers to ensure comprehensive availability of YahClick to homes, schools, governments and businesses throughout the region.

Dubai has also been reaching for the stars again with the development of DubaiSat-2. This is now scheduled for launch in the first half of 2013 from Yasny Cosmodrome in Russia.

The satellite is the result of five years of work by a team of 22 Emirati engineers from the Emirates Institute for Advanced Science and Technology (EIAST), operating in cooperation with the South Korean company SatrecI.

The satellite weighs 300kg, is two metres high and 1.5 metres wide and is designed to orbit at 600km above the Earth's surface, compared with DubaiSat-1's 690km.

Technical improvements to the new satellite include an increase in data download speed from 30Mbps from DubaiSat-1 to 160Mbps on DubaiSat-2. The area data acquired by the satellite will also increase from 12,000sqm per day to 17,000sqm.

You can hear more about these and other MENA space developments during the forum's three tracks – covering Earth observation, launch policy, emergency response activity and much more.

To find out more about May's GSSF, and to reserve your place, go to [www.gssforum.com](http://www.gssforum.com).

**The previous forum proved a great success.**



FOCUS ON

# ALGERIA

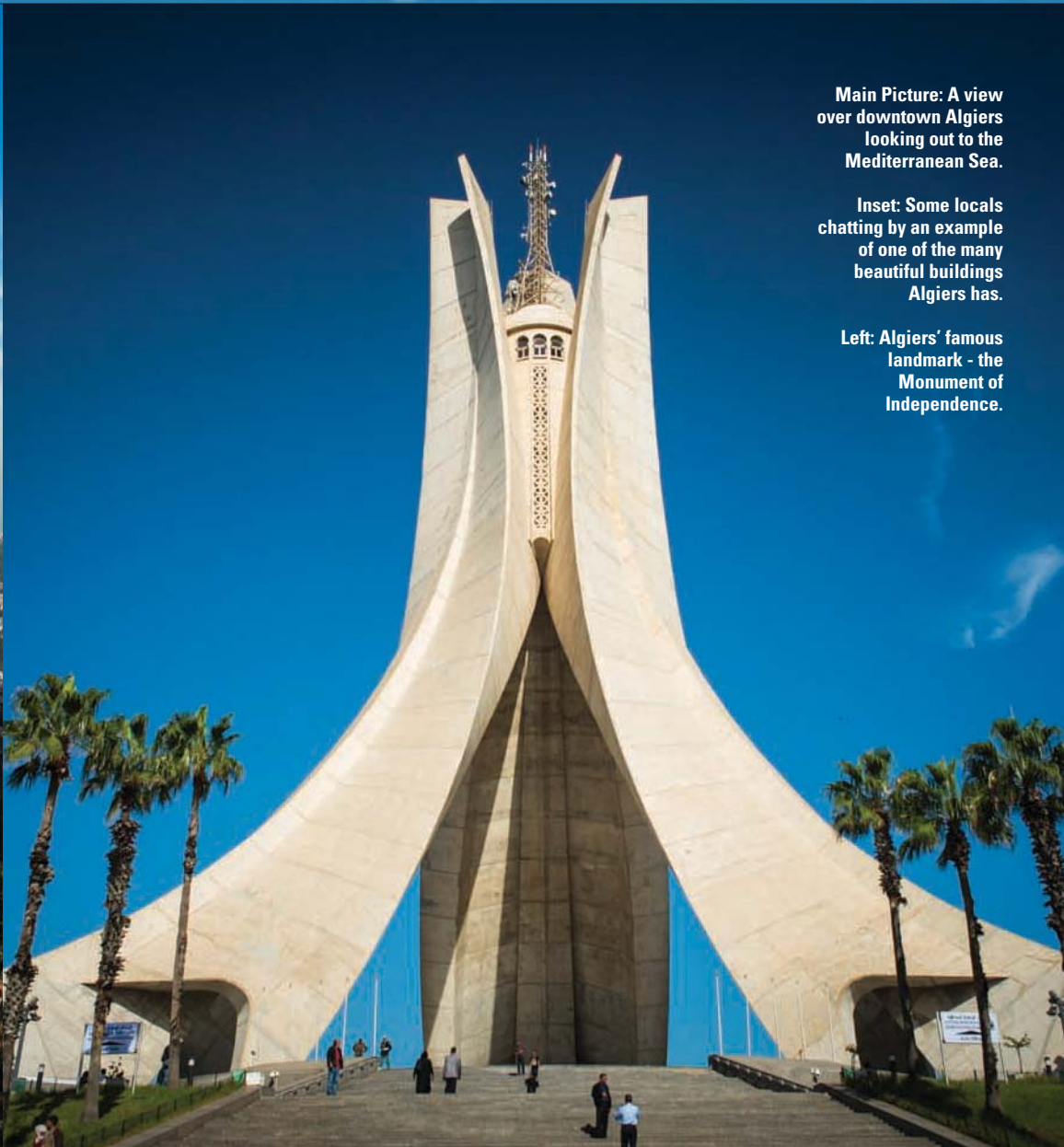


# THE LAND THAT TOURISM FORGOT



*Algeria was once, like its neighbours Morocco and Tunisia, a popular holiday destination but civil war in 1992 put a stop to that. Today, the Algerian government is working on a plan to welcome tourists back. **Marcelle Nethersole** visited the diverse country.*





**Main Picture: A view over downtown Algiers looking out to the Mediterranean Sea.**

**Inset: Some locals chatting by an example of one of the many beautiful buildings Algiers has.**

**Left: Algiers' famous landmark - the Monument of Independence.**

**S**tanding high and proud above Algiers, the capital of Algeria, is Monument des Martyrs, a landmark created to commemorate the Algerian War for Independence, which ended 50 years ago.

Over the next half century Algeria has been making progress with its infrastructure. And, while it continued with its struggles – particularly when bitter civil war broke out in 1992 – the government is now on a mission, along with the national airline, Air Algérie, and the main tourism company, ONAT, to construct a tourism plan.

While the tourism sector of Algeria is a contributing factor in the country's economy, the figures are still quite low, with 220,000 tourists visiting in 2011. Of those, many are from the 'ethnic' community, which means Algerians living abroad coming back to visit.

"We have 36 airports in Algeria and the air traffic is more than six million passengers a year, which is made up of business, ethnic and tourism," said Nabil Doumi, head of cooperation and international affairs at Air Algérie.

"We have large communities living in Europe that come home to Algeria to visit family and friends but we are also starting to see a small number of tourists coming into Algeria, who particularly enjoy the south of the country.

"Air Algérie is working with the government to try and set up packages to have more tourists visit from around the world, and not just business travellers and nationals working abroad. Together, we want to show the world what Algeria offers."

It's fair to say that Algeria makes it hard for a tourist, or business traveller from certain countries, to visit with all the visa restrictions and

letters of invitation needed to enter the country.

Hopefully the tourism plan will take this into account, so visitors can visit this very diverse country that really is a gem in North Africa.

Algeria is huge, spanning 2,300,000sqkm, making it the largest country in Africa following the 2011 splitting of Sudan.

It has 120km of coastline and 6,000km of borders with Tunisia, Libya, Niger, Mali, Mauritania, Western Sahara and Morocco.

It has beaches, deserts, mountains, and forests – making its climate suitable to everyone all year round.

There is a rich culture that is underdeveloped with seven Unesco World Heritage sites and ancient civilizations. To this day the different civilisations, which have enriched the country for years, have left many traces that can

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still be seen – from rock paintings and carvings in the south to many of the historic cities, such as the valley of the M'Zab, which has a collection of castles and fortified villages, and the former Roman cities of Hippo and Djamila.

Most visitors fly in to Algiers. It is here that a lot of business is conducted away from the gas and oil industries in the south. It is the largest city in Northwest Africa and is also home to the largest port in the region.

Algiers is known as the white city. Sitting on the Mediterranean, the capital is stacked with white dusty buildings. When the sun is shining, it's very easy to see the charm the city once held.

While it's a little tired around the edges now it still has stunning French and Ottoman architecture, and wonderful winding streets and alleys going up in to the hills.

There are beautiful mosques and churches to visit, including the Notre Dame d'Afrique Cathedral that sits atop a hill overlooking the Mediterranean, as well as museums, including the Museum of Modern & Contemporary Art and the Beaux-Arts Museum.

#### Old city

Discover the old city of the Casbah, which is listed as a Unesco World Heritage site, where you can walk the steep narrow alleys with their low houses. It is believed up to 70,000 people still live in this poor area. It's best to go in the day to appreciate it, and also for safety reasons.

Algiers is a lively city with a great selection of bars and restaurants and, due to its location, it is particularly noted for its seafood restaurants.

The only major downfall of Algiers is its traffic. If you're in

a hurry to get across town you'll need a good hour-and-a-half in the traffic. However, the new underground system became active in 2012 so, hopefully, the traffic will be cut dramatically.

Algiers has a good selection of hotels; one of the best is the El Aurassi, where the 45th Arab Air Carriers' Organization AGM took place.

Algeria is considered a safe country. This makes international brands particularly interested in investing in its future growth. Some key players like the InterContinental, Marriott, Hilton, Sofitel and Accor are investing there for the long term.

The government is currently working on its strategy to boost the quality of hotels as well as hit all visitor interests; including aiming at the health and wellness visitor to the country – Algeria boasts 270 hot springs that can be developed as hotel spas and resorts.

Two other popular towns to visit in the north

are Oran and Constantine – the second and third largest cities in Algeria.

Oran is a major port city. It is popular with young locals for its lively nightlife and for families as it offers a beautiful coastline and beaches. The cornice is located a few kilometres west of the city and has a multitude of beaches, one of the best being Madagh beach.

Constantine is truly stunning. It sits atop a plateau surrounded by a deep ravine and rises from the surrounding land to a height of 2,100ft above sea level. It is often referred to as the 'City of Bridges' because of the four bridges that connect it with the mountains.

The 125 metre Mellah Slimane Bridge joins the train station with the centre of the old town. It is some 100 metres above the water and makes a breath-taking walk.

Other highlights in this historic city are the Casbah, which houses ancient buildings and various styles of architecture; the stunning Palace

truly a must. But, you should note that for safety reasons it is not wise to travel in the south independently.

Popular trips include a visit to Tassili N'Ajjer National Park and the Hoggar.

Tassili N'Ajjer National Park is just outside the whitewashed oasis town of Djanet, close to the Libyan border.

It is known as the 'Plateau of Chasms', which conceal unrivalled Saharan rock art. There are more than 15,000 drawings and engravings, which record the climatic changes, the animal migrations and the evolution of human life on the edge of the Sahara – which covers more than four-fifths of the land – from 6,000 BC to the first centuries of the present era.

The desert in itself is stunning, with huge rocks in the middle of waves of golden sand.

The Hoggar is one of the biggest mountain ranges in the Sahara. Trips usually start from the city of Tamanrasset.

Here you can discover the beauty of the mountains, as well as desert landscape, its rocks and carvings.

While trips are mainly undertaken in 4x4 vehicles, there are also trekking trips. Treks include the chance to hike to the top of Algeria's highest summit, Jabal Tahat, which stands at 2,908 metres.

#### Camel treks

Camel treks can also be made in Dag Iharadj. Depending on which trip you choose, you might be staying in a hotel in one of the towns, or camping out in local shelters or huts, or if you're in Tassili you can sleep in traditional tents.

Berbers originally inhabited Algeria, until the Arabs conquered North Africa in the

7th century. Based mainly in the mountainous region of the south, the Berbers resisted the spread of Arab influence, managing to preserve much of their language and culture.

Part of this tribal culture is still very much alive in the Tassili N'Ajjer and Hoggar regions. There are around 1,000 nomadic Tuareg tribes still settled in the area that are reputedly of Berber descent.

The Tuareg tribe is also known as the 'Blue Men of the Sahara' because of the striking indigo veils, worn by the men (but not the women), which help them cope with the desert weather.

Today, much of the tribe relies on tourism to survive and many of them will accompany you on your trips, so expect a friendly nomadic welcome.

In fact, once you have got past the initial visa drama of getting into Algeria, the country, and its people, will offer you a very warm welcome and a trip you will remember for life.



The Tuareg tribe (also known as the Blue Men of the Sahara) in Tassili N'Ajjer.

of Ahmed Bey, which is one of the finest Ottoman-era buildings in the country; and the Grand Mosque, which was built in the 13th century. A visit to the Cirta Museum offers a great insight to the city's spectacular past.

As Algeria is such a big country, some trips will require visitors to fly to certain destinations to save time.

"Our airports are all very well equipped, which enables travel quickly between remote areas," said Doumi. "This includes the road network, trans-Sahara road in the south and eastern highway. So visitors can experience road travel in good conditions."

Trips to the south of the country require a flight. It is the south that boasts the mammoth Sahara desert and a stunning mountainous backdrop.

It has only been possible in the last couple of years to visit this region of the country – and it's

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Yennek Mohamed  
- MRO capabilities  
for Al Algérie

*Ian Sheppard was a visitor when Algeria hosted the Arab Air Carriers Organization (AACO) meeting in November. Here he reports on his time getting to know both Air Algérie and the background to the country's aviation woes.*

# AN AIR OF OPTIMISM

**F**or many in the developed world, North Africa is an almost forgotten place between West Africa and Europe, or perhaps the Middle East.

For Algeria, a vast former French-occupied territory in the Maghreb, there is not even much tourism putting it on the map – unlike its neighbours Morocco and Tunisia.

The so-called Arab Spring of 2011 was a seminal moment for Algeria, if less so than for Egypt.

As with the rest of the region, Algeria still reverberates with the memories and implications of that time, and the suggestion from the West that all such nations should democratise.

This perhaps explains why it is a place that feels untrusting of outside visitors. It is perhaps weary of revolutions and didn't quite want to grasp the latest one, having succeeded in a long struggle against the French in 1952 and then seen a push for democracy in 1988 (resulting in a civil war in the 1990s after the then president was assassinated), and then more recently having been on the doorstep of Libya as regime change was enforced with the help of Western powers.

With radical Islam always bubbling beneath the surface (having been suppressed in the late 1990s) the immediate needs of security and stability seem to take precedence over a headlong rush for economic expansion.

The president is Abdelaziz Bouteflika, who gained 90% of the vote in the April 2009

presidential election. He has been president since 1999, so is in his third five-year term (there is no limit on number of terms).

With the official national languages being Arabic and French, both widely spoken with few having more than a few words of English, there is a sense of direction that points to the Middle East and away from France, despite so many Algerians living in France.

#### Independent identity

Algerians are still seeking their independent identity; stuck in an identity crisis with an attitude to France reminiscent of Zimbabwe's towards Britain, which resulted in such an economic disaster. France can help Algeria still but it will be an uneasy relationship for a long time to come.

Algeria has an economy which, due to reliance on oil and gas, has not tended to develop manufacturing. This is certainly the case for aerospace.

Its airline industry has been established predominantly on the back of French ties and the requirements of the oil and gas sector, needing to transport personnel into the vast swathes of desert inland.

The main examples are respectively Aigle Azur, the Paris-Orly based airline (and operator of 12 A320-family aircraft), whose main market is Algerians living in France, and Tassili Airlines, the domestic carrier owned by Algeria's national

oil company, Sonatrach (the airline has been operating since 1999).

Sonatrach is Algeria's largest company and probably the biggest in Africa. It generates around 30% of the country's gross national product.

It is Air Algérie and its Algiers base, however, that represents the core of the aviation sector and for now the national carrier holds sway.

Although it relinquished its 49% stake in Tassili to Sonatrach in 2005, it is relatively friendly competition compared to low-cost carriers.

The EasyJets, Ryanairs and FastJets of the world have not yet arrived but are a threat, which has been partly responsible for Air Algérie deciding to put together a new five-year plan to renew its ageing fleet.

Various international carriers, such as British Airways and Qatar Airways, also operate to Houari Boumediene International Airport.

Air Algérie president and CEO, Mohamed Salah Boulouf, said the country's ambition was for Algiers to become an important international hub. The airline's five-year plan, running from 2013-2018, has ten key points, including replacing its long-haul fleet of Boeing 767s, and its Boeing 737 fleet (three 737-300s, five -600s and 14 -800s) with more modern aircraft.

"I agree with IATA's Tony Tyler about the potential for a hub in North Africa," Boulouf

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said. "As far as Air Algérie is concerned, it is one of our objectives; we are trying to make a partnership with the airport and authorities. We are trying to identify all the connecting flights in order to build a very integrated schedule. Then we will try to define a fair policy regarding the sixth freedom traffic."

The state-controlled carrier currently operates three 767-300s and five Airbus A330-200s, all powered by GE CF6 engines. It also has a regional fleet of 12 68-seat ATR 72 turboprops from Toulouse, France-based manufacturer ATR, and would like to modernise this fleet too.

Bouloufi also said that the plan is to restructure the airline to create more distinct divisions covering catering, ground handling and maintenance.

The airline also wants to expand its route network, especially in Africa, to fit in with its hub plan alongside the encouragement of transit passengers at Algiers.

In August it announced intentions to start operating to Nigeria and South Africa. The carrier has also increased traffic to African destinations, which is mainly West Africa – for example flights to Dakar increasing from two to five a week.

The airline is also looking at Chinese destinations, such as Shanghai, despite the recent suspension of its Beijing flights. Going to the United States is also on the cards, and it is waiting for the signing of an 'open skies' accord between the two nations.

New York is top of the list – the airline already flies to Toronto in Canada, has many destinations in Europe and several in North Africa and the Middle East – around 39 international cities in

## Air Algérie key facts

- **Founded in 1947 as Société Algérienne de Construction Aéronautique (SACA).**
- **Now the third largest airline in Africa.**
- **Fleet of 43 aircraft from ATRs to A330s.**
- **Nine scheduled international destinations in 28 countries.**
- **Thirty-two domestic destinations.**
- **Air France relinquished last 17% shareholding in 1974, and Air Algérie became a 100%-owned flag carrier.**
- **Has EASA Part 145 MRO with vast hangars and numerous workshops.**
- **Line stations at 29 national airports plus Paris, Lyon and Marseille in France.**

total plus 32 domestic destinations.

Air Algérie has a well-equipped MRO operation with large hangars built in 2004 for the then Air Algérie Technics by Canadian company SNC Lavalin following the signing of a cooperation agreement with EADS Sogerma in 2003.

The airline is now working hard to make the operation more efficient and extend its capabilities, according to Yennek Mohamed, manager of the facility, who added that 30% of the MRO's work is for third parties.

In the main hangars were a Hercules undergoing a C-check, three ATR 72s having B and C checks, and two 737-600s in for C checks. "Another 737 and an A330 are coming in this afternoon," said Mohamed, who added: "We do more than 50 [heavy checks] a year."

The airline's restructuring includes a drive to

be more commercially aware. For example, it plans to build a bigger avionics shop, probably through a joint venture, "so we can do more third-party work too", said Mohamed.

Another hangar is planned as well, also big enough to house an A330 and a new training school. Construction "will start next year". He added: "We are ambitious to do a lot of things but to do this we need joint ventures."

Mohamed said the ATRs are maintained in a designated part of the hangars that create a single space due to the sidewalls being left out. The turboprops were acquired in the 1990s, he said, "and we got more from Khalifa when they went bankrupt, so now we have 12 all together".

Another part of the hangar is dedicated to 737NG maintenance; there is a C130 area (the airline operates one and there are many in the region) and then another section for maintaining the larger aircraft, 767s and A330s.

The hangar, which is described as "huge" (25,000sqm) could actually accommodate four 747s, or 12 737s, simultaneously, according to the airline.

### Going international

He noted that Air Algérie does not maintain Tassili's aircraft (it operates 737s and Dash 8s) and that the airline is now "going international, with Rome first... and they're going to buy new aircraft. So we will be competing."

Air Algérie purchased its aircraft with the help of the national bank and does not lease any, said Mohamed.

The airline has a fully-equipped, 8,800sqm engine shop, which can test engines up 65,000lb thrust – the airline has CFM56-3/-7 and CF6-80E3/C2 engines – plus a separate rig to test the Allison (Rolls-Royce) T56 turboprops that power Lockheed C130 Hercules.

A current project will soon mean it can test the ATR's Pratt & Whitney Canada PW127 engines, said test cell manager Abdel Khalifi. The project involved SANCO, dynamometer specialist Froid Consine and P&WC, while the jet cell was developed in association with General Electric. It will soon be able to test the CF6-80E1 that powers the airline's A330s as well.

Air Algérie is involved in the MRO task force of the African Airlines Association (AFRAA), which is looking into the feasibility of joint pooling of inventory, collective purchases and optimal use of MRO facilities. Those involved in the initiative include Air Algérie Technics, EgyptAir, Ethiopian Airlines, Libyan Aircraft Engineering and Maintenance, Royal Air Maroc, SAA Technical, Snecma Engine Services, Tunisair Technics, TAAG Angola, Air Mauritius and Kenya Airways.

Air Algérie hosted MRO Africa in 2010, in conjunction with AFRAA, and hopes to do so again; it will be holding an event in 2013 at its facilities, while the main MRO Africa will next take place in Addis Ababa, Ethiopia, from February 25-27 2013.



Air Algérie's busy MRO hangar.



Kamal Mezghiche with an airline built on oil - inset one of Tassili's aircraft.

# Tassili set to spread its wings

*Tassili Airlines wants to be known outside of Algeria. It is ready to make its mark on the skies and becoming an associate member of the Arab Air Carriers Organisation (AACO) was part of this ambition.*

**Marcelle Nethersole** speaks to its commercial director, Kamal Mezghiche.

**T**assili Airlines became an associate member of the AACO at the 45th annual meeting of the organisation held in Algiers.

"Becoming a member is a big step for us in gaining notoriety and taking advantages from it. We are more than happy to be on the same platform of all its members," said Mezghiche.

"It's really important for us to get our name known outside of Algeria as we were restricted just being known locally. This event shows Tassili is growing and we can now stand proudly with the other airlines."

Tassili Airlines was established as a joint venture between Air Algérie and Sonatrach (the Algerian national oil and gas company) back in 1998.

Its mission was the transportation of the huge number of the oil and gas workers within the country.

#### Mainly in the south

"We are based at Algiers airport and have a second base in Hassi Messaoud in the south. We operate mainly in the south, as that is where the oil and gas fields are, but we also operate in the rest of Algeria. Flights are generally on a charter bases, or on an ad-hoc basis," explained Mezghiche.

Oil was discovered in Hassi Messaoud in the mid 1950s and it is considered the first energy town in Algeria. Today, most of the big oil and gas companies of Algeria are based there.

In 2005, Sonatrach bought back the 49% share held by Air Algérie, making Tassili a wholly-owned subsidiary of Sonatrach.

The airline's fleet consists of 12 aircraft; four Boeing 737-800, four Bombardier Q400, and four Bombardier Q200.

Mezghiche added: "Tassili Travail Aerien (TTA) – a subsidiary of Tassili Airlines, which handles aerial work – has small aircraft and helicopters, including BE1900D, Cessna 208 G/C, Pilatus PC-6, and Bell 206 LR helicopters given up by Tassili Airlines."

Currently, the airline is adding new activity, expanding out of Algeria.

"We recently signed a contract with Mercator to provide hosting on the Avantik system for an IT solution including inventory, reservation, departure control system, revenue accounting, and reporting," said Mezghiche.

#### Domestic scheduled flight

"We are in the process of launching our first domestic scheduled flight between Algiers and a yet-to-be-decided southern destination."

Tassili Airlines launched its first international charter flight between Hassi Messaoud and Rome last September to serve staff of the oil and gas companies.

"We are looking at opening other direct flights to Europe this year, as well as the Middle East," said Mezghiche. "The Middle East is a high priority route for us as there is demand in the region."

"A point is yet to be decided, but the flight will depart from Hassi Messaoud."

"Tassili is growing now and we are already quite important in Algeria, so why not in the MENA region?"

As Tassili grows, Mezghiche said that it is not in any way shape or form a competitor with Air Algérie.

Mezghiche said: "Tassili Airlines scheduled services in Algeria will be a compliment to the existing domestic network of the national airline in terms of route extension and frequencies."

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Algeria's air force on display.

# HUGE FORCE FACING MANY ROLES AND CHALLENGES

*The Algerian Air Force – Al-Quwwat al-Jawwiya al-Jaza'eriya (QJJ) – is the largest and, arguably, the most effective air arm in the Maghreb region.*

**Jon Lake** looks at the complex operation.

**Q**JJ is larger than the Royal Moroccan Air Force and better equipped than the Libyan Arab Air Force of old. This is, perhaps, unsurprising, as Algeria is now the largest country in Africa and the tenth largest in the world, and it has a population exceeding 37 million.

High oil and natural gas prices mean a buoyant economy, well able to afford the necessary hardware to meet Algeria's complex security needs and to support what is the second largest army in Africa and in the Arab world, after Egypt.

Algeria has not traditionally enjoyed entirely smooth relations with Morocco to its west, thanks to Moroccan claims in western Algeria and Algerian support for the Polisario Front.

Air power has long been seen as the best means of patrolling and monitoring Algeria's borders and

of deterring aggression or incursion.

Algeria also has some internal tensions, with Islamic and Berber protest movements forcing an end to one-party rule in 1988, and then leading the country into a ten-year civil war from 1992 (triggered when the Algerian military stopped free elections that seemed likely to bring an Islamist party to power), in which air power was again of critical importance in the campaign against Islamist insurgent groups.

Algerian air power, therefore, has to be capable of deterring and, if necessary, defeating aggression by a formed state adversary, but also of fighting a lower intensity asymmetric anti-insurgency campaign, which poses different demands, and which requires a greater emphasis on counter-insurgency (COIN) and air mobility.

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The air force also bears the brunt of maintaining the security of Algeria's air space and of its long and, in many places, remote national frontiers. It is also equipped to carry out long-range search and rescue operations in the Sahara and for the provision of an emergency airlift capability for the country's desert tribes.

Algeria, therefore, maintains a large and modern air force, with 13 major air bases accommodating about 36 squadrons (known as Escadrons) and ten wings (Escadres). Some 241 combat aircraft (of 271 on charge) serve with about 20 fast jet squadrons, while the air force also operates 46 transports (of 52 delivered) and 183 helicopters.

The air force also controls Algeria's air defence artillery and major surface-to-air missile systems, which are integrated with the fighters and air defence radar units.

In recent years the air force has diversified the sources of its equipment, though the frontline elements remain largely Russian looking, at least superficially.

**Potential pilots**

The roots of the Algerian Air Force were put down even before the nation gained its independence in 1962. In 1954, the National Liberation Front (Front de Libération Nationale or FLN) launched the Algerian War of Independence. In 1956 it decided that an air force would be necessary and started sending potential pilots to Syria and to Egypt for training. A flight of helicopters was acquired and used even during the revolution.

After independence was declared on July 5 1962, these pilots returned to Algeria and formed a cadre, around which the new air force was formed. Egypt donated ten Heliopolis Gonthouria basic trainers (licence-built Bucker Bestmanns) and five MiG-15UTIs, and provided a nucleus of instructors.

The new air force set up a National Technical and Aeronautical School at Blida and an Air Force Higher Academy at Tafraoui, and prepared for rapid expansion.

Russia supplied 20 MiG-15bis fighters in 1964 and more than 60 MiG-17Fs from 1965. Another 30 MiG-21F-13s and six MiG-21FLs followed, allowing the establishment of five fighter squadrons at Laghouat, Bou Sfer, Béchar and Tindouf, while 14 Ilyushin Il-28s led to the formation of 27 Escadron at Mecheria.

In June 1967, Algeria sent about 20 MiG-17s, 20 MiG-21s and 12 Il-28s to Egypt during the Six Day War, though it did not participate directly.

The air force underwent a major re-equipment and expansion programme in the early 1970s, so that by 1973 it could field four air defence squadrons, equipped with MiG-21FLs and MiG-21MFs, five fighter-bomber squadrons – two with Su-7s, the remainder with MiG-17s – a MiG-21-equipped fighter squadron, and a transport arm with two squadrons of An-12s and a number of helicopter units, equipped with Mil Mi-8 'Hips'



and later also with Mil Mi-24 'Hinds'.

During the October 1973 Yom Kippur War, Algeria dispatched 13 MiG-21s, 12 Su-7s and 23 MiG-17s to Egypt, this time with their pilots, and additional Algerian pilots joined Egyptian MiG-17 squadrons.

The Algerian elements undertook air defence missions around Cairo, and flew ground attack sorties. Two Su-7s, a MiG-21 and a handful of MiG-17s were shot down, but no pilots were lost. Subsequently, in the face of a Soviet refusal to supply more combat aircraft to Egypt, Algeria acquired 32 Su-20s and passed these on to the Egyptian air force.

**Interceptor squadrons**

Further expansion and re-equipment saw the Algerian air force able to field four MiG-21bis interceptor squadrons, a single squadron equipped with the MiG-23MF (14 Escadron), five fighter-bomber squadrons equipped with the MiG-23BN, and a training school equipped with Czech Aero L-39 Albatros trainers.

In 1978, Algeria deployed a fighter squadron and a reconnaissance squadron equipped with the MiG-25 'Foxbat'.

After Algeria acted as an intermediary in the effort to resolve the US Embassy hostage crisis in Iran, new, friendlier relations were forged with the USA, and Algeria received six (eventually 12) Beech T-34C Turbo-Mentor basic trainers six (eventually 18) C-130H Hercules transports and three Beech King Airs in 1981, with further

aircraft following.

The dissolution of the Soviet bloc had little effect on Algeria which, unlike many of the USSR's clients in the developing world, was able to continue purchasing equipment on commercial terms.

There was a further round of expansion and modernisation in the 1990s, starting with the acquisition of some 39 Sukhoi Su-24s, comprising 35 Su-24MK 'Fencer-D' strike aircraft and four (not 19 as sometimes reported) Su-24MR 'Fencer-E' reconnaissance aircraft.

These replaced Algeria's MiG-23BNs and gave a much-improved long-range and all-weather capability, using a wider range of more effective weapons, including precision-guided munitions for the first time.

Tactical fighter-bombers had given way to aircraft with a potentially semi-strategic reach and effect, though in service, Algeria's Su-24s retained a primarily tactical role. The aircraft has undergone some upgrades in recent years, mainly at the hands of the Novosibirsk Aircraft Production Organisation in Siberia.

The next element of the air force to be upgraded was the air defence force, whose four squadrons of about 80 MiG-21bis fighters and one squadron of about 20 MiG-23s gave way to four squadrons with about 70 MiG-29s.

Between 1997 and 2007 Algeria gained 30 single-seaters and six two-seaters from Belarus, with about 17 single-seaters and two twin-stickers coming from the Ukraine, and 15 more coming



The Algerian Air Force has developed a diverse collection of aircraft but with a strong leaning towards Russian and other Eastern European types.



from Russia. Some reports suggest that Algeria eventually received 74 MiG-29s, including 12 two-seaters. The single-seaters consisted of a mix of 9-12 'Fulcrum-A' and big-spined 9-13 'Fulcrum-C' sub-variants.

Though primarily tasked with air defence, and operated by a unit with 'Defence Aérienne' in its title, the Algerian MiG-29s are multi-role fighters, and have demonstrated an air-to-ground role dropping free-fall bombs. Many of the aircraft have subsequently been modernised and upgraded in Belarus.

The MiG-25 fighters remained operational and, indeed, the 29 or so MiG-25P/U/RB that had been delivered in 1979 were augmented by nine MiG-25PDS interceptors and three MiG-25RBSH reconnaissance aircraft bought from the Ukraine in 1997, along with a massive spares package that has allowed a dwindling fleet to remain operational to this day.

By 2010, 11 were operational, including five MiG-25Ps, three MiG-25PDs, and three MiG-25RB/RBSH models, though the fighters rarely fly. More are in storage or undergoing maintenance with the MiGremont, Zaporozhye State Aviation Repair Factory in the Ukraine.

Algeria's fleets of Soviet-supplied support and attack helicopters were upgraded and expanded at much the same time, so that the air force now has a support helicopter force that includes more than 120 Mi-8 and Mi-8MT and Mi-171Sh 'Hips', many of them upgraded to conduct night/all-weather operations.

At one time, it was expected that half-a-dozen or so 'Hips' would be modified for the combat search and rescue (CSAR) role, but that now seems more likely to be assigned to Agusta Westland AW101 Merlins, likely to be purchased alongside the armed 'surveillance and intervention' versions being purchased for the Gendarmerie Nationale.

The attack helicopter force was reduced, with only about 40 of the more recently acquired Mi-24 and Mi-25 'Hind-E's being retained, and the remainder retired. But the retained helicopters were upgraded and modernised to Super Hind Mark III standards by the South African company Advanced Technologies and Engineering (ATE).

#### Upgrade configurations

ATE began work on Mi-24 upgrade configurations in the late 1990s, flying a prototype from February 1999, basing these on the proposed Denel/Kentron upgrade for Poland's PZL W-3WB Huzar fleet. The upgrade retains the airframe and engines of the donor 'Hind' and, therefore, has the same excellent performance and rugged survivability.

The aircraft has a new glass cockpit with new displays and controls, including a digital head-up display and a night-vision-compatible helmet-mounted display system. It features a new mission computer, a Doppler and GPS-based navigation system and NATO-standard identification, friend or foe (IFF). ☒

The Super Hind features an extended nose with

an under-nose Kentron IR/EO sight and an under-slung Vektor (now Denel) GI2 (F2) 20mm chain gun. It carries 840 rounds in cheek bins, with a cheek fairing to port for the ammunition feed system. The gun features a dual-feed system that allows the gunner to select either armour-piercing or blast-fragmentation anti-personnel ammunition at will. It is augmented by provision for eight South African Kentron ZT35 Ingwe or ZT6 Mokopa laser-guided antitank missiles.

Some of the Algerian 'Hinds' may by now have been further upgraded to Super Hind Mk.4 standards with the Pall Vortex Engine Air Particle Separator System.

Algeria's next round of air force modernisation was announced in March 2006, when a new multi-billion dollar arms deal was revealed during a visit by Russian president Vladimir Putin to Algeria.

The US \$7.5 billion arms package was to have included the purchase of 28 Su-30MKAs, 28 single-seat MiG-29SMTs and six two-seat MiG-29UBTs and 16 Yakovlev Yak-130 advanced trainers, as well as eight batteries of S-300PMU-2 air-defence missile systems and 24 Almaz-Antei 2S6M Tunguska 30mm/SA-19 self-propelled air-defence systems.

The complex deal included the buy-back of surviving MiG-23s and 36 of the surviving first-generation MiG-29s.

Algeria received the first two of the new MiGs in December 2006 and by April 2007 15 MiG-

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29SMT/UBT had been delivered. All was not well, however, and the Algerian military refused further deliveries in May, and then stopped making payments on the contract in October 2007, alleging that the aircraft were of inferior quality – and that they were old airframes, built some years before, rather than the new-built airframes that Algeria had expected.

In the end Rosoboronexport and the MiG Corporation agreed to take back the 15 fighters that had been delivered and offered to replace the MiG-29SMT contract with another agreement. Russia offered Algeria the more advanced MiG-35, with AESA radar and a new airframe, but this offer was refused.

The 15 MiG-29SMT/UBT were returned to Russia in early February 2008 and all 34 subsequently entered service with the Russian Air Force's own 'Kursk' regiment at Lipetsk.

Instead, Algeria agreed to take a further batch of 16 Su-30MKA aircraft in place of the MiGs, taking the number of 'Flankers' on order to 44, and effectively exercising 16 of the 28 options it held. A contract was finally signed with Rosoboronexport for these 16 aircraft in April 2010.

The first of the Su-30MKAs was delivered during December 2007 and four had been delivered by March 2008, when the decision to add 16 extra aircraft was taken.

The Su-30MKA is a derivative of the Su-30M, which is, in turn, a two-seat multi-role derivative of the Su-27 'Flanker'.

The Su-30 was originally conceived as a dedicated long-range/high-endurance interceptor for the Soviet national air defence (IA-PVO) but only a handful were built before the type was extensively redesigned, gaining a multi-role capability to meet the demands of the export market.

**Rival factories**

There are several competing versions of the Sukhoi Su-30 offered by rival factories. The Su-30MKA selected by Algeria, however, was built and supplied by the Irkut Corporation's Irkutsk Aircraft Production Organisation (IAPO), part of Russia's United Aircraft Corporation (UAC). It was equipped with an N011M BARS pulse Doppler passive electronically scanned array (PESA) radar, canard foreplanes and Saturn AL-31FP engines with thrust-vectoring nozzles, and using a high proportion of Western avionics systems, including Thales Damocles targeting pods.

A dozen aircraft had been delivered to Algeria by November 2008 and test and evaluation trials were undertaken from Oum El-Bouaki airfield.

All 28 of the first batch of Su-30MKAs were delivered by the end of 2009, allowing the formation of a new Escadre de Chasse (with two escadrons) at the newly-built air base at Ain Beida, officially opened in 2004.

About four of the aircraft are reportedly specially modified for reconnaissance duties, with a mission system and sensors designed and integrated by Thales, under the designation of Su-30MKR or Su-30MRK.

The deal for extra Su-30s was almost derailed when Algeria reportedly discovered that the aircraft's main mission computer relied on

training, and a force of Aero L-39s for basic and advanced flying training.

There is an obvious requirement for a modern turboprop trainer for basic/advanced training, or for a mix of turboprops and an enlarged fleet of Yak-130s.

Algeria is also recapitalising its tactical transport fleet, having acquired six CASA C-295Ms to augment the ageing Hercules fleet. Further procurement of transport aircraft is considered likely in the near term.

The procurement of further attack helicopters seems to be an even higher priority for Algeria. In

June 2011 Russia's Rostvertol announced that it was in talks with Algeria for the supply of a number of Mil Mi-28NE attack helicopters for delivery from 2012-2017.

The Mi-28NE is a dedicated two-seat attack helicopter, equipped with a mast-mounted millimetre-wave fire control radar and armed with the Ataka anti-armour missile system, and would complement the Super Hind in Algerian service.

In July 2012 Rostvertol demonstrated its upgraded Mi-26T2 heavy transport helicopter in Algeria.

By comparison with the baseline Mi-26, the Mi-26T2 has a new NVG-compatible glass cockpit, and a BREO-26 airborne electronic system, allowing day/night all-weather operations. Algeria previously operated the Mi-26's forerunner, the heavy-lift Mil Mi-6 'Hook'.

Although still largely equipped with systems of Russian or Soviet origin and though still acquiring Russian equipment, Algeria is increasingly looking towards the USA, Europe, and wider afield to meet future requirements.

**Improved progressively**

Despite a hiccup caused by Algerian support for the Gaddafi regime in Libya during 2011, relations with the USA and NATO have improved progressively, and Algeria is increasingly seen as a bulwark against jihadist activity in the Sahel region, and in particular against Al-Qaeda in the Islamic Maghreb.

Algeria has embarked on a new relationship with Western nations including, for example, participating in the US 'Flintlock 2005' exercise, which saw US special forces training soldiers from Algeria, Chad, Mali, Mauritania, and Senegal.

Algeria is reportedly exploring the possibility of gaining an airborne early warning and control capability, and the Boeing 737 AEW&C and Saab Erieye have been examined as potential solutions to this developing requirement.

There may also be an emerging requirement for an air-to-ground surveillance capability, like that offered by the US JSTARS or British ASTOR.



VIP transport is an important element of the Algerian Air Force role.

Israeli technology, while the HUD and EW systems (an Elbit Systems SU967 HUD and an Elta EL/M-8222 EW system) were of Israeli origin.

Algeria reportedly demanded an explanation and there were fears that it could withdraw the Su-30 and abandon all further dealings with IAPO, as it did after two VIP-configured Eurocopter EC225s were found to have some Elbit avionics.

Somehow, Algerian concerns were allayed, and the final element in the big Russian deal went ahead, this seeing the delivery of the first of 16 Yakovlev Yak-130 advanced trainers ordered in March 2006.

Originally to have been delivered from 2009, the Yak-130s were repeatedly delayed and Algerian pilots finally performed their first solo flights on the aircraft at the Irkutsk Aviation Plant airfield on September 1 2011, following a three-month conversion training course.

Deliveries are now under way and two Yak-130s were seen on final approach to Boufarik on June 26 2012. Though the aircraft can be armed to provide a light attack capability, Algeria is expected to use the type for training only, perhaps including some weapons training, and not as a frontline type.

The acquisition of 16 Yak-130s – a number sufficient to provide lead-in fighter training for the Su-30MKA – highlights a real requirement to recapitalise the training fleet, which relies on a mixed fleet of Zlin 142s and 143s and Safir 43s (licence built Zlin 43s) for screening and primary

Merlin helicopters are proving their value in the desert environment of Algeria but also on maritime missions



# MERLINS WEAVE THEIR MAGIC FOR NAVAL AIR ARM

**Jon Lake** takes a look at four other forces, all with a need for air power.

Algeria's naval air arm was considerably boosted by the November 2007 contract for six AW101 Mk 610 Merlin helicopters and four Super Lynx Mk 130s, all for search and rescue (SAR) duties.

The Merlins are based at Annaba Bitat Rabah International Airport (Coast Guard Maritime Station East) and provide all SAR missions along the Eastern half of the Algerian coast.

They are similar to the Portuguese Mk 514s, powered by General Electric CT7-80 turboshafts, and with a full SAR fit including a 360-degree search radar and an under-nose selex EOST46 FLIR turret.

They are fitted with the new uprated tail rotor, which gives the aircraft improved control margins at higher all-up weights.

The Lynxes serve with 560 Escadron and are Super Lynx 300s powered by LHTEC (Rolls-Royce/Honeywell) CTS800-4N engines with full authority digital electronic control (FADEC) and

featuring an all-new glass cockpit with seven-colour active matrix liquid crystal displays (AMLCDs).

New systems include a Seaspray 3600 radar, a BAE Systems Titan 385 electro optical (EO) turret and the Sky Guardian 2500 electronic support measures (ESM).

Training for the new helicopter was conducted in the UK, with a mix of air force and naval aircrew undergoing pilot training on the Agusta A109 (two of which were acquired especially for the Defence Helicopter Flying School at RAF Shawbury), before progressing to the RAF's search and rescue training unit (SARTU) at RAF Valley on the island of Anglesey, where they flew a pair of newly ordered AgustaWestland AW139s (RAF SAR aircrew train on the Bell 412).

They then moved to St Mawgan for type conversion. The first Algerian Lynx began flying from the RAF's Cornish base by February 2010 and the first Merlin followed in May.

The Algerian Navy has, subsequently, ordered six similar AgustaWestland Super Lynx 300 helicopters for service aboard the Navy's two new Meko A200 class frigates, and aboard the El Djazayer – the new landing and logistical support vessel ordered from Orizzonte Sistemi Navali (a joint venture between Fincantieri and Selex Sistemi Integrati).

The new ship is much more than a mere landing platform/dock (LPD) and more of a helicopter carrier and flagship. It has an advanced radar, and comprehensive armament and defensive systems, including an OTO Melara 76/62 super rapid gun.

The 9,000tonne vessel is 143 metres long and has a crew of 150. It can carry 440 soldiers for landing operations.

Its flight deck stretches from stern to bow and there is an elevator to the under deck hangar with a capacity of 30tonnes.

The hangar deck can accommodate five helicopters, while there is also a garage deck for 15 tanks, three landing craft mechanised, three landing craft vehicle personnel, and two boats.

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## Air Order of Battle

The Algerian Air Force is broadly organised around nine consecutively numbered functional wings, most of them operating from a single base, though Boufarik hosts two wings, while the air defence-tasked Third Wing is divided between four bases, with one MiG-29 squadron at each. The Escadre assignment of the new Su-30s at Ain Beida is unknown.

Most Algerian air bases are strung out in a 250-mile deep belt along the coast, with Béchar (near the Moroccan border), Laghouat, Biskra and Ouargla marking the southernmost bases, with the sole exception of Tindouf, located far in the south west, adjacent to the Western Saharan border.

Algerian Squadron (Escadron) designations mostly follow a pattern, with the first of three digits signifying the unit's role (1 for fighter, 2 for attack, 3 for transport, 4 for helicopter, 5 for recce, and 6 for training), and with the third digit indicating the wing (Escadre/Regiment) assignment. A '0' in the last position indicates an independent unit reporting directly to Air Force HQ, and not to a wing. But Algeria remains extremely secretive about its air force and military posture, and there are inevitably gaps and some guesswork in the Order of Battle presented here.

The order of battle of the air units of the Algerian Navy, Algerian Gendarmerie National, and Protection Civile, as well as the UASN the Unité Aérienne de la Sureté Nationale (UASN, the air unit of the primary urban and metropolitan police force) remains unknown.

### 1e Regiment d'Hélicoptère de Combat, Biskra

421e Escadron d'Hélicoptère de Combat ATE Mi-24 Mk III and Mk IV Super Hind  
441e Escadron d'Hélicoptère de Combat ATE Mi-24 Mk III and Mk IV Super Hind

### 1e Regiment d'Hélicoptère de Combat detachment, Boufarik

471e Escadron de Liaison AS355B

### 2e Escadre de Transport Tactique et Logistique, Boufarik

32e Escadron de Transport C-130H, C-130H-30  
Unidentified Escadron de Transport (3?2) C-130H, C-130H-30  
Unidentified Escadron de Transport (3?2) Beech 200  
580e Escadron de Liaison et VIP C-295, Falcon 900, Gulfstream III/IV/IV SP/V  
*Some reports suggest that a reconnaissance/maritime patrol unit, equipped with the C-295MPA, Super King Air, and F27-400 is based at Boufarik.*

### 3e Escadre de Défense Aérienne, Bou Sfer

193e Escadron de Chasse MiG-29S, MiG-29UB  
Unidentified Escadron de Liaison Ka-27, Ka-32

### 3e Escadre de Défense Aérienne detachment, Tindouf

113e Escadron de Chasse MiG-29S

### 3e Escadre de Défense Aérienne detachment, Ouargla

143e Escadron de Chasse MiG-29S, MiG-29UB

### 3e Escadre de Défense Aérienne detachment, Béchar

153e Escadron de Chasse MiG-29S

### 4e Escadre d'Appuis Pénétration, Laghouat

274e Escadron d'Appuis Pénétration Su-24MK  
284e Escadron d'Appuis Pénétration Su-24MK  
294e Escadron d'Appuis Pénétration Su-24MK  
*The MiG-23BNs previously based at Laghouat have been retired, as have the last fighter MiG-23MFs and MiG-23MLs of 140 Escadron.*

### 5eme Escadre de Reconnaissance, Ain Oussera

120e Escadron d'Intercéption MiG-25PDS/PU, MiG-25UB  
515e Escadron de Reconnaissance MiG-25RB  
515e Escadron de Reconnaissance designate Su-30MKR  
525e Escadron de Reconnaissance Su-24MR  
575e Escadron de Reconnaissance Beech 1900D HISAR  
575e Escadron de Reconnaissance Kentron Seeker UAV

### Annaba/El Mellah

415e Escadron d'Hélicoptères Mi-2  
*The 415e Escadron has also been reported as the 115e Escadron*

### 6e Regiment d'Hélicoptère de Manoeuvre, Chlef

436e Escadron d'Hélicoptères Mi-171, Mi-8T, Mi-8PS  
456e Escadron d'Hélicoptères Mi-171, Mi-8T, Mi-8PS  
Unidentified Escadron de Liaison (Det.) AS355

*Reports of a Mi-24/Mi-35 unit here are believed to be inaccurate, as are reports of the 6e Regiment being based at El Bouleida. Nor is there a separate 11e regiment d'hélicoptères de Manoeuvre at Ouargla*

### 7e Escadre de Transport et de Ravitaillement en vol, Boufarik

347e Escadron de Transport Stratégique IL-76TD, IL-76MD  
357e Escadron de Ravitaillement en Vol IL-78  
Unidentified Escadron de Transport (3?7) Beech 1900D  
*The Beech 1900D unit may be misreported, and may instead report to the 2eme Escadre.*

### 8e Escadre d'Entraînement, Tafraoui

618e Escadron d'Entraînement Avancé L-39C, L-39ZA  
658e Escadron d'Ecolage Basique Zlin 142C, Zlin 143  
678e Escadron d'Ecolage Basique Zlin 142C, Zlin 143  
640e Escadron d'Entraînement Primaire Safir-43, Beech 200  
*The L-39ZA-equipped 632e Escadron d'Instruction et d'Appuis 'Tigre' at Mecheria is a weapons training/lead in fighter training unit. Though reported to be part of '2e Escadre d'Entraînement', it is thought more likely to report to the 8eme Escadre. The new Escadron d'Entraînement avancé equipped with the Yak-130 would be expected to be based at Tafraoui or Mecheria, but reports suggest that it will instead be co-located with the Su-30 wing.*

### 9e Regiment d'Hélicoptère d'Entraînement Setif/Ain Arnat

669e Escadron d'Hélicoptère d'Entraînement Mi-2  
Unidentified Escadron d'Entraînement (6?9) AS355  
Unidentified Escadron de Spécialisation (6?9) Mi-171

### Unidentified Escadre de Chasse Ain Beida

12 Escadron de Chasse/d'Intercéption Su-30MKA  
Unidentified Escadron de Chasse Su-30MKA  
Unidentified Escadron de Chasse (OCU) Su-30MKA  
*The new Su-30 unit may eventually become part of the 3e Escadre de Défense Aérienne, or may form the basis of a new Wing. The 159e and 29e Escadrons have been quoted as possible designations for the second and third Su-30 units to form. An Escadron d'Entraînement avancé equipped with the Yak-130 has been reported to be based alongside the Su-30s, though the first Yak-130s in Algeria were seen in the vicinity of Boufarik and El Bouleida (Blida), and might be expected to be based at Tafraoui or Mecheria.*

### Alger/Houari Boumediene Dar el Beida

Overhaul facility Various

## CONTINUED FROM PAGE 71

The vessel even has a hospital with 50 beds, an operating theatre and a dental clinic.

The new Lynxes will be equipped for anti-submarine warfare (ASW) and anti-surface warfare (ASuW) tasks, and there have been reports that they might be equipped with the South African Mokopa air-to-surface missile.

## Gendarmerie Nationale (GN)

The Formations Aériennes au CGN is the air arm of the paramilitary rural police force, which is also tasked with anti-terrorism and border protection.

Apart from the air force, the Gendarmerie Nationale (GN) has a longer history of using air power than any of Algeria's parapublic organisations, and has traditionally had a larger air element.

Air support for the Gendarmerie Nationale concentrates on maintaining and restoring public order and monitoring and controlling the borders and lines of communication, though the GN's helicopters also undertake humanitarian and search and rescue missions.

The air unit operated nine Mi-2s from July 1989 and replaced these with nine AS355N Ecureuils.

In recent years the Formations Aériennes has begun a major expansion process, which will see the air component expand from three squadrons (or more accurately flights) to nine, and from 24 helicopters to more than 80.

The first phase of this programme began with the acquisition of 15 AW109 LUH helicopters for the Gendarmerie Nationale in a deal with AgustaWestland that is eventually expected to see the delivery of up to 100 new helicopters to Algeria's military and parapublic air arms.

The new AW109s can be armed with door guns, and entered service with 111e Escadrille d'hélicoptères de la GN at Blida in May 2012.

The next phase of the expansion is expected to see the delivery of 10-15 AW101 Merlins, with 27-32 further AW101s and 15 AW109 LUH helicopters being assembled locally (under a joint venture being established between

AgustaWestland and the Algerian Ministry of Defence) forming the programme's third phase.

The existing squadrons at Annaba, Blida and Oran will be joined by new regional units, and these will be based within the provinces of Tébessa, Sétif, M'sila, Naama, Ouargla and Biskra.

The Gendarmerie Nationale Merlin configuration is known as the 'surveillance and intervention' variant, and is based on the Italian Mk 410, with provision for pintle-mounted machine guns in the side windows, and hardpoints on the landing gear sponsons to allow the carriage of an FN Herstal RMP LCI combined rocket and gun pod.

The aircraft lacks radar but has an under-nose FLIR turret and a Nitesun searchlight under the port centre fuselage.

It also has the new updated tail rotor, which provides improved control margins at higher weights and gives the ability to hover in high (40 knot) crosswinds.

### Unité Aérienne de la Sureté Nationale (UASN)

The UASN is the air unit of Algeria's urban and metropolitan police force. It was established by executive decree in April 2003, and received the first of four Aerospatiale AS355N Ecureuil helicopters in January 2004.

The air unit, initially based in Algiers, was tasked with a range of duties, including monitoring traffic and demonstrations, assisting police ground units in apprehending criminals and escorting vehicles.

The unit also had some responsibility for medical evacuation and for transporting specialised police units. Above all, the helicopter acts as the 'eyes in the sky' for decision-makers at all levels.

Two of the AS355Ns are equipped with cameras and Wescam FLIR turrets, while the other two are dedicated to transport, intervention and liaison missions.

Eight police officers were trained as pilots by Air Tafraoui and then underwent specialist police air support training at Oxford Air Training School in the UK. Three

more officers were trained as observers by Wescam, and 46 engineers were trained by Eurocopter and Turbomeca.

The UASN is undergoing a major expansion with the acquisition of ten Agusta A109LUH helicopters in 2012. These will augment the existing helicopters, rather than replace them.

The UASN has set in place a programme to train 50 new aircraft technicians and 30 new pilots at a rate of 10 pilots per year – 20 pilots are undergoing training in the UK, while 12 are training in Algeria (with Aures Aviation at Batna) prior to receiving one year's training with the Algerian air force.

The enlarged helicopter fleet promises to allow the creation of additional new regional flying units, one in the west at Oran, and one in the east at Constantine or Setif.

There will also be a mobile unit, equipped to intervene anywhere in Algeria's national territory.

A programme is under way to increase the use of automatic number plate recognition (ANPR) technology and of helicopter remote monitoring, using real time video down-linking to dedicated ground stations – two in Algiers and two each in the new western and eastern air units' areas of responsibility.

The new Agustas are equipped with MX-15 EO/IR turrets, which have four sensors – a wide angle, high definition colour EO camera, an infrared thermal camera with zoom lenses, a monochrome HD camera and a colour low light TV camera, as well as a laser illuminator.

### Protection Civile

The Protection Civile is an emergency response organisation responsible for fire fighting and for responding to other emergencies.

Its small fleet of (about six) Aerospatiale Alouette III helicopters and Safir-43 light aircraft have been based at airfields and helipads belonging to other agencies, though a training unit has recently been established at Tikjda – Protection Civile's first heliport.

Five AW139s are now being delivered and will enter service in 2013.



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*Many of the specialisms associated with MRO operations in the Gulf, Middle East and North Africa will gather at Dubai's World Trade Centre in mid-January for the MRO Middle East (MROME) conference and exhibition.*

**Geoff Thomas** previews the event.

# REGION KEEPS ITS MRO NOSE IN FRONT

**O**rganised by the international *Aviation Week* magazine and Dubai company F&E Aerospace, MRO Middle East (MROME), which takes place from January 21-23, has become a 'must-attend event'.

Professionals at airlines, OEMs, MRO service providers, suppliers, and leasing companies and delegates – around 2,000 of them – will spend their time networking with colleagues from throughout the region.

And with exhibitors and attendees from more than 55 countries, MROME looks like being the best place to test and buy new solutions and services.

With the region already becoming a world-leader – in both growth and service terms – for MRO development and expansion, delegates will be driving cutting-edge technology and creating further impetus for the business over the coming months and years.

The Middle East is still one of the fastest-growing regions in the world in terms of aerospace and it has some of the largest numbers of aircraft on order. This, in turn, is fostering a burgeoning MRO industry as the Arabian countries invest US\$ billions to place the region in pole position, both to secure all available regional work and also to attract work from other parts of the world.

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All of this results in many challenges, including the possibility of having insufficient indigenous manpower to meet the market demand; worries about becoming an industry that's moving too fast to keep up with changing regulations; and concerns that demand will need efficient state-of-the-art solutions that cannot be put in place fast enough.

And so MROME is strategically designed to cover the latest and most innovative concepts and best practices, while encouraging the advancement of the airline and aircraft MRO industries in the region.

Speakers are briefed to address current and future forecasts for this market; cost and staffing issues; supply chain trends; and a wide variety of other concerns.

The event begins with registration and two pre-conference seminars on January 21, followed by the full conference and exhibition on Tuesday 22 and Wednesday 23.

Research shows that the growing manpower shortage is one of the biggest challenges facing the region.

The need to develop a strategic plan to tackle the problem is vital to ensure the continued success of the industry in the Middle East.

**Appreciate the realities**

According to the organisers, the MRO industry needs to appreciate the realities of the personnel shortage and take concrete action to address the problems of poaching and competition, so this session will look at all the factors that affect recruitment and training and examine what solutions can be sought.

Moderated by Mahmood AlBalooshi, CEO of the Gulf Aviation Academy, and with a panel comprising Ahmed Salem Al Rawahi, director of airworthiness, GCAA; Oussama Jadayel, director, Balamand Institute of Aeronautics, University of Balamand; and Alan Shuttleworth, head of technical training at Abu Dhabi's SR Technics; the seminar will address all the major issues concerning manpower.

Meanwhile, the growth in the number of leased aircraft, engines and components is creating challenges for all of those involved in the maintenance process. With lessors now having an increasingly important role in the maintenance transaction, there is a necessity for all other parties to review how agreements are negotiated and consider what effect a leased asset has on maintenance costs.

This second seminar will look at the key elements that need to be taken into consideration to avoid unnecessary expenses and to control MRO budgets. The moderator for this session will be Zaffar Razzaq, VP Middle East & North Africa, for Pratt & Whitney commercial engines and global services. He will be ably assisted by a panel comprising Phil Carroll, CCO, Sanad; Zafar Jami, powerplant manager at aerospace company FZE; Tiymor Kalimat, manager of technical procurement at Royal Jordanian Airlines and also chairman of IATA's maintenance cost task force; and Stephan Rihm, VP engine leasing for MTU Maintenance.

*One man is trying to change the way that aircraft in the Middle East are cleaned by promoting a water-free system imported from Germany. Jill Stockbridge reports.*



**Dry-wash technology uses bentonite, a soft clay that is a natural cleanser, mixed with environmentally-friendly cleaning solvent and UV absorber.**

**Andreas Boessow, managing director of Almadion, hopes that the strong positive results of recent trials conducted on Emirates aircraft will win him contracts in the region. He said: "It is a three-in-one technology, providing deep cleansing, polishing and protecting."**

**The mixture is applied to the aircraft body with large mop heads. It is non-drip, even when applied on to a vertical stabiliser or aircraft belly. The application is left to dry for 20 minutes and then polished off.**

**The advantages, according to Boessow, are many. "It is environmentally friendly – all the dirt is held on the mops, so there is no contaminated waste water to dispose of. It is non-corrosive and the polishing effect improves the appearance of the body, giving a deeper gloss."**

**The combination also offers UV protection for up to three months, making it ideal for use in the harsh Middle Eastern climate.**

**However, the big advantage of the dry wash system is that it minimises the ground time of each aircraft,**

## Washing without water

**because the cleaning work can take place at the same time as the aircraft is undergoing its engineering checks.**

**Boessow said: "With a wet wash, you have to seal parts of a Boeing 777, wash it for four to six hours and then dry it before it can go to the hangar for checks. A dry wash can take place in the hangar in which the maintenance work is taking**

**place. In trials with Emirates recently we washed a 777 within 10 hours, while the A Check procedures were taking place."**

**Reports in Germany, where the product is used by airlines including Lufthansa, have shown that dry wash optimises the drag co-efficient. It allowed airberlin to save up to 2% on its fuel bill.**

**The aircraft resisted dirt for longer, allowing the company to reduce the cleaning cycle from 90 days to 120 days.**

**Almadion claimed the repainting process could also be extended by up to two years.**

**Boessow said: "It is not significantly more expensive to purchase and when you consider the many advantages and savings – improved gloss, lower fuel bill and the reduced ground time – it makes economic and environmental sense."**



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# Partners look at new framework for growth



Air France KLM saw business drop after the Arab Spring.

*Air France-KLM's MRO unit sees room for growth in the MENA region and, as **Cathy Buick** discovered, it is the large Arabian Gulf carriers that are driving most of the new business.*

**A**s the social and political unrest spread through most of the Middle East and North Africa at the end of 2010, and spring 2011, airlines in the region grounded aircraft and scaled back operations to adjust to the fall of demand.

The effect on the aftermarket MRO segment of the business was inevitable, and sizeable.

For Air France Industries KLM Engineering & Maintenance (AFI KLM E&M), the Arab Spring-related disruptions led to a 10% to 15% drop in revenue generated in Middle East and Africa in 2011.

But 2012 proved to be better and the MRO division of Europe's second largest airline group managed to bring sales back to the level of 2010.

AFI KLM E&M Middle East/Africa director Fouad Benbrahim said: "Many airlines in the MENA region are still suffering from political and social unrest in their country and their operations have not yet fully recovered to pre-Arab Spring levels. We were able to develop new business and sign additional contracts. This helped us limit the revenue loss in 2011 and restore sales back to the 2010 level. Without these initiatives the 2011 sales drop-off would have been much larger."

However, Benbrahim said business flows coming from the unstoppable expansion of the Arabian Gulf airlines did not fully compensate for the Arab Spring revenue loss.

The Middle East and Africa are both important to AFI KLM E&M. Business in these regions represents roughly 20% to 25% of total third-party sales, with each contributing equally.

Third-party MRO accounted for about a third of the company's €3 billion revenue generated in 2011.

Most of the African MRO business comes from the French-speaking countries of Africa, owing to historic links and Air France' dense network in these countries. But Benbrahim stressed that the company was very successful in other parts of Africa as well.

#### Long-term contracts

AFI KLM E&M's activity in the MENA region is diverse and it has several long-term engine overhaul and component and airframe contracts.

Since February 2010, Air France Industries has had a 50/50 joint venture (JV) with Royal Air Maroc (RAM) dedicated for airframe overhaul services on A320 family aircraft. Aerotechnic Industries (ATI) operates out of RAM facilities at Casablanca's Mohamed V airport in Morocco.

Benbrahim said: "It's well known that Europe's high labour costs render it very difficult to be competitive and ATI's location makes it an ideal partner for A320 fleets operating in Europe, Africa and the Middle East. They have developed a wide and growing scope of customers."

ATI initially only performed light maintenance but, in 2011, the company took on its first heavy maintenance checks. The building up of its C-check and D-check portfolio continued in 2012, and the facility has now completed approximately



[www.volga-dnepr.com](http://www.volga-dnepr.com)

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- Workshops: Wheels & Brakes, Batteries Repair, Structure Repair

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10 heavy maintenance checks since taking up the capability. ATI can handle around 50 checks a year.

AFI established a second JV in the MENA region with the Aircelle, a subsidiary of the French Safran Group, to create AMES. This provides maintenance and repair services for a full range of nacelle types – including Rolls-Royce, General Electric and CFM International engines.

AMES's capability includes the Engine Alliance GP 7200, one of the two power plants for the A380. The 50/50 partnership with Aircelle became operational in March 2010 and is based at Dubai's Jebel Ali Free Zone.

#### Fastest growing airlines

The choice of the UAE is not coincidental, as it is home to two of the world's fastest growing airlines – Emirates and Etihad Airways. Emirates deploys the world's largest A380 fleet, which is powered by GP 7200s.

Airlines based round the Arabian Gulf, such as Saudia, Qatar Airways, Emirates and Etihad, provide AFI KLM E&M with plenty of growth opportunities, said Benbrahim.

"Overall, growth of the MRO business is higher in the Middle East than in North Africa," he pointed out. "Also there is not one large home-based MRO provider. Most of the big Gulf carriers subcontract their work. There is an opportunity for everybody there to develop MRO business."

Abu Dhabi Aircraft Technologies (ADAT) is building up capabilities and trying to gain ground as an independent MRO provider, but it takes time and investment to match the same wide-ranging capabilities and expertise of established MRO providers.

Competition is intense and it is a misconception that the smaller airlines in North Africa are less demanding on price and service than their larger counterparts in the Gulf. Benbrahim said: "Everybody wants the same from their MRO provider; the highest quality at a reasonable price."

"There is a lot of competition between the different MROs and also with the OEMs, which are omnipresent globally. Traditionally, Africa is the battle ground of mainly European MRO companies, while the market in the Middle East is more mixed between mainly European MRO providers and Asian rivals."

Despite the tough competition and the lingering effects of the Arab Spring, Benbrahim is confident that AFI KLM E&M can restore its historic growth path in the region and increase its sales by 5% to 8% annually.

The Franco-Dutch company aims to capture a larger share of the growing cabin modification business in the Middle East – not only for airline cabin modifications, where it is already very active and where margins are attractive, but also in the limited but highly profitable VIP cabin modification segment.



The French-Dutch partnership sees opportunity for its wide range of MRO services.

*As the Gulf region continues to see significant investment in new aircraft, it's even more critical, reports **Keith Mwanalushi**, that airlines ensure they are selecting the right integrated MRO services and rotatable pooling programmes.*

# THE CASE FOR PACKAGING

**T**otal support packages (TSP) are integrated MRO services where the scope and technical complexity are adapted precisely to an airline's specific need.

The key drivers for this trend are quite simple; the investments needed in order to build and own MRO infrastructure might prove prohibitive to a number of airlines, especially start-ups. Selecting the right TSP providers can reduce operational costs and avoid the expenses related to running an airline's own MRO organisation.

Similarly, and in addition to TSP programmes, airlines are opting to sign up for rotatable (component) pooling contracts.

BAE Systems Regional Aircraft is using the platform of the MRO Middle East conference in January in Dubai to showcase its supply chain solutions to the market. Graham Smith, head of business winning, pointed to a number of reasons for the company's participation in this event and its interest in the region.

#### Preferred hub

"Firstly we have found that the region is very focused on developing itself into the preferred hub and destination for travellers, whether on business or pleasure," he said.

"There is significant infrastructure investment under way together with the airlines' own growth plans; also the forecast GDP for the region supports a future of growth and further development."

Smith is fully aware that airlines and MROs in the region know that standing still is not an option and are always looking for the products and service that will add further value or provide an edge. "This, combined with their open-minded approach and willingness to learn from others' experience, makes them ideally suited to what we have to offer."

BAE Systems Regional Aircraft has offered OEM support for half a century, with 20 years of rotatable rate per flight hour (RPFH) support. In



**Graham Smith:**  
**"MRO Middle East is a highly visible and well attended event."**

particular, Smith observed that the company has found there is significant interest in its rotatables management capabilities and its parts-plus service level programme for expendables.

"We believe that MRO Middle East is a highly visible and well attended event, providing us with an ideal platform to widen the audience we are reaching with our message of supply chain solutions for any aircraft type," he added.

The unique aspect of integrated packages is that they can be designed specifically to suit the needs of individual airlines. Recently, MROs have initiated strategies to not only cover traditional airframe components but also to cover the major repair and overhaul areas affecting the cost of ownership.

OEMs are now very active in all sectors of the aftermarket, including TSPs. According to BAE

Systems, the company's supply chain management has established strong links, particularly on RPFH, with vendors and major suppliers to ensure parts are maintained to OEM standard, which enhances dispatch reliability and punctuality for operators.

BAE Systems Regional Aircraft currently has established agreements in place not just on rotatables and expendables, but also wheels, brakes and landing gear. All contracts go through a rigorous total performance supplier management programme, covering performance, continuous improvement, risk and obsolescence management.

The ability to manage high volumes of rotatables efficiently through a complex repair supply chain requires meticulous accuracy and, often, various strategies are employed. Whether an airline chooses to join a rotatable pool programme or not, ultimately the aim is to maximise operational reliability while minimising financial risk and costs to the airline.

#### Crucial to airlines

On-time departure of flights is crucial to airlines and the major risk is a technical delay. To reduce the risk, airlines often need to position a specific number of critical rotatable/components at the destination airports. These are usually selected on the basis of the recommendation of the OEM. Now, however, airlines have options as to how this is managed, irrespective of the aircraft's location.

"Our rotatable pooling product is now offered with lots of flexibility, with operators able to contribute stock, have a dedicated stock or share in a pool," said Smith. He stressed that this product is also available to operators of any aircraft type and not limited to BAE/Avro types. "Our operators say that the benefits far outweigh the disadvantages, with quality and service levels above what they had previously experienced and costs fixed to the agreed contracted levels. It is important for both parties to fully understand the



BAE aims to offer practical advice support and solutions to a growing Middle East customer base.

operational parameters, as changes here can have significant impact in costs.”

Looking at the market outlook for rotables on ‘out of production’ aircraft, including the AvroR/BAe 146, Smith described the situation as intriguing. “We are finding that, as aircraft move out of the established markets, operators can be driven more by initial cost rather than overall value. This is leading to the purchase of ‘serviceable as removed’ rotables, with the operator taking the risk as to whether the part will stay on wing for five minutes, 500 hours or 5000 hours.

“In general there is still a vibrant market for rotables on all in-service aircraft,” he added. “We find that having the rotables programmes in place has increased the longevity of the OEM equipment supplier’s active support and this allows us to provide a value-for-money proposition to existing and new operators alike.”

**Micro manage**

Some airlines are concerned that, by signing long-term agreements on rotatable or components, they are at a disadvantage because there is less flexibility to renegotiate repair prices on an on-going basis.

“This is a good point,” declared Smith. “It is important that the airline understands what it wants before signing on to one of these programmes. If the airline still wishes to micro manage the process, then this type of agreement is generally not for them.”

He emphasised that, while an occasional repair may be expensive, it was the overall value proposition that had been agreed – normally based on a metrics of values with repair costs being only one of those factors. “We cannot over-emphasise the need for good two-way communication, both at a formal and an informal level. We have annual conferences with airlines and vendors so that we can all share experiences, discuss issues and look to the future.”

BAE Systems Regional Aircraft plans to break new ground in the Middle East. “We want to offer practical advice, support and solutions for all aircraft types, focusing on supply chains in a way that delivers value and meets present challenges as well as future expansion,” said Smith.

“We have a number of customers throughout the Middle East that we support and we have been approached by airlines in the region with large fleets looking for independent consultancy and

solutions on supply chain management.”

With the expected growth of the region’s airlines and the competitive nature of the industry, then ultimately, any supply chain efficiencies that reduce the time to market and improve despatch reliability are advantageous both in terms of cost and operations.

“We could, for example, provide in-depth analysis of their stock, usage, reliability and future utilisation plans,” said Smith.

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# GATCO's business model for the future

*MRO operator Gulf Aviation Technology Company is positioning itself to take advantage of changes and opportunities in the Middle East aviation sector.*

**Chuck Grieve**  
*reports.*

If you want to enjoy success in Middle East aviation, you have to plan for the long term. That's the philosophy underpinning Gulf Aviation Technology Company (GATCO), the Bahrain-based MRO operation.

Two years into its own 10-year plan, the company's chief executive, Hakim Al-Allawy, is cautiously optimistic. And he has every reason to be. GATCO's portfolio of customers is growing and its geographic reach is spreading, despite tough trading conditions and strong competition.

At the beginning of December, the company announced a deal to provide Qatar Airways with line maintenance services at Bahrain International Airport. Qatar is GATCO's seventh customer and the fourth signed since September.

A month earlier, its second base in Saudi Arabia, at Jeddah airport, went operational, giving GATCO a presence there and in Dammam.

## Regional player

"We set out to be a regional player," said Captain Al-Allawy. "A lot of service providers are attached to a specific airport and airline. We have a different business model. We plan to be in as many as 20 stations in the next five years."

For 2013, the company has an ambitious programme of openings, which it declined to specify.

Al-Allawy is adamant that GATCO, which is a subsidiary of the Horizon group of Saudi Arabia, won't go into a station unless it has the resources – manpower, equipment, facilities etc – needed for that specific situation. "Our goal is to build something of long-term, lasting value," he said. "We're not doing it for today's profit only, but for the future."

"We're lucky our shareholders are very enthusiastic about the aviation industry in the region because this kind of expansion is not cheap. But, with the growing demand for technical maintenance services, it's crucial that we remain in close proximity to our clients."

GATCO's capabilities extend to line maintenance on most of the types flying in Middle East airline fleets. The company has EASA Part 145 approvals for Boeing 737NG, B747, B757, B767 and B777; Airbus A319/320/321, A330, A340 and A380; Embraer 170/195; MD80 and DC10 aircraft. It holds equivalent accreditation from the national aviation authorities of its customers.

The services offered in all its bases cover on-call maintenance; scheduled, overnight, pre-flight, daily and weekly checks and component replacements; inspections and repairs; and full 24/7 AOG services.

Besides Qatar Airways, GATCO serves Royal Jordanian, Saudi Arabian Airlines, Monarch Imperial, Atlas Jet, Jazeera Airways and Hellenic Imperial.

Al-Allawy said the company had spent its first two years building a reputation for reliability and service. The result is that, increasingly, airlines come to it after conducting their own market research, "because of who we are".

## Attractive proposition

"I think a lot of airlines find that a company like ours that concentrates 100% on line maintenance services is an attractive proposition for them. As an independent MRO operation, our priority is all of our customers, not our own aircraft."

Bahrain provides a good launch pad from which to expand, he said. GATCO, with its distributed business model, could have set up its main base anywhere. "We picked Bahrain because of the ease of doing business here," he explained. "The ease of access for Europeans and other Arab nationals is good. It's a business-friendly country, a good place for investors to come in and set up something like this."

The region and its aviation sector are going through a lot of changes for the better, he said. No longer does the region depend mainly on airlines owned by governments. That has opened doors for investors to take a stake in this industry.

But anyone looking for a quick profit will be disappointed. "It's long-term industry – you have to have patience," said Al-Allawy.

Growth is coming, he added; the population is expanding throughout the Middle East and with it a growing appetite and need for air travel. The region's most visible airlines are becoming international players, winning good market share. Travellers are using Gulf destinations as stop-overs on the major east-west routes, and he predicted there would be more of that.

"There's an acceptance now that Middle East airlines have the know-how, capability and service, and they're cheaper than European operators. We're going to see a great expansion into the region," he said. "We look forward to being here in 10 years to enjoy it."



**Captain Al-Allawy:** "We have a different business model. We plan to be in as many as 20 stations in the next five years."

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**Jeff DeGrange:**  
**"AM cuts both costs and  
 inconvenience dramatically."**



# Technology that really is box office

*A "factory in a box" is an offer being made to the region's MRO industry by US firm Stratasys.*  
**Geoff Thomas**  
*reports.*

**A**ccording to US company Stratasys, what's known as additive manufacturing (AM) has become a must-have for the Middle East and Gulf region aerospace industry.

Stratasys VP Jeff DeGrange explained that AM used to be known as '3D printing' or direct digital manufacturing (DDM). And, although some of the embryonic technology has been utilised by aviation OEMs for more than 20 years, recent developments mean that the company's "factory in a box" machinery is now a reality.

Complex geometric shapes or simple panels can now be produced without the need for original moulds or tools. All that's needed is a computer-aided drafting (CAD) file and the finished product is then produced in a matter of hours... or by reverse engineering if no file exists.

DeGrange, who used to lead additive manufacturing efforts at Boeing, explained: "With the use of the plastic ULTEM 9085, which is a flame-smoke-and-toxicity-rated material designed decades ago by GE Plastics, we're starting to see acceptance by the commercial aviation industry for AM end-use parts.

#### **Business-jet community**

"For example, in the business-jet community, they may build 500 jets for 50 different customers. Each of these is going to say, 'I want my cockpit to look like this' or 'I want my cabin to look like that' and AM parts give them considerable economies of scale. That flexibility is really catching on within the commercial and GA communities too."

He continued: "Likewise, each airline configures its flight decks and cabins in a different way and inevitable wear and tear means that MROs have – until now – had to commission unique spare parts from stored tools and moulds, if they still exist. This can take days or even weeks, potentially resulting in an unwanted 'aircraft on ground' scenario. AM reduces this timeframe to a matter of hours, or at most a day or two, cutting both costs and inconvenience dramatically."

With computing power becoming faster and cheaper, and over the last five years with a broader suite of materials available, AM has expanded into fabrication and assembly tooling.

DeGrange explained: "Twenty years ago the technology was just a baby. Nobody knew about it except a small group of people and they were more in product development. The machines were much smaller and materials were very limited. In the early days, it was more for prototyping than production.

"As time went by, machines got bigger, faster and cheaper, and more materials were available. We haven't really begun to move into all the areas where we could use it, which makes it a really fun and exciting industry to be in."

Dubai company D2M Solutions has recently moved into larger premises, thanks largely to the level of interest in the Stratasys "factory in a box" concept.

#### **Unprecedented versatility**

It has been demonstrating the Stratasys range of compact Fortus AM machines that, according to company marketing director Melanie Keeley, offer unprecedented versatility and can be used to build end-user parts and fabrication/assembly tools.

D2M has attended major technology exhibitions in Abu Dhabi, Oman and Dubai and attracted considerable interest, particularly from within the burgeoning aerospace sector.

Keeley said: "In the Middle East, we believe that aerospace companies are hugely interested to learn how easy it is to use these systems to produce end-user parts and components, as well as robust manufacturing tools such as jigs, fixtures, tooling masters and even production tooling."

DeGrange added: "Producing finished goods for the cabin with AM is really taking off because of the ULTEM 9085 material.

"It could be for air grates, panel covers and various other interior parts – behind all those skins and in the belly of an aircraft, heating and cooling ducts, power-distribution panels and all kinds of clips and brackets in special configurations for a given manufacturer."

He concluded: "As the materials become stronger and additional plastics evolve, we can start looking at secondary structures. AM also allows us the potential to start looking towards inserting carbon or glass to get reinforced thermoplastics, which could mean a broader array of metal replacements in the future."



# Russians take a Giant step in Sharjah



*Russia's Volga-Dnepr group is building a new hangar at Sharjah International Airport in the UAE to expand its MRO capabilities for both freighters and commercial airliners.*

**Geoff Thomas**  
*looks at the reasons behind the move.*

**V**olga-Dnepr Technics new hangar is expected to be fully operational by February 2013. The MRO facility was first established in 1996 in Sharjah, primarily to service Volga-Dnepr's Antonov An-124 and Ilyushin Il-76 freighters - but it also looks after all aircraft from Russia's top cargo carriers, Volga-Dnepr and AirBridge Cargo.

Initially, Volga-Dnepr Gulf focused on maintaining Russian-made freighters such as the An-124, An-74 and Il-76, but is now looking to expand its capabilities to foreign-built aircraft as well. As well as concentrating on airframe MRO activities, Volga-Dnepr Gulf supplies components and consumables, and provides spare parts, oils and lubricants for a wide range of aircraft.

"For the past two to three years, the volume of our work on Russian-built airframes has been shrinking due to the decommissioning of the aging fleet coupled with the lack of production of new indigenous freighters," says Managing Director Victor Sherin.

"The company was certified by the UAE's aviation authorities in October this year to provide line maintenance for Boeing 747s (up to 747-400s), 737s (up to 737-500s) and the entire Airbus A320 family."

#### Constantly growing

Sherin says that the fleets of these particular types are constantly growing in the Middle East region the next step, he explains, will be for Volga-Dnepr Gulf to achieve EASA certification standards.

"The niche opportunity for servicing Boeing 747 freighters in the region is now vacant," says Sherin, adding that the 747-400 and 747-8 are the main workhorses for AirBridge Cargo.

He continued: "The construction of the hangar in Sharjah started because EASA Part 145 and local regulations require a hangar for providing A, C and D checks. The 20,000-sq.-meter (200,000-sq.-ft.) hangar will be capable of housing six narrowbody aircraft or two 747s at the same time. It also will include repair workshops for wheels, brakes and batteries, as well as additional space for structural repairs.

The advanced wheel & brake division (equipped with kit

from the German manufacturer, KUNZ) will enable Volga-Dnepr Gulf to offer wheel and brake servicing for various aircraft types including all the previously mentioned Boeing and Airbus airframes along with Airbus' A300 and A310 aircraft.

All operations at the CAR-145 certified workshop are performed in accordance with certification by the UAE General Civil Aviation Authority (GCAA) and among other services, the company provides the complete inspection of wheels and brakes including non-destructive testing (NDT), tyre replacement, wheel overhaul, friction pad replacement and brakes overhaul.

#### Start performing

According to Sherin, the company plans to start performing A checks for Boeing 747s, 737s and A320 family aircraft in February or March 2013, while the C check capabilities should be in place by the end of 2013.

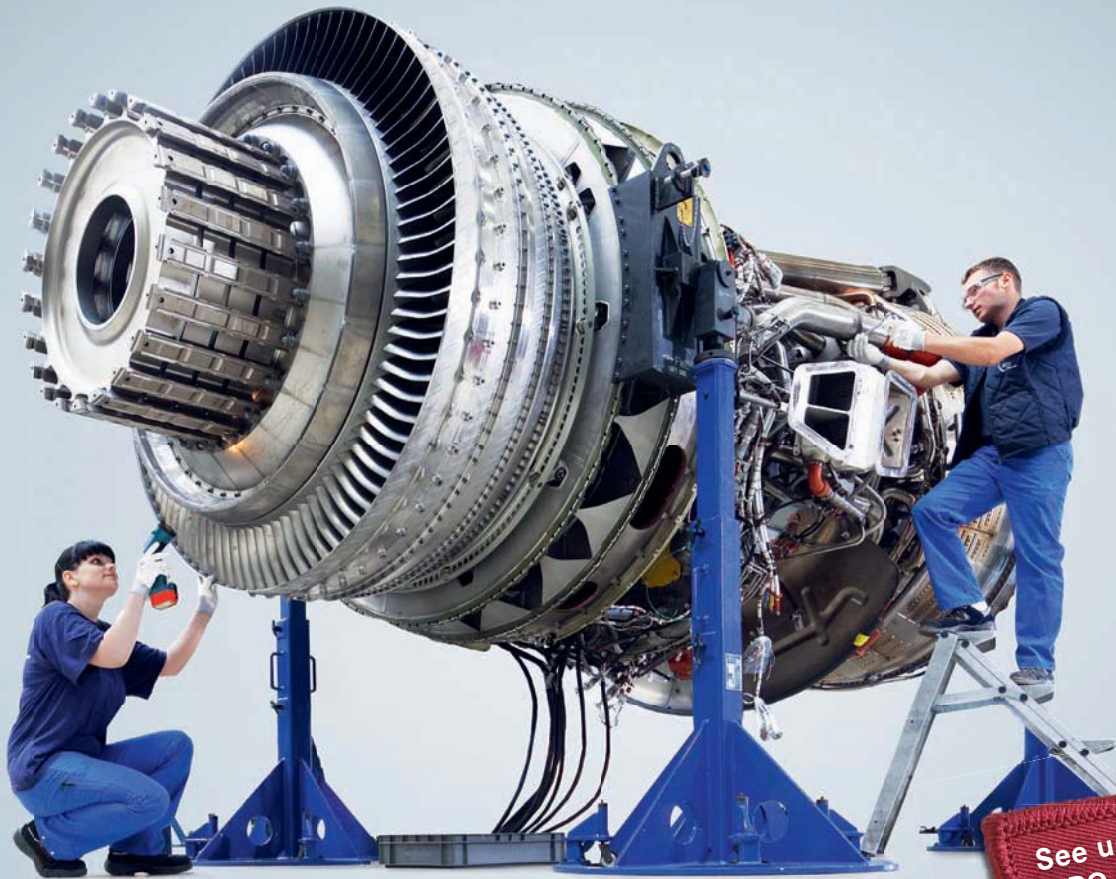
However, although it's moving towards Western-built aircraft, Volga-Dnepr Gulf is not excluding Russian types. "If the deliveries of Russo-Ukrainian freighters into this region resume, we plan to become the centre for their warranty and post-warranty maintenance," Sherin says.

The new hangar will serve mainly third-party customers. "Only 5% of the work will be undertaken for Volga-Dnepr Group carriers," says Sherin. "The UAE is one of the major historical transit point for flights to Europe from Australia, Southeast Asia and Africa, so it's hardly surprising that many airlines welcome the chance to stop here for the A checks.

In September, Volga-Dnepr Gulf specialists performed this type of maintenance for Kalitta Air Boeing 747s under the airline's certificate. The US-based cargo carrier signed an on-call contract with the company, as did another Boeing 747 operator, Air Atlanta. In addition, line maintenance services are now provided for Pakistan's Vision Air.

Volga-Dnepr Gulf plans to perform about 40 A checks in the coming year and hopes to attract 30 new customers within the next 18 months.

"The company has already opened line station at Fujairah and plans to open new maintenance facility in Dubai.

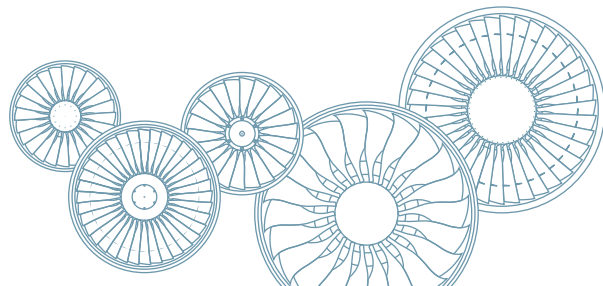


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# AIME hits the target with MRO show

*Now an annual event on the industry calendar, Kelly Green looks at what's in store at AIME and MROME 2013.*

The co-located Aircraft Interiors Middle East (AIME) and MRO Middle East (MROME) exhibitions will return to Dubai on January 22-23 in a brand new location – Dubai World Trade Centre (DWTC).

The previous events held in February 2012 drew 200 exhibitors from 70 countries and 2,427 visitors. Such was the success of the earlier editions that organisers F&E Aerospace and *Aviation Week* decided to bring the unified tradeshow experience together on an annual basis.

Michele Van Akelijen, aerospace director at F&E Aerospace, said: “Both shows have grown and developed along with the current state of the aviation industry in the region. It’s an exciting time for us with a brand new venue, new pavilions, new exhibitors and a new conference agenda – these developments demonstrate how far AIME and MROME have come in just four shows.”

New features for AIME 2013 include a dedicated Irish Pavilion organised by Enterprise Ireland, designed for Irish client companies supplying interiors, equipment and maintenance services to airlines. A number of new participants have also signed up this year, including Thales, OnAir, Fokker Services and InTheAirNet.

OnAir will be demonstrating its latest connectivity applications for passengers, cabin and cockpit crew, on-demand TV and connected crew tablets. “This is the first time we will have exhibited at AIME, though we have been attending Aircraft Interiors in Hamburg for many years,” said Aurelie Branchereau-Giles, head of PR and communications at OnAir. “The Hamburg show gives us access to a wide range of airlines, as well as our partners and suppliers. We anticipate something very similar at AIME though, of course, with a strong regional emphasis.”

With a number of its customers based in the Middle East, it is an important region for OnAir. “Middle Eastern airlines, as

well as VIP aircraft owners and operators, are at the forefront of cabin innovation,” said Branchereau-Giles. “Airlines such as Emirates, EgyptAir, Etihad, Libyan Airlines, Oman Air, Qatar, Royal Jordanian and Saudia, among others, have been enthusiastic early adopters of in-flight connectivity. They are also our customers who are most interested in our innovations, as we develop our services to expand from passenger communications to other connectivity applications.”

Along with the new participants at AIME, many past exhibitors are returning, including UK-based aircraft seat cover design and manufacturing company Sabeti Wain Aerospace, which will be exhibiting some of its new seat cover designs, including laminated fabric and leather seat covers.

“The Gulf region is very important to us, as our family roots are from this part of the world and also some of our most important and biggest customers are based and operate here,” said director Paymen Sabeti. The company’s current customers in the region include Emirates, flydubai, Qatar Airways and Jet Airways.

#### Tripled the number of staff

“We have a manufacturing facility in Dubai at the Airport Free Zone specifically for our customers in the region. We doubled the size of our unit in 2012 and tripled the number of staff.”

AIME 2013 will be particularly special for the company, as it will be celebrating its 30th anniversary at the show. “We will be presenting the CEOs of our customers with a commemorative book about the company and its history,” said Sabeti.

This year’s MRO Middle East event themed ‘Fostering Growth through Innovation and Collaboration’, will feature keynote addresses from Amer Hadidi, CEO, Royal Jordanian Airlines; Ahmad A Alzabin, chairman & CEO, ALAFCO; and Nader Khalawi, CEO, Saudia Aerospace Engineering Industries.

The MRO exhibition will connect suppliers with purchasers and see the return of companies such as Boeing, Lufthansa Technik, JorAMCo, Saudia, and Turkish Technic.

HH Sheikh Ahmed bin Saeed Al Maktoum, president of the Department of Civil Aviation, said the growth in demand in the region means that these two co-located exhibitions are especially important to Dubai and the region’s aviation industry.

“The numbers of aircraft movements through the Middle East hubs are continuing to see double digit year-on-year growth,” said Sheikh Ahmed. “And where there are aircraft in these numbers, there is a clear need for MRO facilities.

“We fully expect to see a thriving MRO industry in the region to support this aviation growth. This is a perfect environment in which to operate and I believe this show will allow delegates and exhibitors to demonstrate what can be achieved – and also stimulate the attention of a new generation of engineers and technicians from the Arab world and help in the growth of opportunity for the many bright young men and women who have set their sights on careers in our industry.”

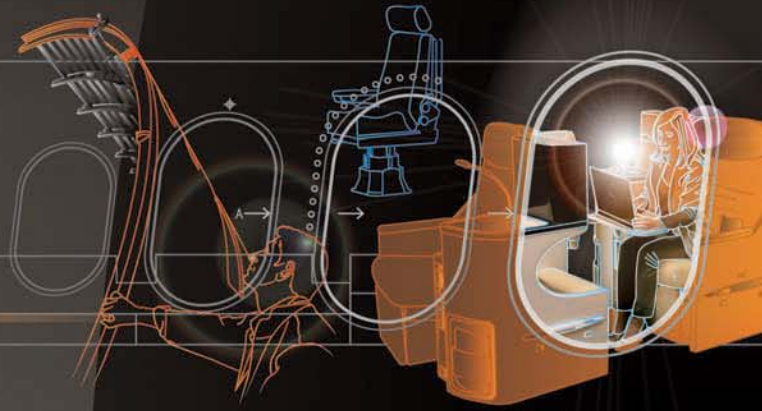
**Sheikh Ahmed joins Lufthansa Technic’s Walter Heerdt in seeing just how the interior of an airliner can be adapted to VIP use.**





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# STARS OF HOLLYWOOD

**Kelly Green** *travels to California to find out more about Thales and the in-flight entertainment experience.*

In today's competitive airline industry, carriers aim to offer passengers the best possible in-flight experience to compete with rival airlines and keep passengers returning.

Unsurprisingly, the in-flight entertainment (IFE) is seen as a significant part of this and, in the Middle East in particular, the region's premium airlines are making big investments in high-end IFE systems.

French avionics and in-flight entertainment and connectivity (IFEC) products manufacturer Thales has seen a lot of success in the MENA region with airlines such as Etihad, Gulf Air, Oman Air, Royal Air Maroc and Turkish Airlines, to name but a few.

One of the technology provider's big customers is Qatar Airways, which selected its next generation android-based TopSeries AVANT system for 80 A350s, in what was one of the biggest aircraft orders of all time.

AVANT, which combines the strengths of earlier platforms with advanced technologies, such as high definition video, solid state drives and faster processors to deliver an enhanced passenger experience, will be making its way on to its first flights towards the end of this year.

"Qatar Airways is a very advanced, forward-

thinking, service-orientated airline," said Alan Pellegrini, Thales in-flight entertainment business CEO.

"We've been very fortunate with them across their fleet, including their A350, A320, A380. Their B787, about to go into service, will be the first 787 that has Thales connectivity on board, so their passengers can enjoy being online during the flight. This was a landmark programme for us to work with Boeing and Qatar to provide connectivity on that aircraft."

#### Lab equipment

As a result of all the work it does with Qatar Airways, in April 2012 Thales opened a new technology research, development and training centre at Qatar Science and Technology Park in collaboration with the airline. "We've invested in putting our own lab equipment there and staffing it with our own application and integration developers, who will work not just to do interesting things for Qatar Airways but also our larger customer community," said Pellegrini.

Thales revealed further success in the region at the APEX 2012 Expo in California, when it announced that Royal Jordanian Airlines would

be installing the advanced TopSeries AVANT system and TopConnect cabin communications network on 11 of its new Boeing 787 aircraft, with entry into service scheduled for the third quarter of 2014.

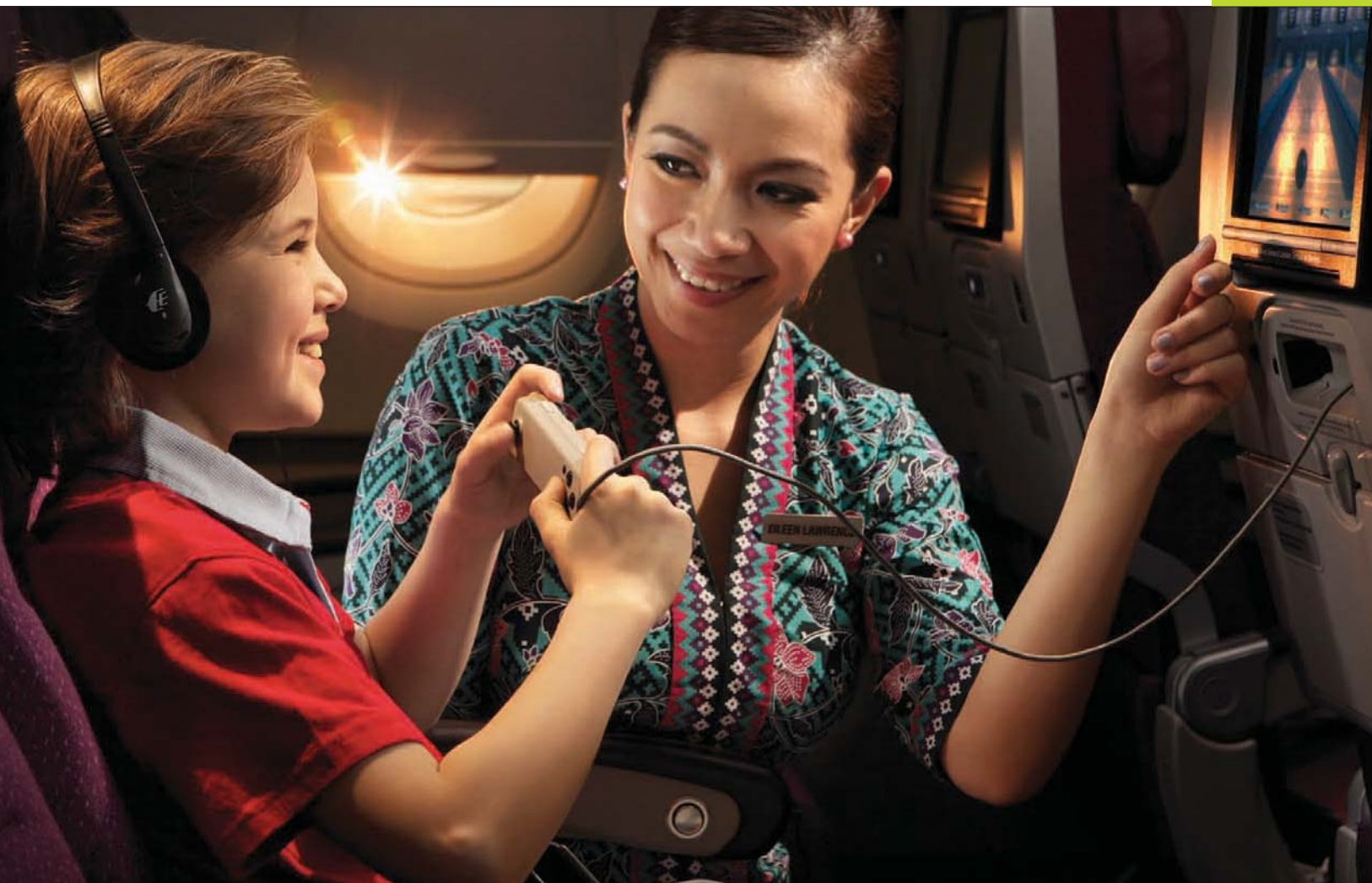
Thales also announced at APEX that Saudia Airlines had signed a new IFEC agreement to install the TopSeries system on a total of 54 aircraft.

This latest arrangement between Thales and Saudia introduces the award-winning TopSeries AVANT system, TopConnect suite of connectivity and brand new TopSeries AVA, adding wireless content streaming to the airline's future A320, A330, B777 and 787 fleets.

Tarik Sindi, vice president marketing and product management of Saudia Airlines, said: "Passengers across the region are fast becoming extremely discerning and demand excellence from their in-cabin experience. Our goal is to truly take our place among the new breed of major global carriers for passenger satisfaction and customer service."

Passenger satisfaction is high on the agenda for airlines and the quality of the IFE available can affect customer opinion.

"IFE systems can have a direct and lasting



impact on passenger perceptions of an airline's service excellence," said Pellegrini.

Increasingly, there is a demand for the in-flight experience to mimic the immersive technology passengers enjoy at home and in the office. But, as the pace of change is dramatic in the technology business, the airline industry has not yet managed to keep up with the consumer world. "It's indicative of the nature of our business," explained Pellegrini. "The consumer world doesn't have to build this device to withstand a 16G crash landing of an aircraft, which our equipment has to do.

"You have a display which, in all respects, has to do what an iPad will do, but at the same time it can't shatter during a crash landing if your head strikes it. You get requirements like that, which we have to meet to put something on an aircraft. That requires the marriage of consumer technology with avionics technology and that's where Thales excels," he said.

"Now what we try to do to mitigate that is embrace, from a software perspective, the latest in open-system platform software technology," Pellegrini explained. "We now provide a foundation by which even when the hardware is not changing, we can evolve the applications and

what that system can do much more readily. So, as an airline makes an investment in IFE, they keep it on their aircraft for seven years or so, we believe now at least we're closer than we were in the past to be able to keep them fairly current.

"We are also beginning to market technologies like wireless streaming, so now we are not necessarily relying 100% on the technology put on the aircraft; we can stream to the latest device that you bring on board the aircraft.

"We're working very, very hard to close that gap but I think it will always exist because what goes on an aircraft has to meet all of the requirements that the regulatory authorities impose on aircraft equipment."

#### More complex

Jeff Sare, Thales vice president/general manager strategy and systems, added: "A typical IFE system has as many as 2,000 elements on an aircraft. It's more complex than any other single system on the plane. It is a local area network that operates 24/7, 365 days a year, with no IT department, a different untrained user on every flight, every two to 12 hours, depending on the flight. So it takes a lot of equipment and a lot of software to make this happen."

He continued: "The life cycle tries as best it can to keep up with consumer technology but it takes us longer to get a piece certified to fly on an aircraft than the technology lifecycles in the consumer world. Technology has about a seven-year lifecycle on an aircraft where a cell phone might have a six-month lifecycle."

So, despite its widespread success in the region and globally, Thales cannot afford to rest on its laurels. "We need to stay current with the trends that are occurring either in the theatres or in the home entertainment market," said Stuart Dunleavy, vice president/general manager, media & connectivity business.

However, Dunleavy pointed out that it is important to consider how these trends might translate, or not, into the aircraft environment. "It is obviously very different. For one thing you've got somewhere around 85 decibels of background noise, engine noise, wind, whatever. So that has a big impact on the audio experience for the passenger, which we need to take into account," he explained.

Three-dimensional technology is one consumer trend that wouldn't necessarily enhance the IFE experience in the same way as it does in the cinema.

"In some cases you're sitting 25 to

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on Page 92

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30 inches away from the screen in economy, so the testing we've done with 3D in that environment shows that it is actually a worse experience than not using 3D because you're too close to the screen and, also, 7% of the population (according to the entertainment technology centre data) suffer from motion sickness while watching 3D and a further 6% cannot see stereoscopic 3D at all.

"So what we have to do is look at these interesting trends and think, how will it apply to the in-flight market? We have to apply technology with a degree of intelligence and thought behind it."

At the heart of any IFE technology is the content. "It's not unusual when you fly with a modern in-flight entertainment system for there to be, maybe, several hundred movies on board, thousands of audio titles and CDs, hundreds of games," said Pellegrini. "The systems today can store up to two terabytes of content, which is an enormous amount of material."

**Film and television studios**

From the point of view of the film and television studios, movies are the cornerstone of the IFE. "That's what people expect when they get on the flight – to see a new movie," said Mark Horton, VP non-theatrical sales, Paramount Studios. "We've spent upwards of \$150-200 million to make a film that is being offered in the main free of charge. And, of course, with the new systems you have a choice of a hundred. So the value of the product from the airline perspective is very high. Sometimes I think the airlines underestimate what they have."

But this content, too, has to be thoughtfully considered. "The value added in our market is really in helping the airlines create a content set that reflects the airline brand and also takes into account some of the sensitivities that the airlines have," explained Dunleavy. "So, for example, for airlines in the Middle East you cannot show any nudity, any weapons, or certain other features. There are many different social considerations



**Qatar Airways has become a customer of Thales for both the A380 and the A350 aircraft.**



that need to be taken into account and that middle layer of service providers act between the studios and the airlines."

Before a film even makes it on to an aircraft's menu, it undergoes a rigorous screening and editing process at the studios. "Even though you have personal choice with video on demand, the airlines still want clean versions," said Horton. "They have brand issues; they don't want to offend and obviously there is a multi-national customer base. So we do spend a considerable amount of time and effort in cleaning up a movie for airline release."

The studios begin the editing process early, due to the very short window between the times the movie releases and when the airline wants to offer the film in-flight.

"One of the reasons that the movies are attractive is that they're very new," explained Horton. "Typically, a movie is released and the airlines get it first, anywhere between 60 and 90 days after release. DVD and pay-per-view follow the airline market, so it's a very precious window and we try to explain that to the airlines."

"The product is very new and passengers get on the flights and they see the best that Hollywood has to offer."

Another factor to think about is language, as airlines try to cater for the multi-national customer base. "We spend a lot of effort in pulling back all the language tracks that are created for the overseas markets," Horton explained. "On a new

video-on-demand system the airline will probably want six or seven languages that are important to their customers, so as well as handling the movie in English we have to bring all of that in as well."

With so much to consider, it is important for Thales to maintain a close relationship with the studios and having a facility in California enables the company to do that. "For us it's really important that anything we do moving forward in the market we have the endorsement and the support of the studios," said Dunleavy.

**Latest innovations**

Conveniently located just an hour's drive south of Los Angeles is Irvine, the home of Thales's in-flight entertainment headquarters facility. Here, in more than 220,000sqft of office, lab and manufacturing space, work is being carried out on the latest innovations in IFEC, from 'directional sound' that would do away with headphones, to 'gesture control' technology, whereby users simply wave their hands to navigate through screens.

"We've come a long way," said Horton, of the advancements in in-flight technology. "The expectation for the customer is a sophisticated IFE offering. We feel that we're the most important part of that, but it's really amazing what is happening on the aircraft. As a content provider, we want our movies to look the best, the sound to be the best, and I think we're getting there."

Looking forward, Horton believes that the future of in-flight entertainment and connectivity can only get better. "The new technology is going to give an enhanced experience. We are excited with Thales's product line," he said.

"I think quality is going to improve even more than it is now. From our perspective we will want to see an improvement in quality. Our talent, the directors we are dealing with, they want the best quality too."



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**Steve Nichols** reports on a series of historic moments for the MENA region.

# THE AGE OF WI-FLY

**W**ith in-flight connectivity fast becoming a 'must-have' extra on commercial aircraft, the region recently notched up a number of world firsts.

Emirates kicked things off in October, claiming the world's first in-flight mobile phone service on board an Airbus A380 aircraft.

The inaugural A380 equipped with Inmarsat SwiftBroadband-based OnAir connectivity departed from Dubai International Airport to Munich on October 2 and the first recorded A380 in-flight call was placed to China while the aircraft was flying at 11,500 metres across the Gulf.

Passengers aboard Emirates' A380s can stay in touch via phone calls or through the mobile data link on their personal devices while in flight using EDGE/GPRS connections through their mobile service provider, just as they would on the ground.

Patrick Brannelly, Emirates vice president corporate communications product, publishing, digital and events, said: "Beginning in 1993 with the first passenger satellite phone service, to last year with our A380 Wi-Fi system, Emirates has always taken the approach that providing the latest in in-flight service and connectivity is a key part of our passengers' journey."

The mobile system will be available on all future A380 deliveries and will also be retrofitted to the rest of Emirates' current fleet of 25 A380 aircraft.

Another milestone occurred in November aboard Qatar Airways' first flight of its Boeing 787 Dreamliner.

Passengers on the 13-hour flight from Seattle to Doha were able to send text messages, e-mails, tweets, and update their

social media accounts. They were also able to surf the internet, using a total of 1,250mb of data in 50 internet sessions.

This was the first Dreamliner with in-flight connectivity, equipped with a Thales TopConnect solution and access to OnAir's Wi-Fi internet and mobile phone services. The mobile phone network was used by nearly 75 telephones with 340 text messages sent and nearly 50mb of mobile data used.

"Qatar's passengers are used to staying in touch with friends and family using OnAir," said Ian Dawkins, chief executive of OnAir.

"Access to connectivity is now an integral part of any in-flight experience. This is the first of Qatar's Boeing 787s and OnAir will be on the entire fleet. These are the most modern aircraft being operated by an airline that prides itself on the highest levels of passenger services."

Qatar Airways has 30 787s on order and a further 30 under option, all of which will be equipped with in-flight connectivity.

OnAir has been in operation on Qatar's Airbus A320 fleet for three years, enabling passengers to use their mobile phones and smartphones on flights in Africa, Europe and the Middle East.

Etihad is another OnAir customer. It currently operates six connectivity-enabled aircraft with the company – three Airbus A320s and three Airbus A330-300s.

The A320 is used primarily for short-haul routes throughout the Middle East and some mid-length routes such as Istanbul, Athens, Minsk, Cochin, Bangalore and Mahé in the Seychelles.

Etihad's A330-300 passengers have the same mobile connectivity in addition to Wi-Fi internet capability for personal laptop and tablet use. The aircraft is currently used for long-haul destinations across the network, such as London, Frankfurt, Paris, Geneva, Casablanca and Seoul.

Last year, Etihad also announced that it had selected Panasonic Avionics to provide Ku-band satellite-based connectivity (plus embedded IFE) for its "entire long-haul fleet of wide-body aircraft". The circa \$1 billion agreement included a full service maintenance contract.

James Hogan, Etihad Airways' CEO, and Paul Margis, his counterpart at Panasonic Avionics, signed a letter of intent for a 10-year exclusive agreement for in-flight entertainment and communications (IFEC) solutions, including mobile phone services in conjunction with AeroMobile.

The deal, which is valued at more than US\$1 billion at list prices, includes a full service maintenance contract.

Panasonic's eX2 and eX3 IFEC systems will be fitted on 100 new aircraft, in addition



**James Hogan, Etihad Airways' CEO and Paul Margis, Panasonic Avionics' CEO, sign an agreement for the 10-year deal.**

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Ian Dawkins, chief executive of OnAir: "Connectivity is now an integral part of any in-flight experience."



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to the 16 aircraft already equipped with the eX2 system. Etihad will also install Panasonic's eX2 system on its new Airbus A380s, Boeing 787s, and Boeing 777-300ERs, and will use Panasonic's eX3 solution for its new Airbus A350 aircraft.

The deal also includes the installation of Panasonic's global communications suite, which provides in-flight broadband connectivity, mobile phone service and live television content, across Etihad Airways' entire fleet of wide-body aircraft.

Hogan said: "It is essential that we offer the most engaging and dynamic in-flight entertainment for our guests – especially on long-haul flights. We went through a comprehensive technical and commercial evaluation of what was out there in the market."

Etihad launched its Panasonic-powered "Etihad Wi-Fly" connectivity service in December. The airline's Airbus A330-200 flew from Brussels, offering high-speed broadband internet connectivity as well as data and mobile phone services.

Hogan said: "By the end of Q1 2013, we will have 10 'Etihad Wi-Fly'-equipped aircraft, and by the end of 2014, every single Etihad Airways aircraft will be equipped for in-flight connectivity."

So is it odd that airlines appear to be flying with both the Panasonic Ku-band solution and the Inmarsat L-band Swift Express system?

Not really – it is probably a case of not putting all your eggs in one basket. And some of the Panasonic deals came after the initial Inmarsat installations.

On the face of it Panasonic offers a faster (higher bandwidth) system, with the higher frequency Ku-band. It has also done deals with satellite operators to give wider coverage, including a deal with Intelsat for greater coverage over the important North Atlantic route when the latter launches its Intelsat EpicNG satellite in 2015.

Last year Panasonic also announced that it had added additional coverage and capacity via the Intelsat-14 satellite and on AsiaSat5.

David Bruner, vice president of Panasonic Avionics Corporation's global communications service said: "The coverage provided by the Intelsat-14 satellite is a strategic addition to our global aeronautical broadband network because it provides seamless service to several African destinations and trans-Africa air routes, which are important to our in-flight connectivity customers."

"The Intelsat deal gives us high capacity over the high traffic areas; you won't see bandwidth concerns or poor response times. Elsewhere, we have teamed with major satellite operators to provide coverage. We also provided equipment that goes on satellites, just for Panasonic – we made a significant investment in those services."

Bruner added that the Middle East and India

are two strategic markets for Panasonic and it was "very excited" to have secured even more transponder space on AsiaSat 5.

"As we continue to equip more and more aircraft that fly routes over these key, very high traffic markets, we will add the capacity and coverage necessary to ensure the industry's highest bandwidth at the lowest possible price," Bruner said.

"Because we are sticking with the well-established Ku-band, with equipment on more than 600 aircraft, there will be no transition costs for our customers at all when the new capacity comes online."

"And, as new customers come on board, our existing customers won't be affected in any way," he said.

Airbus announced earlier this year that Panasonic's in-flight communications and connectivity system – global communications suite – is now line-fit on the A380 and A330,



OnAir has been in operation on Qatar's Airbus A320 fleet for three years.

joining the Airbus A350 and Boeing 777 and 747-800. It is also working on other line-fit deals.

But Ku-band is not the only fruit and Inmarsat's L-band solution is getting a shot in the arm next year when its high data rate (HDR) bearers are introduced as part of a software upgrade.

The company's SwiftBroadband service, which can deliver up to 432kbps right now, will be able to deliver up to 700kbps next year when it upgrades its service. In technical terms, the system is being reprogrammed to pass data over a longer burst, hence upping the throughput.

But are airlines complaining about a lack of bandwidth over SwiftBroadband right now? According to Inmarsat, no they are not.

**Single channel**

David Coiley, Inmarsat's VP for its aviation service, said a single channel of SwiftBroadband was enough to keep a whole Airbus full of passengers happy.

"We don't get complaints from airlines saying that the bandwidth isn't enough," he said. "In fact, we recently introduced the SwiftBroadband TV (SBTV) service, which can provide airlines

with real-time updated on-demand in-flight video content for passengers."

Coiley added that SBTV gave airline passengers access to the latest news and entertainment, mirroring the viewing experience they got at home.

News, sports and other video content is transmitted to the aircraft over Inmarsat's L-band SwiftBroadband network and then distributed wirelessly to passengers' own devices, which can include smartphones, laptops, tablets and other personal media players.

"SBTV provides an opportunity for airlines to leapfrog the limitations of rolling broadcast news services by allowing passengers on-demand access to the latest news and sports programming on their own, to choose what they watch and when they watch it."

Other Middle Eastern carriers flying with OnAir/Inmarsat connectivity include: Royal Jordanian, Oman Air, Saudi Arabian Airlines, EgyptAir and Libyan Airlines. Afriqiyah Airways and Jazeera Airways are customers yet to introduce the service.

OnAir has signed up as a partner for Inmarsat's Global Xpress Ka-band service, which will come on line when it launches its fleet of three Boeing-built I-5 satellites, starting in late 2013.

The service, which will be known as GX Aviation, has a headline figure of 40mbps, although speeds to an airliner's antenna are likely to be closer to around 32-37mbps.

It is unlikely that dual L-band/Ka-band antennas and terminals will be available, so airlines may have to fit

both systems, or choose which path to tread from the outset. Honeywell has the contract to produce the Ka-band terminals so we'll just have to wait and see.

But L-band is not dead yet. In fact, Inmarsat is planning more L-band coverage with the launch of Alphasat this year.

And there are embryonic plans for further L-band launches in the future.

"We're not using all the L-band capacity now, so while we are certainly looking forward to Ka it is not stopping us from growing – it's just the next logical step," said OnAir's Ian Dawkins.

Miranda Mills, Inmarsat's vice president, aerospace, speaking at the Apex Expo in Long Beach, said that GX Aviation will launch worldwide at the beginning of 2015, when all three satellites are in position and the Ka-band aviation terminals are available.

"Airlines now view connectivity as a standard product, not just an optional 'nice-to-have' – it is becoming part of their embedded programme for customers," she said. "We will be able to deliver up to seven times the bandwidth of a Ku-band satellite system, which will satisfy consumer demand."

Impressive demonstrations  
are a key part of IDEX.



# THE IMPORTANCE OF IDEX

*The 11th biennial International Defence Exhibition and Conference (IDEX) is being mounted at Abu Dhabi's National Exhibition Centre from February 17-21.*

**Jon Lake** previews the event.

IDEX, being held under the patronage of His Highness Sheikh Khalifa Bin Zayed Al Nahyan, president of the UAE and supreme commander of the UAE armed forces, has become the largest and most important defence exhibition in the Middle East and North Africa (MENA) region.

Though it has long been a favoured venue for the announcement or confirmation of major acquisitions by the UAE Air Force and Air Defence (UAE AF&AD), and by local armed forces and parapublic agencies, its importance spreads far beyond the UAE and even the GCC nations.

The second one-day Gulf Defence Conference (GDC) will precede the main IDEX exhibition on Saturday February 16. The event is the official conference of IDEX 2013 and forms an integral part of what has become one of the most important

gatherings of the international defence and security community. More than 400 attendees are expected with panellists and speakers drawn from senior officers and industry executives from ten countries, including the UAE, USA, UK, Japan, South Korea and Turkey.

The conference is organised by the Institute for Near East and Gulf Military Analysis (INEGMA) and is held under the patronage of His Highness General Sheikh Mohammed Bin Zayed Al Nahyan, Crown Prince of Abu Dhabi and deputy supreme commander of the UAE armed forces.

It takes place at the Armed Forces Officers Club in Abu Dhabi and will focus on major regional technology development, reflecting the increasingly significant role of

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# Bahrain

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## CONTINUED FROM PAGE 97

advanced systems in reinforcing regional security, as GCC and other regional air forces increasingly embrace the use of network-centric architecture, unmanned systems, and advanced C3I and ISTAR assets.

The GDC agenda includes topics relating to future airpower transformations, new paradigms in land warfare, and naval force projection and future maritime operations.

There may be more news about the UAE's new National Electronic Security Authority (Nesa), which is currently being established as the region's first national cyber security agency, charged with combatting online threats to military and critical installations, including the nation's communications networks, and with spearheading operations against cyber crime.

The main IDEX show that follows the conference is the only tri-service exhibition in the MENA region.

It is a defence and security event that has gradually gained a growing emphasis on homeland and internal security equipment and services, and on counter-terrorism and counter-insurgency, though it continues to attract more directly defence-related exhibitors, with products and services that include air vehicles and associated systems, space systems, land vehicles and systems, weapons and ordnance, C4ISR, radar, electro-optical and FLIR systems, electronic warfare systems, simulation and training systems and services, logistics and support systems and services, as well as medical, survival and NBC/CBRN equipment.

**Platform for local industry**

IDEX has increasingly come to serve as a platform for local industry, such as the exhibition's headline sponsor, Tawazun Holdings. But, because IDEX continues to attract the most powerful and most influential military and government representatives from the GCC countries (and indeed from across the wider MENA region), it also provides the optimum business environment for international manufacturers, suppliers and solution providers across the air, land, and sea sectors, who wish to target buyers in the GCC and the wider Middle East.

It is especially useful for those international companies that are able to offer genuine partnerships with local companies and that will contribute to the growth and diversification of the UAE's industrial base as it pushes ever harder to promote and drive forward the processes of Emiratisation and technology transfer.

The first day of the exhibition (Sunday February 17) is restricted to invited guests and exhibitors only, and the exhibition will be fully open to trade visitors from Monday 18 – Thursday 21.

Organised by the Abu Dhabi National Exhibitions Company (ADNEC), in coordination with the UAE Armed Forces GHQ and headline sponsor Tawazun, IDEX takes place at the Abu Dhabi National Exhibition Centre – a 124,000sqm complex of 12 indoor exhibition halls and adjacent

## Taking safety to a new summit

*A first-of-its-kind conference designed to establish the highest levels of aviation safety across the Middle East's regional aviation workplace – and the challenges associated in achieving this – will take place in Dubai at the end of January. Alan Peaford reports.*

**Aviation Safety Culture will take place from January 29-30 at The Meydan Hotel, Dubai, under the patronage of His Highness Sheikh Ahmed bin Saeed al Maktoum, president, Dubai Civil Aviation Authority; chairman, Dubai Airports; and chairman and CEO of the Emirates Airline group.**

**The event – the first of its kind – will be hosted by Dubai Civil Aviation Authority and supported by Dubai Airports and Emirates Airline.**

**During the two-day conference, aviation officials representing airports, airlines, regulators and industry stakeholders will discuss how the regional aviation industry can develop a community-wide safety culture and the advantages, challenges and planning associated with forging this ethos.**

**Organisers Streamline Marketing Group said the concept has already received an enthusiastic response resulting in a projected attendance in excess of 250.**

**Wider support has also been forthcoming, both globally and in the Middle East, from organisations such as Air BP, Boeing, Honeywell, Malakut and Maximus Air.**

**Dr Ratan Khatwa, senior chief engineer, human factors at Honeywell Aerospace, is a pioneer in aviation safety with industry-leading products such as the enhanced ground proximity warning system (EGPWS) and IntuVue 3D weather radar.**

**"We continue to focus on increasing safety in this important, rapidly growing market," he said. "We already have a range of technologies on the market today that bring best-in-class safety and efficiency gains to airlines across the Middle East. But, just as important, is the need to foster an industry-wide commitment to grow Middle East air travel in the most safe and efficient way possible."**

**Speakers at the conference include HE Mohammed Abdulla Ahli, director general of Dubai Civil Aviation; Captain Billy Nolen, managing director, employee safety and regulatory affairs at American Airlines; Monica Haage, safety officer at the International Atomic Energy Agency; Fathi Buhazza, CEO Maximus Air; and Chamsou Andjorin, director, aviation safety and regulatory affairs for Boeing.**

**"Our vision is for this summit to develop into a global safety congress where professionals and captains of industry from across the world come together, to Dubai, to share best practice about safety and security techniques," said Carolyn Lewis, project director for the event.**



Marine and land defence is also on display.

outdoor static display areas, with meeting and conference rooms, restaurants and corporate hospitality chalets.

The indoor space includes a dedicated first time exhibitor's zone (FTEZ), which attracts large numbers of visitors eager to see technology that has not been previously displayed.

Each exhibitor in the FTEZ receives a complete turnkey stand package, which makes it easy for companies who want to 'test the water' at IDEX in order to reach new buyers and customers in the Middle East.

The outdoor exhibit space includes a purpose-built demonstration track and a grandstand. The track (also known as the live mobility track) will be used for the grand opening day parade on February 17 and for the daily choreographed displays by the local armed forces, featuring demonstrations by special forces troops, land vehicles (including armour), aircraft, rotorcraft, UAVs, and even marine craft.

The track also offers exhibiting companies the opportunity to demonstrate their equipment free of charge by booking slots in advance on a 'first-come, first-served' basis.

Companies can also undertake private demonstrations of their vehicles at the show's holding area, close to the track.

New to the 2013 event are dedicated unmanned systems and

Continued  
on Page 100

UAVs will be in greater numbers at this year's IDEX.



CONTINUED FROM PAGE 99

helicopter demonstration areas, established to support the increasing demand for UAVs and rotorcraft from countries around the Middle East.

The unmanned systems area will showcase technology and equipment for both UAVs and UGVs. It is being sponsored by Abu Dhabi Automated Systems Investments (ADASI) and on February 19 will host an unmanned systems technology workshop, with technical presentations, live demonstrations, and networking opportunities including a lunch, all for \$150.

While the unmanned systems market is being widely 'hyped', rotorcraft procurement in the MENA region is predicted to be worth some \$15.2 billion in production sales next year, with Saudi Arabia and the UAE responsible for just under half of the forecast total. The new dedicated helicopter demonstration area has been established to support this important market.

#### Naval defence exhibition

For the second IDEX in a row, the exhibition will run in parallel with a dedicated naval defence exhibition (NAVDEX) sponsored by Abu Dhabi Ship-Building, which operates the most modern naval shipyard in the Arabian Gulf, and which claims to be the only shipyard in the region with the capability to build, upgrade, refit, and repair complex naval warships.

Abu Dhabi Ship-Building was established in 1996 and is 40% owned by the Mubadala Development Company, 10% by the Abu Dhabi Government, and 50% by several thousand individual local UAE shareholders.

The NAVDEX exhibition is held at ADNEC's adjacent marina, which can be accessed via a dedicated covered walkway from the IDEX site.

NAVDEX has its own purpose-built air-conditioned temporary structure next to the water and there are 'on-water' displays on some of the vessels berthed alongside.

Though the procurement process in the UAE can be somewhat opaque, and though timescales can stretch unpredictably, the UAE AF&AD has a number of outstanding requirements for new aircraft types, and competitive evaluations have been undertaken.

In some of these a winning type has been announced, but no contract has been signed, while in other competitions no winner has been selected or announced. Many expect the forthcoming IDEX to be used to announce the result of one or more of these competitions.

The most obvious unfulfilled requirement is for a new fighter, with about 60 new tactical fighters required to replace the existing fleet of Mirage 2000-9s.

At one time this seemed almost certain to result in an order for the Dassault Rafale, but the French aircraft was very publicly rejected at the 2011 Dubai Airshow, after which attention seemed to shift to the Eurofighter Typhoon and to the US Boeing F-15 Eagle and F/A-18E/F Super Hornet.

It is understood that BAE Systems appointed a UAE campaign leader in November 2012 and that consideration of the competing types is now almost at an end, leading some to speculate that the result could be announced at IDEX.

Four years ago, at IDEX 2009, the UAE announced that it would buy the Alenia Aermacchi M-346 Master advanced trainer, but in February 2011 it was reported that negotiations had halted, and were unlikely to resume. Thus, this apparent selection could yet be overturned (just as the UAE's planned purchase of the Rafale seems to have been,

and just as its selection of the CN-235MPA was eventually abandoned in favour of a purchase of maritime configured DHC Dash 8s).

It is understood that that Alenia had failed to meet the UAE's demands for it to provide UAV technology alongside the M-346s, and that the UAE has, therefore, re-opened talks with KAI for the T-50 Golden Eagle.

The UAE also has an outstanding requirement for a new AEW/AWACS aircraft.

Saab announced a SEK1.5 billion (\$220 million) contract from the United Arab Emirates for two of its Saab 340 regional turboprops, equipped with Erieye active-array radars, as an interim solution for training and operational evaluation, and for the development of tactics and doctrine. These were delivered in 2010 and 2011 but the full requirement for a definitive AEW/AWACS aircraft remains unfilled.

#### Erieye radar

Saab offered to sell the UAE four more similar aircraft but it is the larger Saab 2000, equipped with an improved and more capable version of the Erieye radar, that is the official Saab candidate, in competition with the Boeing 737 AEW&C and the Grumman E-2D Hawkeye. Many hope for an announcement of a winning AEW aircraft at IDEX.

The UAE also has unfilled requirements for new attack and assault transport helicopters. The US DSCA notified Congress of possible sales to the UAE of 16 CH-47F Chinook heavy-lift helicopters in December 2009, and of 60 additional AH-64D Apache attack helicopters (30 AH-64D Block II lot 10 remanufactured to AH-64D Block III configuration, and 30 AH-64D Block III), but no contracts have been signed.

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**Bombardier Challenger 605**  
London Farnborough, UK

**Dassault Falcon 900LX**  
Dallas, TX

**Dassault Falcon 7X**  
Dallas, TX; Paris, FR

**Embraer Legacy 600**  
Houston, TX; St. Louis, MO; Paris, FR

**Embraer Legacy 650**  
St. Louis, MO

**Embraer Lineage 1000**  
St. Louis, MO; Paris, FR

**Eurocopter EC135**  
Dallas, TX

**Gulfstream G280**  
Dallas, TX

**Gulfstream G450/G550**  
Dallas, TX; Hong Kong

**Gulfstream G650**  
Savannah, GA

### Coming in 2013

**AgustaWestland AW139**  
Lafayette, LA

**Bombardier Global 5000/6000**  
Columbus, OH

**Cessna Citation M2**  
Wichita, KS

**Cessna New Citation X**  
Wichita, KS

**Embraer Legacy 500**  
St. Louis, MO

**Eurocopter EC135**  
London Farnborough, UK

**Gulfstream G650**  
Third simulator, location TBD

**HondaJet**  
Greensboro, NC

**Pilatus PC-12 NG**  
Dallas, TX

**Sikorsky S-70i**  
West Palm Beach, FL

**Sikorsky S-76D**  
West Palm Beach, FL

**Sikorsky S-92**  
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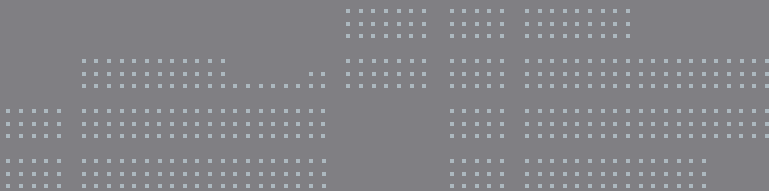


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# Helishow proves a sure bet for everyone

*An evening of top-level horse racing at one of the best racetracks in the world was the culmination of the successful Dubai Helishow 2012. Salma Al Madhoun reports on the highlights of the event.*

**H**eld at the Meydan Hotel, Dubai, under the patronage of Dubai's ruler, Sheikh Mohammed bin Rashid Al Maktoum, there were more than 2,000 trade visitors and conference delegates networking with close to 100 exhibitors from 15 countries and learning more about the potential for rotary craft applications in areas such as search and rescue, fire-fighting, military, homeland security and civil defence.

The Dubai Helishow, organised by the Domus Group, focused on two key areas of helicopter use – military, homeland security and civil defence; and air medical and rescue services.

There were representatives of the UAE Navy, UAE Air Force, Abu Dhabi Air Wing, Royal Bahrain Air Force, UK Royal Navy and the Libyan Air Force.

A conference, led by Rear Admiral Terry Loughran, explored the need for helicopters in medical evacuation and fire-fighting in high-rise

structures, while the second day focused on heli-borne intelligence, surveillance and reconnaissance to guard against the destabilising effects of piracy, insurgency, drugs, arms, people trafficking and acts of terrorism.

Conference speakers pointed to the increasing use of unmanned aerial vehicles, or drones, in supplementing helicopters in operation.

Commander Richard Kerslake of the UK Royal Navy's maritime capability – aviation, told the conference: "The future air operating arena will be air congested and cluttered, hence increasing reliance on unmanned semi-autonomous platforms such as unmanned air systems (UAS).

"By 2020, the UK air fleet will be complemented by a growing fleet of unmanned air vehicles in both combat and reconnaissance roles and it will increasingly involve unmanned and cyber operations."

Conference speakers and experts

Continued  
on Page 104



The move of the Heli-Show to the Maydan allowed potential customers to take demo flights on request.

noted UAV potential to support and enhance current intelligence, surveillance and reconnaissance (ISR), capabilities with their speed, ease of use, and their cost-effectiveness. On average, a drone costs \$70,000, compared to a few million dollars for helicopters. Drones are also considered safe and environmentally friendly for use in congested areas, because they cannot be heard from 400ft.

The Helishow also featured Ivan Kristoff, dubbed the latter day Spiderman for his expertise in mid-air and high-rise rope rescue, presenting his mid-air rescue systems (MARS), which allows for passenger evacuation from aircraft in mid-air in case of emergency.

#### Video conferencing

He also conducted a test, high in the air, on the wireless video conferencing capabilities near the Meydan Hotel area. From on board a Bell helicopter, he checked the speed of data transfer for a video signal.

Kristoff explained to the UAE minister of economy that he wished to complete a series of world records – for solo ascent and descent from a helicopter rope – in Dubai. Such a project required real time video documentation and communication.

“When you are moving very fast, from one 3G cell to another, it is important to have a wide broadband channel to transfer high quality video and photo signal. I will soon be testing the 4G signal in the high elevations of Dubai to see the height I can manage while maintaining reliable data transmission for my aerial projects,” explained the Canadian Spiderman.



Gulf Helicopters, one of the largest helicopter providers of commercial transportation and vertical lift services to industries within the Middle East Region, has partnered with Anglo-Italian helicopter manufacturer AgustaWestland to consult on the creation of larger carrying capacity rotary machines.

The Augusta 189, which increases the previous 139 model's capacity from 13 to 19 seats, is configured for offshore and onshore transits. Gulf Helicopters has placed orders for the new Augusta 189 and the first delivery is expected in early 2014.

**Create a new machine**

"We've been working with AgustaWestland for many years and realised there was discernable potential for the manufacturer to create a new machine particularly suited to offshore and onshore operations requiring increased people carrying and lift capacity," said Captain Khalif Al Mohannadi, deputy chief pilot at Gulf Helicopters.

"We are delighted to be consulting with AgustaWestland on the configuration and

commercial opportunities for the new Agusta 189 and have also placed orders for these new machines to facilitate our operations."

Training company Jetstream announced the signing of an agreement with Qatar Airways for the provision of training courses.

Helistore, the Austrian-based online radio-controlled helicopter and drone shop, displayed its drone for the first time at the show. The drone, approximately 90cm long and across, offers improved aerial footage in FullHD 1080p with 50 frames a second. The electric drone can be controlled out of line of sight. "We're displaying it for the first time and the interest we have received has made us think about launching it commercially after optimisations," said Helistore CEO, Tom Kreuzberger.

Key exhibitors at the event included Sikorsky, Russian Helicopters, Hawker Pacific Airservices, Bell Helicopters, Enstrom Helicopter Corporation, Boeing, Honeywell, Lockheed Martin, PHI Air Medical, ARMA-Global, Aerogulf, Aviahelip, HR Smith Group, Enterprise Control Systems, and Gulf Helicopters.



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# Honeywell's role in the Epic journey towards safety

*Dubai Helishow allowed manufacturers the chance to demonstrate new safety products. Jill Stockbridge was there to look at one that shone out through the dust.*

**C**ommercial helicopter operations in the Middle East are thriving, primarily driven by oil exploration needs, but also a range of other services including evacuation, search and rescue and regional charter.

However, the helicopter fleets working in the region face a number of challenges, which can have an impact on safety.

Higher risk elements include low visibility, offshore operations, high pilot workload, sand storms and atmospheric dust, which can all take their toll.

Safety developments have, therefore, become of paramount interest to operators in the region and Honeywell used the Dubai Helishow to showcase its range of safety avionics for commercial and military applications.

The company's close relationship with Abu Dhabi Aviation (ADA), the largest commercial helicopter operator in the Middle East, is not new. As Mosab Alkubaisy, customer business manager, defence and space for Honeywell in the Middle East, pointed out, ADA has been using the Honeywell Primus, part of the company's safety avionics range, on its Augusta Westland AW139 fleet for eight years.

## Reduce pilot workload

The 16 AW139s in ADA's 61-strong fleet are equipped with safety functionality as part of Honeywell's Primus Epic integrated cockpit. The system is designed to reduce pilot workload and improve situational awareness, particularly in the hostile and challenging environments in which the aircraft need to operate.

The relationship may be long established but the technology supplied is constantly evolving, with new features being added to the available system.

One of the key features of the Honeywell Primus Epic is the autohover fly away, approach and land functionality. Alkubaisy explained: "The autohover is able to automatically hold the aircraft in a hover over a fixed point at

sea or over the desert in a range of different conditions. The system is enabled to hover as low as 10ft from sea level. However, in rough seas it will automatically climb to a constant 20ft from the rising waves. The pilot can also follow a set target, automatically tracking it."

All humans are fallible, even pilots, but the Primus Epic has an answer for that, offering the pilot rethink function. This detects erroneous inputs from the pilot and alerts him or her to the anomaly before completing the request. What is often viewed as an annoying second guessing function from Microsoft, can potentially be a life-saving one in a cockpit.

The Primus Epic is also compatible with the enhanced ground proximity warning system (EGPWS) MK XXII, provided to a variety of platforms to minimise the risk of controlled flight into terrain.

## Controlled flight

Alkubaisy stressed the importance of the system. "Around 52% of fatal crashes are caused by controlled flight into terrain or obstacles. The EGPWS helps pilots to be aware of what is around them. This system was originally designed at Honeywell more than 30 years ago."

In addition, ADA is using Honeywell's traffic collision avoidance system (TCAS 1) KTA-970 transponder to reduce the risk of mid-air accidents. TCAS provides flight crews with greater situational awareness of air traffic around them and provides alerts when in close proximity to surrounding aircraft.

With the Middle East's airspace heavily congested due to military and commercial transport use, TCAS is critical technology for high volume commercial helicopter operators.

Alkubaisy added: "The TCAS can track up to 60 helicopters and other aircraft with a range of up to 30 miles."

To improve awareness even further the system is now integrated with Honeywell's SAR-optimised Primus 701 weather radar, with search and surveillance modes, sea-clutter reduction and beacon detection for use during offshore search and rescue operations.

There is video display support for external cameras, enabling the pilot to monitor the health of vital aircraft components such as engines, tail rotor and undercarriage, as well as offering a clear view of potential hazards. The health and usage monitoring system (HUMS) provides information to the crew in real time diagnostics. This is useful for both the crew and the operations staff.

Alkubaisy said: "The system can measure performance of up to 36 points on the helicopter. This can be received in real time at the maintenance base, via a satellite communications system, as well as within the cockpit."

With ADA and other clients, Honeywell is already well established in the region, but the company is working to increase its presence. It supports end-users throughout the region through the Dubai representative office.

Alkubaisy said: "We currently have around 4,700 commercial helicopters. That is expected to reach 5,200 delivered by 2016, driven by the oil and gas exploration and continuing need for search and rescue."

**The 16 AW139s in ADA's 61-strong fleet are equipped with safety functionality, as part of Honeywell's Primus Epic integrated cockpit.**



*Countries must act on a range of fronts  
to sustain air transport sector  
improvements, reports Ian Sheppard from  
the Arab Air Carriers Organization  
annual meeting in Algeria.*

# Arab airlines key to health of region

Secretary general Abdul Wahab Teffaha made quite an impact as he opened the 45th AGM of the Arab Air Carriers' Organization (AACO) in Algiers on November 6.

"Arab air transport contributes more than 100 billion US Dollars to the Arab economy," he said.

"This contribution does not represent the revenues of Arab airlines; it is rather the added value of the economic multiplier of the industry in all economics sectors.

"The air transport sector plays a pivotal role in moving people to, from and within Arab countries given the vast geography of the Arab world. In addition, this sector plays an essential role in moving high value and perishable goods, while supporting around three million jobs.

#### Developing the infrastructure

"As we call for Arab countries to continue providing support to this sector by developing the infrastructure, reducing the burden of taxes and charges, rationalising air routes, enhancing competition and unifying the economic weight of the region to deal with common issues, we also urge the world's governments to adopt the same perspective and implement similar measures that would ensure the sustainability of this sector in order to play its positive role in global development."

The main sessions explored various issues, such as the EU emissions trading scheme (ETS), Arab-EU relations, and collaboration and partnerships available for Arab airlines. The latter was the subject of an aviation forum, where the panel discussed the nature of the global alliances and reflected on recent changes in the airline world, such as Qantas moving operations from



**"The world watches as the Arab  
Spring approaches its second year."  
Tony Tyler**

Singapore to Dubai in collaboration with Emirates.

Tony Tyler, director general and CEO of IATA, also addressed the conference before being a panellist for the discussion. He reflected on the success of the 2011 AACO AGM in Abu Dhabi, hosted by Etihad Airways and said that over the past decade the Middle East region had increased its share of global air traffic from 5% to 11.5%.

He then addressed the financial position: "For the airlines in the Middle East we are expecting profits of \$700 million in 2012 – down from the \$1 billion that they made in 2011. And for the airlines in Africa, we expect a second year of break-even operations."

#### Profit margin

Tyler also said that overall the airline industry's profit margin globally was heading for a mere 0.6% (profits down from \$8.4 billion in 2011 to around \$4.1 billion in 2012).

On more political issues, he said: "The world watches as the Arab Spring approaches its second year... I am sure that many of you in or near the affected countries watched as your businesses went on a rollercoaster ride. By the third quarter of 2011 most of the affected markets had returned to pre-Arab Spring levels for passenger traffic. And over the last 12 months we have seen continued growth in many North African markets.

"Passenger traffic to Egypt was up 6% on pre-Arab Spring levels by August and Tunisia had seen the market grow by more than a quarter. In Libya the industry is in a rebuilding phase.

"Of course the Arab Spring is not the only factor that is having an impact on the airlines in this region. Sluggish economic growth, the



**“...We urge the world’s governments to adopt the same perspective and implement similar measures that would ensure the sustainability of this sector in order to play its positive role in global development.”**

**Abdul Wahab Teffaha**

Eurozone crisis, high oil prices, onerous regulation, infrastructure bottlenecks and high taxes are just the most obvious factors making the airline business a challenging one to be in.”

The IATA boss turned to safety, noting that there was not a single hull loss in the MENA region in 2012 through to the end of October. He added that the accident rate for operators not in the IATA Operational Safety Audit (IOSA) scheme was three-and-a-half times that of those with IOSA.

#### **Great initiative**

He noted that in 2006, Arab Civil Aviation Commission carriers had committed to making IOSA compulsory. “This was a great initiative but so far there are only 38 MENA carriers on the IOSA register. Egypt and Lebanon, Bahrain and Syria are among the countries that have mandated IOSA in some form, and we are expecting in January that the African Union will make IOSA a requirement for an Air Operator’s Certificate in all of its member states.”

He noted, too, that IOSA is already a requirement of IATA and AACO membership.

Tyler then turned to the importance of regional hubs to economic growth. “The Oxford Economics studies [carried out for IATA] reveal how the development of strong aviation hubs can transform economies through connectivity,” he said.

“In the UAE, aviation accounts for nearly 15% of GDP and about 14% of jobs. The development of the three major Gulf hubs has enabled Dubai to become a major tourist destination, Qatar to win the right to host the FIFA World Cup, and Abu Dhabi to

**Continued  
on Page 110**





CEOs from the region's top airlines meet face-to-face Dr Kotil from Turkish and Qatar's Akbar Al Baker.

CONTINUED FROM PAGE 109

attract Formula One. By contrast, if I look across North Africa, I see some infrastructure developments but I think the region needs to think bigger.

“Why not move forward by developing a major North African hub? The opportunity is there. Africa today is a focus of global investor interest. The continent has enormous natural resources, including oil.

“Africa today represents about 2% of the global economy with a population of about a billion people. In 1980 China was at about the same stage of development – and look how much has changed over the following three decades. Aviation played a key role in that development.”

#### Cooperation across borders

He concluded by encouraging North African nations to think about cooperation across borders and liberalisation to develop better connectivity; and to focus on air traffic management to avoid the crisis levels seen in the Gulf due to the rapid expansion.

He called ATM delays “the arch-enemy of any successful hub”. In particular, the new flows of east-west traffic were complicating ATM procedures, which have traditionally been north-south in the region.

Teffaha later pointed out that there was considerable scope for growth in the Arab/North African air transport market. “The Arab air transport market currently serves around 140 million passengers, a ratio of 40% of the 320 million people living in the Arab world,” he said.

“If we target a market at the same ratio as

## You can't beat a good panel discussion

Delegates to the panel discussion at the AACO AGM heard that 2012 witnessed a number of globalisation developments for Arab airlines.

Saudia and Middle East Airlines joined SkyTeam, while Qatar Airways was invited to join oneworld – Royal Jordanian has been a member of oneworld since 2007 while Egyptair has been a member of Star Alliance since 2008.

Other Arab airlines had adopted various cooperation and partnership strategies for growth, while in 2012 Etihad Airways acquired shares in a number of non-Arab carriers and Emirates signed a large-scale commercial partnership agreement with Australia's Qantas.

The lively panel discussion included, among others, Qatar Airways CEO Akbar Al Baker and Turkish Airlines president and CEO Temel Kotil.

One of the highlights was Al Baker's admission that he had once considered joining Qatar Airways with Emirates. He also noted how Turkish Airlines joining the Star Alliance had seemingly wrong-footed Lufthansa, which had not expected the smaller airline to be so successful. He suggested that Lufthansa's aim had been to limit Turkish Airlines' growth but Istanbul has instead boomed as a transfer hub.

\* The 46th AACO AGM will be held in Doha, Qatar, from November 5-7 this year, while the 47th meeting will be in Beirut, Lebanon, where AACO is based, in 2014.

Europe, the number of passengers travelling to, from and within the Arab world would increase to 352 million – more than twice as many passengers as Arab airlines carry on their entire network.”

Teffaha suggested achieving this was simply a case of emulating Europe, removing the restrictions to market access, ownership and control, and freedom of movement of people and goods. Furthermore, he pointed out that “the legal instrument for this actually exists – the Damascus Convention, which was signed by 13 Arab countries and ratified by eight”.

#### Open skies agreements

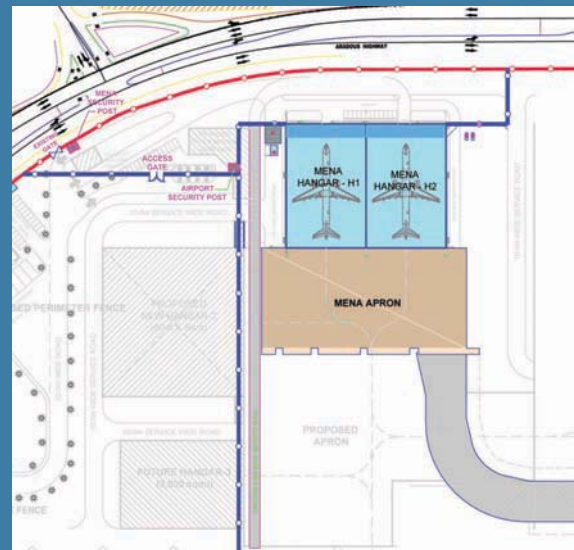
With Europe, he said that cooperation had started already, with both the Euromed project and the fact that the EU intended to negotiate open skies agreements with GCC countries. “The EU has already negotiated and concluded agreements with Morocco and Jordan, and seeks the same with all Mediterranean Arab countries. Moreover, the EU and ACAC had previously signed the Muscat Declaration, which states that the future target is an Arab-European framework for aviation.”

Teffaha concluded by calling for a “framework of principles” to be established by Arab countries initially and then with Europe as well, a framework which would then be incorporated in “all bilateral agreements”, without giving European carriers rights without reciprocal access for Arab carriers. “It is worth mentioning that the Council of Arab Transport Ministers has endorsed a suggestion to hold an Arab-European conference to discuss the above issues.”



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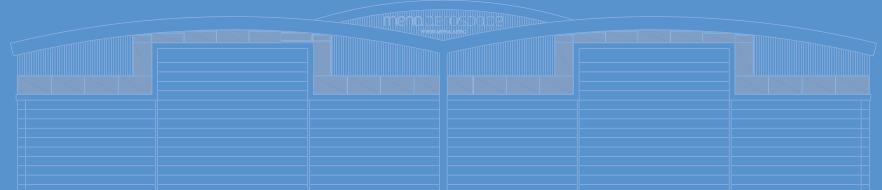
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*The second edition of the Abu Dhabi Air Expo takes place in March. Kelly Green takes a look at what's on offer.*

## Bigger and better Expo beds in...



The first Abu Dhabi show saw a number of high level visitors.

**T**he Abu Dhabi Air Expo will return to Al Bateen Executive Airport from March 5-7 this year bigger and better than ever.

Organisers have announced that, following the success of the inaugural event in March last year, there will be double the exhibition space to cope with growing demand from exhibitors keen to network in the region's general aviation (GA) market place.

Abu Dhabi Air Expo, hosted by Abu Dhabi Airports Company (ADAC), was created to celebrate and promote the general aviation industry in the Middle East. It is billed as the region's only GA event. While other aviation shows in the area are created for niche markets, such as military or business jet, the Abu Dhabi Air Expo targets general aviation, light sport aircraft, business jets, training, pilots, enthusiasts, piloting equipment, and more.

The exhibition is designed for owners and pilots, whether professionals or enthusiasts, and offers visitors a wide and representative range of the GA industry.

The 2012 edition was lauded a great success, generating AED 1 billion in signed deals, with 70 aircraft on display and more than 10,700 visitors and 105 exhibitors from local, regional and international companies. The show also hosted a series of conferences focusing on various general civil aviation topics, including training, licensing, safety, and aircraft technology.

Yousif Hassan Al Hammadi, chairman of the organising committee for Abu Dhabi Air Expo and deputy general manager, Al Bateen Executive Airport, said: "Abu Dhabi is

witnessing significant growth in the commercial aviation industry across all sectors, including general aviation, which in turn supports the emirate's air transport strategy in building a strong and sustainable aviation environment.

"ADAC is proud to contribute to this growth through its leading initiatives in the areas of infrastructure development, quality of service and marketing."

Among the airframers that have already committed to the second edition are Dassault Aviation, Embraer Executive Jets, Bombardier, Gulfstream, and Daher Socata, many of which have upgraded the size of their booth and are increasing the number of aircraft on the static.

The show's organisers anticipate a display of more than 120 aircraft, which will feature a range of models from light sport aircraft manufacturers to large corporate aircraft, including the Airbus 319 that Rotana Jet, one of Al Bateen's based operators, intends to display.

Alongside fixed-wing, rotary will also have a strong presence with Sikorsky and Eurocopter already demonstrating booth commitment, along with local aerospace business Quest Helicopters.

Demonstrating the success of the first edition, a selection of new exhibitors signed up for space during 2012's annual National Business Aviation Association (NBAA) show held in Orlando, Florida.

### Generated commitment

"NBAA was really exciting for the sales team as the success of the first show generated commitment from a number of new companies wishing to take advantage of the opportunities presented by the expo," said Didier Mary, director of Abu Dhabi Air Expo.

"We are delighted to see the event, which has become known locally as Al Bateen Expo, continue to grow," added Al Hammadi. "We expect an even greater range of companies from an increased geographical range and wider number of services to attend. We're also looking forward to welcoming a number of world previews from our exhibitors."

Official sponsor of the show, Falcon Aviation Services (FAS), has announced it will be showcasing a range of aircraft including the Embraer Lineage 1000, Legacy 600, Gulfstream 450, Bell 412EP and Bell 206L3, Agusta 109S and Agusta 109SP, Eurocopter AS365 N3, Eurocopter EC-135 HERMES and Eurocopter EC 130.

"FAS is excited at the opportunity to display the fleet and to highlight our range of services here in Abu Dhabi," said chairman and CEO HH Sheikh Zayed bin Sultan bin Khalifa Al Nahyan.

"We look forward to working with the team at Al Bateen and the Air Expo is a clear indication of the growth that the aviation sector is having in Abu Dhabi."



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*The surge in air traffic movements across the Middle East has led to more questions than answers on how to best optimise airspace capacity in the region. Now, reports Keith Mwanalushi, it's clear that the challenge to unlock the region's capacity is literally up in the air.*



# Will there be enough

**A**irspace bottlenecks threaten to hold back the forecast growth of airlines – that seems to be the common theme at air traffic conferences in the region over the last few years.

According to Boeing's latest forecast, Middle East airline traffic is projected to grow 6.4%, compounded annually, during the next 20 years. Revenue passenger-kilometres will more than triple by 2031, supported by healthy development of long-haul, short-haul, and domestic travel.

The GCC countries, in particular, are expected to register the largest growth with 14 commercial airlines in the six-member GCC having just over 650 aircraft on order between them, with more orders looming.

With the rapid growth of aviation driving economic growth in the region, the general consensus is that an optimised ATC network is vital to keep pace.

The UK's National Air Transport Services (NATS), which provides air traffic management solutions on a global platform, recently stressed that to ensure the future growth of Gulf aviation, states should ensure they manage carefully their investment in airspace infrastructure, with particular emphasis on regional cooperation.

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 to some degree the political involvement in the matter.

"NATS supports 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," said John Swift, NATS director for the Middle East.

"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."

A concern over the lack of regional collaboration has sparked comments from the Civil Air Navigation Services Organisation (CANSO), which represents global ATC providers. In 2011 CANSO said a regional approach would eliminate planning in isolation that has typified the region. Since then, various regional workgroups have been tasked to determine the state of the region regarding issues such as infrastructure commonality, air traffic management performance and CNS capabilities, as well as performing an airspace structure review, but issues obviously still remain.

## First challenge

"The first challenge for such a project is for all stakeholders to acknowledge that a regional solution is required and identify the appropriate body to coordinate activities, integrating the master plans of individual states and identifying efficiencies and quick wins," said Swift.

He added that the technology is, in itself, not a challenge, but rather the planning required to converge individual state programmes into a regional programme to meet regional standards over a period of years. "Legislative challenges surround the authority granted to any pan-state

coordinating body and the separation of service provision from regulation as a recognised industry best practice," he said.

"NATS navigates these issues by engaging, not only with regional umbrella organisations, but also by building key relationships with individual ATM providers, airports, airlines and military authorities to ensure the needs of all stakeholders are fully understood."

Bodies capable of supporting these regional initiatives, according to Swift, include ICAO, CANSO and IATA. "Maximising the performance of airspace at a regional level, according to traffic flows and operational demands, both civil and military, instead of managing the airspace according to restrictive national borders, will improve efficiency of operations and reduce overall environmental impact," he explained.

Dubai International Airport (DXB) has pushed ahead with a number of measures to try and address the issue. DXB expects to see 100 million passengers through its gates after 2020. In October 2012, the airport registered its second busiest month on record with 4.92 million passengers, an increase of 14.3% compared to the same month in the previous year.

Dubai Airports CEO Paul Griffiths said at that rate the airport would exceed the initial forecast of 56.5 million passengers to reach around 57 million passengers for the 2012 full year.

According to an analysis by CAPA, Dubai Airports has been adjusting arrivals and departures, redesigning local route structures and introducing new technologies based on performance-based



# airspace for growth?

navigation and new communication, navigation and surveillance systems. However, these can only go so far to remedy the issues within the airspace around Dubai. Therefore, a regional approach to air traffic management will be needed if the region hopes to meet the full measure of its potential.

NATS has already worked with Qatar, Oman, Kuwait and the UAE, providing consultancy and air traffic solutions to help airline and hub airport growth in the Middle East to meet capacity demands.

The first Middle East airspace design contract was carried out in the UAE in Dubai. NATS completed an operational performance summary at DXB, as well as public safety zone studies. The British company also developed a concept of operations and procedure design for the new Al Maktoum International Airport.

## Final design option

The airspace was designed to offer the flexibility to optimise operations for the new airport and between civil and military traffic. NATS delivered a final design option that demonstrated, through the use of fast time simulation, that simultaneous operations could be safely achieved for two runway operations at Al Maktoum through changes to a number of routes, and by using the principles of 'flexible use of airspace'. This was later adopted as the basis for the full airspace implementation project, undertaken jointly by DANS Dubai and NATS.

Elsewhere in the region, a NATS team is currently undertaking a two-year airspace design

and implementation consultancy project at the New Doha International Airport.

In addition to an airport capacity study, NATS has designed flight procedures for aircraft landing and taking off in Bahrain.

NATS also works with Oman, supporting the enhancements of safety management systems and the implementation of the new safety and quality department.

And, at Kuwait International Airport, NATS has developed a concept of operations as well as providing consultancy in engineering services for the airport navigation systems.

Another matter worth considering is the growing number of high-profile events being staged in the region with Qatar becoming the first Arab state to host the World Cup in 2022. NATS believes it is perfectly placed to provide ATM solutions after successfully navigating airspace around the 2012 London Olympics Games.

The question now is how to use that expertise and apply it in the Middle East environment with its unique regional challenges. Swift noted that initially, as with the London 2012 event, a new airspace is designed and methods of operations are changed to accommodate the additional air traffic.

"The UAE itself hosts large international sporting events on an annual basis, such as the Formula 1 Etihad Airways Abu Dhabi Grand Prix. Abu Dhabi has seen its international visitors during the event increase by 35%. This number is expected to grow further in years to come," said Swift.

While sports events like these bring in large numbers of visitors and revenue for the host cities,

they also bring complex logistical challenges. For instance, inbound race car drivers, crews, sponsors, international media, visitors and their families, not to mention the cars and other equipment, all contribute to a steep increase in air traffic and airspace congestion.

"The UK faced the same challenge with the Olympics," Swift noted. Tasked with managing the UK airspace during this busy time, NATS began the planning and preparation process long before the event.

"It was no small task – managing the maximum predicted influx of extra air traffic, including a surge in business and general aviation flights, while providing business-as-usual services to five of the busiest airports in the world."

## Four specific areas

The strategy was to break down the challenge into four specific areas: airspace, airports, military liaison and outreach, and the company worked with all stakeholders to identify potential pinch points created by the extra traffic.

Traffic in the London area was up 3.5% for a number of days, peaking at 4.5%. Traffic at nearby Farnborough and Biggin Hill airports rose by 16% and 19% respectively on peak days.

"This is the exact experience we would bring to the UAE and the region. However, it will be a more challenging task, as we will need to work to enhance the coordination between the civil and defence authorities with regards to aerospace management, something we achieved a long time ago in the UK," Swift concluded.



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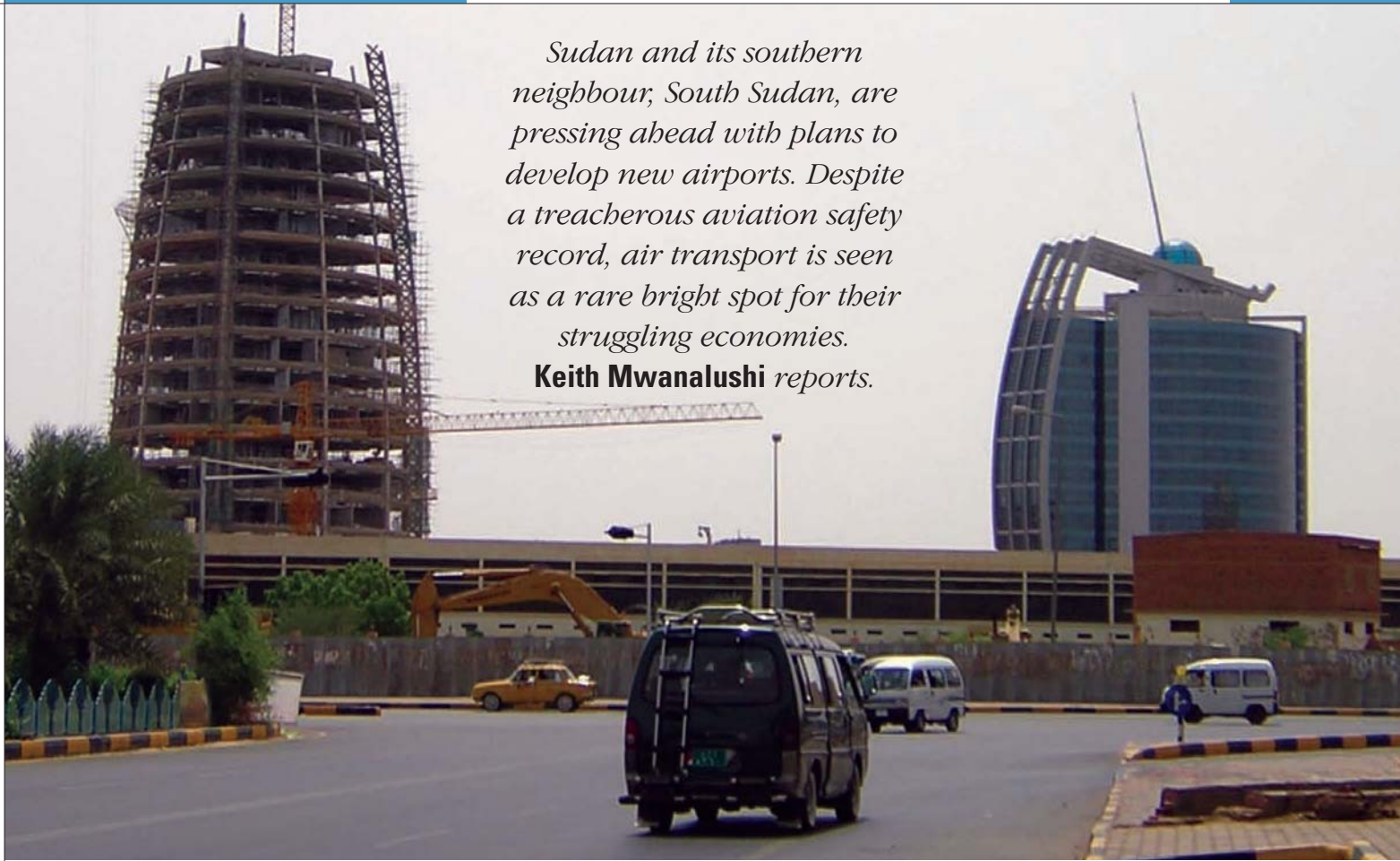
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[www.dubaiairshow.aero](http://www.dubaiairshow.aero)



*Sudan and its southern neighbour, South Sudan, are pressing ahead with plans to develop new airports. Despite a treacherous aviation safety record, air transport is seen as a rare bright spot for their struggling economies.*

**Keith Mwanalushi reports.**



# SAFETY FIRST IN SUDAN

**W**hen road transport infrastructure is limited it means journeys become lengthy or even dangerous. Air transport becomes the only real and practical option to move goods and people around.

But, without the appropriate infrastructure and oversight, air transport, too, turns into a game of chance. Such is the case with the two Sudanese countries.

Today, Sudan suffers from the worst aviation safety on record. Data from the Aviation Safety Network shows the country experienced three air crashes in 2012 and, on average, two every year.

However, local authorities claim that reforms are being made and plans to build new airports are under way. Not surprisingly, the Chinese are involved – China is now Sudan's largest trading partner. Back in February 2011, China Harbour

Engineering Co (CHEC) reported that it signed a €900 million contract to build a new international airport in the Sudanese capital Khartoum. The project aimed to build one runway capable of A380 operations, a terminal building, control tower, new parking area, connection road, air cargo terminal, MRO and other auxiliary facilities.

According to information from the Sudan Ministry of Investment, the new airport at Khartoum will operate under internationally recognised standards in adherence to ICAO specifications. In addition, there are plans to redevelop three other airports at Port Sudan, Malakal Airport, and Abu Gibieha Airport.

However, details on progress relating to these projects remain sketchy; in fact, the Khartoum project has been on the drawing board for some time.

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Alexander Manakos, partner at Lufthansa Consulting, which has vast experience in challenging markets, said: “Based on our experience in airport development and airport privatisation in Africa, a key challenge is to establish a stable and safe political and economic environment in the country to form the basis for economic growth and development.

“A positive investment climate is necessary not only to develop and maintain viable airport operations but also to boost trade and the resulting movement of people and goods that create demand for air transportation.”

Manakos said the availability of airport infrastructure and facilities that meet international safety and security standards are considered a basic prerequisite.

“However, these are currently not met in several places in Africa,” he added. “Another hurdle, that must be taken into account and can only be overcome by decisions on the political level, is the regulatory framework in the sense of liberalisation of air transport to allow airlines access to the national skies.”

That, considering administrative hurdles, might also prevent foreign direct investments, business development and competition on the ground.

“Privatisation of airport operations can be one key step to success, as some examples in Africa are showing. However, it strongly depends on various local factors and framework conditions if the concept of airport privatisation is the right measure to develop and maintain viable airport operations in a country,” he explained.

### Independent oil producer

South Sudan plans to mark its emergence on to the world stage as an independent oil producer by completing a new airport terminal at the capital Juba (although the capital city is planned to be moved to a more central location in the future).

Juba International Airport (JIA) handles international and local airlines, cargo air traffic and chartered commercial flights. It is also used by the South Sudanese military and by the United Nations relief flights for the country.

The current passenger terminal was built by Sudan to serve what was then thin traffic between Khartoum and the poor south. It consists of two small halls with manual check-in procedures without adequate baggage weight checks. Security checks are minimal because of the frequent power outages. Luggage from arriving passengers is loaded on a long bench in the absence of a luggage carousel. Some 22 airlines serve Juba International Airport, mostly from neighbouring carriers in Kenya, Uganda and Ethiopia.

In June 2012, CHEC signed a US\$158 million contract for phase one of JIA with the transport ministry of South Sudan. According to CHEC, the project involves the reconstruction of the existing airport. An information minister in South Sudan is quoted as saying the investment will include various extensions, extended car



South Sudan signed a \$158 million contract to upgrade Juba International Airport but progress is slow.

parks, a new lighting system and the ability to perform 24-hour operations.

It’s hoped that the new terminal will show the modern face of South Sudan to the rising number of foreign executives tapping high-risk, high-return business opportunities in the newest African state. As is the case with Khartoum, authorities remain tight lipped about how much work has been done.

Reports from Reuters indicate that the government had planned to have a new airport terminal ready for independence celebrations in July 2011 but works had been hampered for years by funding problems and poor planning.

In October 2012 the European Union Aviation Security Mission (EUAVSEC) deployed a team to Juba in response to South Sudan’s request for EU support to strengthen security at JIA, as part of the international community’s overall assistance to the country.

A EUAVSEC spokesman said a key challenge for South Sudan was to establish a fully operational transport hub for commercial and passenger purposes. Improving the airport security would not only contribute to the fight against crime and international terrorism, but would also enable the increased flow of people and goods, thus helping to boost trade and promote regional integration.

EUAVSEC aims to assist and advise South Sudan to establish the aviation security organisation at the ministry of transport and to strengthen aviation security at JIA. EUAVSEC will train and mentor security services, provide advice and assistance on aviation security, as well as support the coordination of security activities related to aviation.

The mission has a non-executive mandate, according to a statement from the EU: Its aim is not to do security checks directly but to enable South Sudanese authorities to build-up adequate capacities. Areas such as control of airspace, aviation safety, land- and riverine border management fall outside the scope of the mission’s mandate. EUAVSEC is expected to be fully operational early in 2013 with

approximately 60 people. The mission’s mandate lasts until January 2014.

Once these airports are developed and functional, the next challenge will be to ensure their commercial viability. “With regard to commercial and service quality performance, the most crucial factor is the implementation of safe efficient procedures and to overcome or limit bureaucracy to necessary levels,” commented Manakos.

He agreed that bureaucracy and other formal or informal administrative hurdles are often observed as a key factor that hampers a smooth operational performance. “This affects the airport user’s perception of service quality.

### Monopolistic structures

“In many locations certain services are delivered by service providers that enjoy the comfort of a monopoly position. Such monopolistic structures, by their nature, fail to provide an environment that stimulates customer orientation, efficiency and quality of service,” he said.

Manakos agreed that a successful measure to overcome this lack of quality was usually the creation of competition by allowing more than one service provider to perform services like passenger handling or warehouse handling and so on.

“When it comes to commercial performance of airports, we have observed that many in Africa are hardly utilising the potential of non-aeronautical revenues that an airport offers,” Manakos added.

However, he noted that there were examples in Africa that prove the opposite.

“But, in general, airports tend to cover only a very limited portion of the value chain. They neglect commercial opportunities that result from shopping, parking, food and beverage and other services, which provide revenues to the airport and are also perceived by airport users as quality factors.”

Ultimately only time will tell whether the political and economic landscape will fulfil the dreams of two nations with grand ambitions.

# A Springboard to better aid...

*In a world where man-made conflict is often only matched by the savagery of nature itself, international humanitarian aid is essential – and that usually means assistance from the air.*

**Steve Knight** looks at how specialist brokers work night and day to get aircraft into the danger zones, either airlifting people out or freighting crucial supplies in.

If anything ever served to highlight the need for international humanitarian assistance it was last year's Arab Spring.

In addition to freighting in vast quantities of essential supplies, charter companies also evacuated more than 40,000 people over a period of several weeks on behalf of corporate groups and aid agencies.

One of those companies was Air Partner, which has been working in the aviation industry for more than 50 years and boasts 20 offices spanning Europe, North America, the Middle East and Asia. The company has, in the past, worked with the UN, EU, NATO and leading NGOs, such as the Red Cross.

Chief executive Mark Briffa said: "The lesson learned during the Arab Spring – when Air Partner evacuated 12,000 people in six weeks – was the importance of planning.

"Governments, NGOs and aid

Continued  
on Page 120



Air Partner aid for Turkey: the giant hold is loaded up with tents and other vital supplies.



The World Food Programme is the World Largest Humanitarian Aid Organization with more than 70 Aircraft bringing humanitarian cargo and aid workers to cut-off communities in the most inaccessible places on the planet





CONTINUED FROM PAGE 119

organisations that have an early, confidential conversation with us are likely to get the quickest result should their mission go live.

“Any notice ahead of a project or mission could save time at the get go – when specific aircraft are needed at short notice.”

Sourcing aircraft globally and working across different borders and fly zones can be vital in aid and evacuation situations – especially when the environment is hostile or chaotic. During the Arab Spring for example, Air Partner’s ability to coordinate its international network of offices enabled it to provide deep local knowledge and offer alternative solutions when ‘plan A’ was not an option.

“In Egypt, Libya and Tunisia we were the first to

get groups of people out, and aid in, when trouble flared,” said Briffa. “The advantage of being an international company with a global presence is that our overseas and UK offices were able to work together to provide the quickest and most efficient response.

“In a high pressure situation, an immediate response is essential to ensure the safety of those on the ground. Our team worked 24/7 to get people to safety and aid in extreme conditions. Law and order had totally broken down in some countries – it was complex – but we got a huge sense of satisfaction from the job we did.

“In Libya, all normal communications and aviation practices broke down. The combination of Air Partner’s extensive broking experience, and the forward planning team’s specialist knowledge,

meant that we were able to respond swiftly to source aircraft and move personnel out of harm’s way, in spite of challenging operational circumstances.”

To a certain extent the Arab Spring grew over a series of months and events could usually be anticipated a few days ahead, but what does it take when a crisis occurs ‘out of the blue’?

In October 2011, for example, an earthquake struck the eastern Turkish city of Van. More than 600 people died, 4,000 were injured, 6,000 homes were destroyed and over 11,000 buildings damaged, leaving 60,000 people homeless.

“An event like that is when experience, knowledge and expertise plays an enormous part,” explained Richard Smith, Air Partner’s director UK trading.

## Emirates help the needy in Bangladesh

Emirates airline, non-profit organisation SpaandaB and aircraft manufacturer Boeing, came together to transport relief supplies on board a newly delivered 777-300ER to those in need in Bangladesh.

The relief shipment comprised 23,000lbs (10,455 kilos) of winter clothing targeted for those living in western Bangladesh – a part of the country that experiences severe winters. The shipment also included educational supplies for children.

SpaandaB’s mission is to bring about socio-economic change among the less-privileged people in Bangladesh by addressing their education needs and health services.

Since 1992, Boeing has facilitated more than 150 humanitarian delivery flights, working in partnership with nearly 55 different airlines worldwide.

Ram Menen, divisional senior vice president of Emirates SkyCargo, said: “Emirates is committed to supporting humanitarian efforts. Providing cargo space for the relief shipment for those in need in Bangladesh on board our delivery flight is something we were happy to endorse.”





Far left: The Chapman Freeborn chartered IL-76 destined for Haiti loading at Spain's Madrid-Torrejón Airport.

Left: Eliska Mundell: "We work closely with all the major relief agencies."

"We work closely with the UK Government's Department for International Development (DFID) – regularly meeting with them and offering our experience, advice and consultancy.

"It means that, when something like this happens, we already know who is doing what. Everyone knows their responsibility and things just click into gear."

Following approval from Turkish officials, the freight team at Air Partner worked around the clock to secure the necessary overflight and landing permits to ensure that aid was dispatched as quickly as possible. A giant Antonov AN124 was chartered and filled with 1,144 tents, weighing a total of 95 tonnes, ensuring quick and efficient delivery to those who needed it most.

**Charter business**

"Offering humanitarian assistance is often an extension of normal charter business," said Smith. "We are dealing with the same people in the same areas of the world.

"We have already built the relationship. The trick in this business is to work with people who do what they say they are going to do, when they say they are going to do it. Mutual trust is absolutely vital, particularly in life and death situations."

In all, throughout 2011, Air Partner evacuations on behalf of governments and corporates involved 63 flights, more than 12,000 people and 300 tonnes of aid.

The Gatwick-based emergency planning and 24-hour operations teams, together with on-call broker specialists, pooled their knowledge and resources to secure suitable aircraft for the evacuations and aid flights involving Egypt, Libya, Tunisia, New Zealand, and Japan. The Air Partner teams also negotiated flight slots, fuel supplies, aircraft handling and visa permissions as well as post-evacuation onward travel.

## PROFESSIONALS IN THE ART OF RELIEF

Nearly every major humanitarian airlift mission in the last four decades has involved UK-based Chapman Freeborn chartered aircraft.

Major charter operations have included supporting the response to the Asian Tsunami, earthquakes in Pakistan and Haiti, floods in Burma, and famines in East Africa.

During the Arab Spring, the company's passenger department evacuated more than 25,000 people on behalf of corporate groups and aid agencies.

Established in the UK in 1973, Chapman Freeborn is a cargo and passenger aircraft charter specialist with more than 30 offices worldwide. In August 2012 it strengthened its presence in the Middle East by relocating its Dubai and Sharjah offices to a joint operation in the Dubai Airport Free Zone.

Eliska Mundell, GM UAE, said: "Chapman Freeborn UAE has been instrumental in the successful coordination of hundreds of relief flights operating from this region, covering every major disaster over the last 15 years. This has encompassed a variety of situations, which all require the utmost professionalism, and an enhanced speed of operation, from the first phone call, until all aircraft are offloaded at destination.

"We work closely with all the major relief agencies and also individual suppliers, many of whom have storage facilities in Dubai. With a unique and bespoke service, we can support the complete door-to-airport operation, from the pick-up of the relief items, along with the customs procedures, to the delivery

to our own 24-hour operational warehouse at Sharjah International Airport, where the cargo will be built up and documented by Chapman Freeborn staff.

"This ensures the smooth movement throughout the logistical chain and provides the relief agency with the security that their vital shipments will be moved with the upmost care and efficiency to reach the disaster area within the time deadline.

"From the Tsunami in 2004, to the flooding in Burma and earthquake in China in 2008, along with the Haiti operation in 2010, and lately flights to Burma for the recent earthquakes, Chapman Freeborn has been at the forefront of the relief operation, with staff working tirelessly around the clock to ensure a successful delivery of urgent aid is completed."

Recently the company worked in cooperation with the German charity Luftfahrt ohne Grenzen (Wings of Help) to organise the first aid flight for Syrian refugees fleeing across the border into Turkey, delivering 41 tonnes of relief cargo from Frankfurt in Germany to Adana in southern Turkey on behalf of the Turkish Red Crescent.

Chapman Freeborn chartered an A300 freighter for the operation and coordinated the necessary overflight and landing permits.

The aircraft departed Frankfurt Airport at Wednesday August 8 and arrived in Adana a few hours later to deliver the consignment of food, tents, clothes and blankets.

The flight was accompanied personally by Frank Franke, president of Wings of Help, and Michael Roll of Chapman Freeborn Germany.

### Advice to companies for successful evacuation

- Analyse risk – how likely is it that you may need to evacuate staff; is there political unrest or volcanic activity in the area?
- Have a planned exit strategy.
- Ensure your staff know the drill and have practiced it.
- Engage a professional organisation with a proven record to carry out the evacuation.

*Satellites are playing an increasing role in disaster relief activities, from earthquakes through flooding to civil war. Steve Nichols reports.*

# Satellite technology – a great relief to agencies

**W**hen communication networks go down, it's like being plunged into the dark ages – at a time when you need to be connected more than ever.

In the MENA region satellites have never been more useful with both the Red Cross/Red Crescent and Télécoms Sans Frontières (TSF) running recent humanitarian missions in Algeria, Libya, Eritrea, Syria, Turkey, Iraq, Iran and many other countries.

The International Red Cross has been using satellite technology to aid disaster relief since the 1980s. In the 21st century innovations like mobile satellite dishes, laptop computers and voice-over IP technology are helping to improve its efficiency during disaster response.

Portable satellite phones have proved invaluable for disaster relief. Following the political unrest in Libya, the Red Cross deployed a disaster team to support the Tunisian Red Crescent as it delivered relief to people fleeing the country.

To respond quickly, it had pre-positioned relief supplies in global warehouses, including one in Dubai to serve the region.

The International Committee of the Red Cross (ICRC) provided Libyan Red Crescent staff in Benghazi and Misrata with satellite phones, so that families could re-establish contact. More than 4,500 phone calls were made from inside Libya.

"Phone calls were impossible between the east and west of Libya except with satellite phones. Postal services were disrupted and internet connections were erratic," said Paul Castella, head of the ICRC delegation in Tripoli. "It had become extremely difficult for family members to keep in touch."

The ICRC worked for more than four months

to reunite or restore contact between family members separated as a result of the conflict.

It organised more than 13,600 satellite telephone calls and delivered more than 640 "safe and well" messages, both within Libya and abroad.

It has also helped detainees in the country to send messages to their families.

Even in the Iraq conflict in 2003, the ICRC enabled 75 families to contact relatives abroad from a satellite phone set up outside Al Zahrwari Hospital.

And satellite technology is developing all the time – Ka-band satellites are being developed that promise multi-megabit speeds from small portable terminals. Inmarsat has plans to launch three satellites for its Global Xpress (GX) service, starting in late 2013. And Viasat and Eutelsat have both had Ka-band satellites in orbit for the past year.

## Deliver speeds

TSF uses Eutelsat's KA-SAT and the Tooway terminal, which can deliver speeds of up to 40Mbps downstream and 10Mbps upstream.

The idea for TSF came from a simple observation – in any crisis in addition to medical and food aid, there is a critical need for reliable emergency telecommunications services.

Conflicts and emergencies often lead to massive civilian displacement and separated families. And affected populations are often left with no communications infrastructure.

During early missions, TSF's founders were often approached by refugees with scraps of paper saying: "When you go home, please call my family at this number, tell them I'm alive, uncle has been killed, but I'm alive and I'm at the refugee camp in Stenkovec."



As a result they bought their first satellite phone and TSF was born. Since then, every TSF mission has offered a three-minute call to any affected family.

Since its creation in 1998, TSF has intervened in more than 60 countries on five continents, serving hundreds of thousands of victims and 660 organisations (UN agencies, NGOs and local authorities). Its primary tools are light, highly-portable satellite terminals, such as Inmarsat's L-band broadband global area network (BGAN) and Eutelsat's Ku-band very small aperture terminals (VSAT). These can be deployed in minutes, providing worldwide coverage.

The BGAN unit allows up to 10 computers to be connected to broadband internet and also offers voice and fax services, yet weighs less than four kilograms. TSF also uses the Inmarsat IsatPhone Pro, which offers satellite telephone at 2.4kbps, voicemail, text and e-mail messaging as well as GPS location data in a 279gramme package.

A VSAT is a two-way satellite ground station with a dish antenna that is smaller than three metres (most VSAT antennas range from 75cm to 1.2 metres). Data rates typically range from narrowband up to 4Mbps.

During the Libyan crisis, TSF deployed to a refugee transit camp at La Chucha in southern Tunisia. It placed a small team as part of the European Commission's humanitarian aid department (Echo) initiative and also provided connectivity for EU representatives, for the UN high commissioner for refugees and the Tunisian civil defence.

TSF spokeswoman Myriam Annette said: "We deployed in late February 2011 and supported calls to more than 115 destinations, mostly



From left: TSF setting up a satellite dish on the Libyan border; Displaced Libyan people queue for a phone call with TSF; Inmarsat's lightweight BGAN terminal.

international, amounting to 84,378 calling minutes.

“For around 70% of the refugees who came to us for help at La Chucha, the first call they made after crossing the border was via TSF.”

On one day alone, more than 1,000 calls were made by refugees – 98% of them to Bangladesh. Crowds of people were waiting in long queues to make calls.

Estimates from the UN indicated that between 13,200 and 13,600 people remained stranded at camps and transit points in Tunisia, Egypt, Niger and Algeria at one stage.

Florian Vichot, a member of the Libyan TSF team, said: “We enabled a group of refugees from Ghana to call their families to tell them that they were still alive. But every day they remained in close vicinity to the TSF sat phones.”

“There was no immediate solution for them. There was no Ghanaian consulate in Tunis. So we decided to contact the consulate in Algeria. Following the phone call, the consulate reassured the Ghanaian refugees that they would receive official assistance, which they did. Eventually, a representative of the consul himself came to the transit camp to repatriate his fellow countrymen.”

More recently, TSF deployed to the Syrian border. In August 2012, TSF conducted a telecom assessment mission in Syria, in the town and hospitals of Azaz, 40km north of Alep. It was the first international NGO to enter the town, which had been destroyed by violent fighting between rebels and the regular army.

**Medical workers**

To support medical relief teams in Syria and international NGOs in neighbouring countries, TSF provided satellite communications to medical workers and trained them in the use of the equipment. By October 2012, TSF had installed five VSAT broadband satellite connections within five hospitals in Syria's most important towns.

Monique Lanne-Petit, TSF director and co-founder, said: “Years after its creation, TSF's field interventions have shown that needs for telecommunication in the exceptional circumstances of a war or a natural disaster are as great as ever.”

Eutelsat satellites also provide relief to NGOs facing emergency situations. The quick and reliable communications let relief agencies exchange vital information so that they can better

understand the situation on the ground and coordinate their efforts.

Eutelsat has stepped up its support for TSF, with which it has been an active partner since 2007. The transportable satellite terminals acquired by TSF, or put at its disposal if necessary, make it possible to equip a crisis unit in a disaster zone with a broadband connection in just a few hours.

TSF also provides broadband connections to other NGOs in Africa, such as Médecins sans frontières and Vétérinaires sans frontières, with the Eutelsat D-Star service operated via EUTELSAT 7A and EUTELSAT 10A.

Eutelsat also supports Net Hope, which started in 2001, in sub-Saharan Africa. This is a unique collaboration of 37 of the world's leading international humanitarian organisations (including Care, Oxfam and Save the Children) working together to serve people in the developing world.

Eutelsat is also committed to help those NGOs with a broadband connection via Eutelsat D-Star services, designed for administrative use. More than 70 D-Star terminals are currently equipping Net Hope NGOs in sub-Saharan Africa.

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# When supplying the troops is a Supreme challenge

*In any scenario, ensuring the daily delivery of highly perishable food for up to 130,000 troops in Afghanistan – one of the most heavily contested and austere parts of the world – is a daunting task. The real challenge, according to Charlie Szar, the managing director of the UAE-based Supreme Group's aviation division, is making sure that this food safely reaches the remotest corners of the country, reliably and on time, 365 days of the year.*



**T**he Supreme Group specialises in customised supply chain and associated support solutions in some of the world's most challenging and remote locations.

The 55-year-old logistics company, which operates in more than 25 countries, has been an airlift services provider since early 2002 in support of the NATO multinational forces, the United Nations and the United States military across three continents.

Each year, Supreme flies more than 20,500 missions, logging an average of 45,000 total flight hours across a fleet of fixed and rotary-wing aircraft.

Since November 2005, Supreme's Aviation Division has, in concert with its military partners, strengthened its extensive aviation operations in Afghanistan to make it the largest intra-theatre aviation logistics company operating in Afghanistan today.

Supreme's aviation operations are complemented with US Veterinary Command VETCOM-approved warehouse and cargo loading facilities to support the transfer of substantial quantities of cargo throughout the International Security Assistance Force (ISAF) Afghanistan area of operations (AOO).

## Perishable goods

One of the company's largest operations is the delivery of perishable goods, mostly fresh fruit and vegetables, to the troops and personnel scattered throughout Afghanistan in support of the ISAF mission. In line with this, Supreme flies approximately two million kilograms of perishable food on 18 to 20 747s per week from the UAE to three major air bases in Afghanistan – Kabul, Kandahar and Camp Bastion – which are also the central hubs for distribution of food and other supplies.

From the three main bases, the food is distributed to up to 150 forward operating bases (FOBs) that are dispersed throughout the country, often in extremely remote locations. Around 70 intra-Afghan flights per day are needed to supply the food, which feeds approximately 130,000 troops.

"In any circumstance, this is a very big operation to manage; we also have to deal with asymmetrical challenges that one normally does not encounter in a permissive environment," said

Charlie Szar, managing director of Supreme Group's Aviation Division.

"Some of these challenges include civil and military aircraft operating in a compressed battle space and understanding aircraft performance limitations and handling characteristics.

"Risk assessment and mitigation is intrinsic to all our activities. We operate close to the edge of the flight envelope every day to ensure deployed forces are sufficiently resupplied. Because of this, there is a significant amount of coordination and de-confliction that has to take place with the military.

## Commitment to our clients

"Regardless of the situation, we have a commitment to our clients so we need to make sure that this food reaches all FOBs 365 days a year while safely overcoming the daily fog and friction associated with operating in Afghanistan. Sometimes this means that we have to work on sophisticated deconfliction plans with the military to overcome very challenging sites that are heavily contested," Szar added.

The austere operating environment is further complicated by managing a "just-in-time" demand-driven ordering and delivery cycle.

The operation requires a highly process-driven, but flexible, scheduling and dispatch process that is subject to change continuously throughout the mission execution cycle.

"Delivery is consumption-based, so there is no predictability. We might do 90 flights one day and 40 flights the next; it is not a static operation," explained Szar.

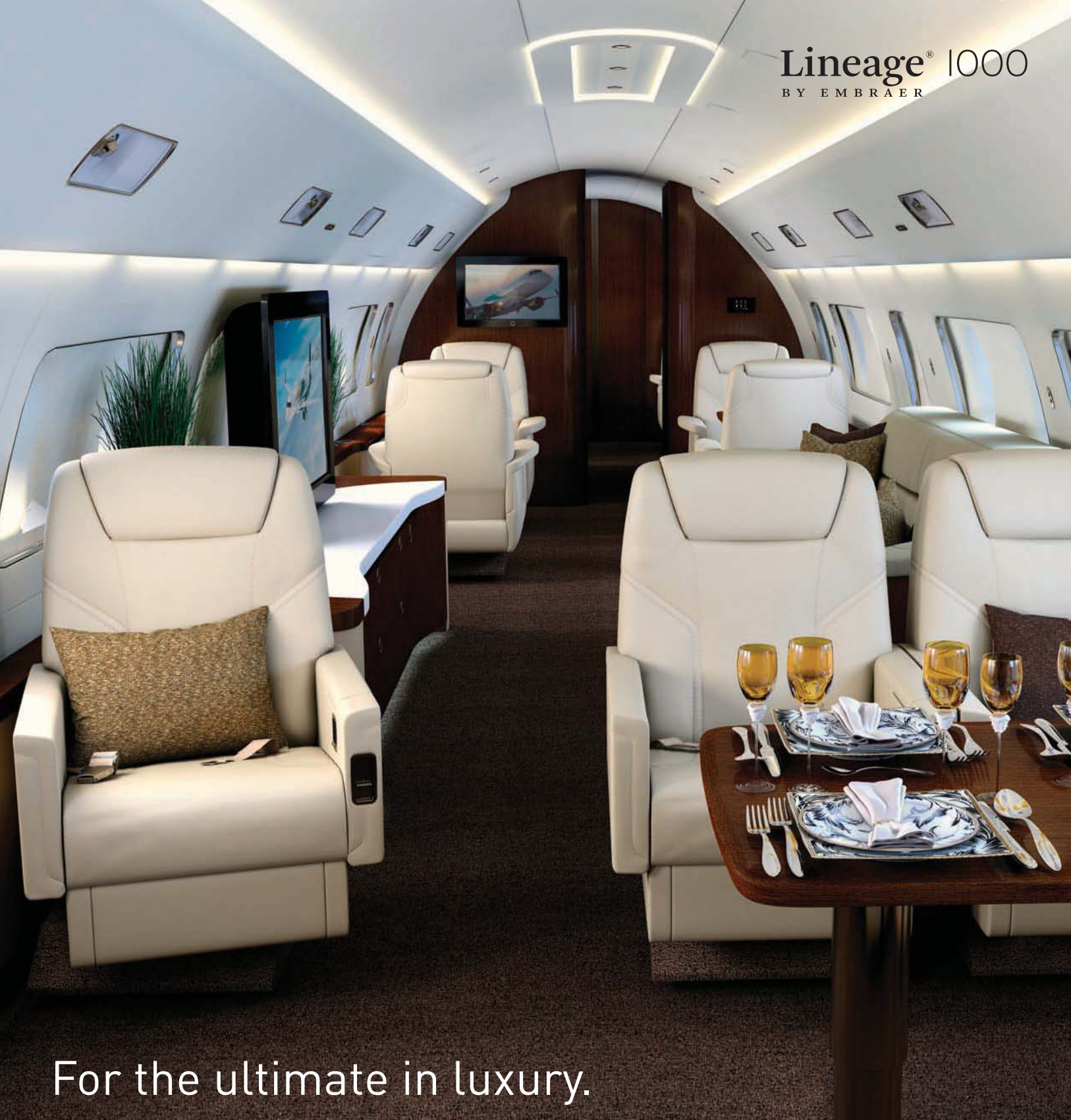
As managing director of aviation at Supreme, Szar oversees all aspects of the group's airborne transportation. He previously served 23 years in the US Military – in the US Army and US Air Force – where he retired as Captain and command pilot.

Today, with 200 staff and 40 fixed-wing and rotorcraft, the team has a clear mission. "Our task is to deliver in excess of 180 tonnes of perishable food within a very compressed 18-hour planning cycle. We employ point-to-point and hub-and-spoke models of delivery, while not interfering with our clients' military mission in any way. We have the operational, safety and maintenance systems in place to make sure this is achieved," added Szar.



**Charlie Szar:** "We operate close to the edge of the flight envelope every day."

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## NEW MRO OPPORTUNITIES FOR UAE NATIONALS



The Abu Dhabi-based Advanced Military Maintenance, Repair, and Overhaul Center (AMMROC) and Turbine Services & Solutions (TS&S) – both part of Mubadala Aerospace – have signed memorandums of understanding (MoUs) with Abu Dhabi Vocational Education and Training Institute

(ADVETI) to sponsor training programmes for UAE nationals.

Two separate programmes have begun with the sponsorship of 130 young UAE nationals for this academic year 2012 – 2013, with the number increasing steadily over the next five years.

Sponsored students from secondary technical schools and vocational education development centres will have the opportunity to build skills relevant to the engineering industry, and benefit from increasing numbers of job opportunities in the growing aerospace and engineering sectors.

### Trappier steps up at Dassault Aviation

Dassault's former vice president for the Middle East and North Africa, Eric Trappier, has been appointed chairman and chief executive of Dassault Aviation.

He succeeds Charles Edelstonne, who has reached the statutory retirement age but who will remain a director of the company.

Trappier is on the board of Thales and is also president of the defence committee at ASD – the European aerospace defence and security association – and chairman of the defence group at French industry association GIFAS.

### Stanton's Gulfstream regional sales role

Gulfstream has appointed Allan Stanton as regional vice president for international sales in the Middle East.

Stanton, who is based in Dubai, reports to Trevor Esling, regional senior vice

president for Europe, the Middle East and Africa. Before joining Gulfstream, Stanton served for seven years as a regional sales director for Hawker Beechcraft in the Middle East, Africa and Turkey. He has also sold aircraft for Elite Jets Dubai and maintenance programmes for JSSI International in Africa, the Middle East and India.

### Al Musallam acts as CEO at Gulf Air

Maher Salman Jabor Al Musallam has been appointed acting CEO for Gulf Air following the resignation of Samer Majali.

Gulf Air's board made the appointment when it held its second meeting under the chairmanship of Shaikh Khalid bin Abdulla Al Khalifa, deputy prime

minister of Bahrain, to ensure the implementation of the restructuring plan designed to put the airline on a path towards long-term sustainability.

Al Musallam was the airline's deputy CEO.

### Laird-Smith on the move at Travelport

Travelport, a business services provider to the

travel industry, has appointed Stuart Laird-Smith as head of commercial strategy for the Middle East and Africa.

Before joining Travelport, Laird-Smith spent four years with South African Airways (SAA) as head of commercial and operations finance. While at SAA, he spent time working with several carriers in west and central Africa, and acted as chairman of IATA's joint travel agency and airline group in southern Africa.

In his new role, Laird-Smith (below) will be working closely with Travelport partners including travel agencies, airlines, national distribution companies and operators, to help shape the commercial strategy for the region.

## JEPPESEN LOOKS TO LONG TERM



Jeppesen has appointed Mark Long as regional director, customer service, Middle East business aviation.

Having joined Jeppesen three years ago, Long moves to business aviation from commercial aviation, bringing with him a wealth of experience of delivering the company's navigation solutions in wider-bodied aircraft.

Long will support Jeppesen's customers in the region and will be based in Dubai. "I was here 20 years ago, so I've come home, as it were," he said.



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# all in a day

PEOPLE

## Steve Varsano

*A growing number of high-net-worth individuals from the Middle East have been heading to a most unusual London store.*

**Marcelle Nethersole** speaks to the founder of *The Jet Business*.



# 1

■ What does The Jet Business do?

The Jet Business is unique. It is the only aviation showroom in the world. If you are looking to buy a business jet, you can visit The Jet Business and use our specially designed software to whittle down the right aircraft for you.

We provide a fully immersive experience throughout the aircraft transaction process, combining this up-to-date product information, global market data with extensive industry relationships and unrivalled world-class expertise.

The showroom includes a full-size mock-up of an Airbus ACJ319 cabin, which attracts a lot of passers-by.

# 2

■ How did you get the idea?

I've worked in the jet selling market for 30 years and I couldn't understand how there wasn't an aviation showroom, where clients could come and sit down and chat about their specific requirements.

It was not so long ago that 95% of business was conducted over the telephone and you never really saw the customer. This was bizarre to me even then. I wanted to put on a smart suit and speak face-to-face with a customer.

I thought how do I build something where I can get the client to come and visit me? So, six years ago, I started drawing and sketching ideas. It took four years of putting the business plan together. I then needed to find the right location.

The showroom is very state-of-the-art, so the interior design took a good ten months to build. The Jet Business finally opened January 2012.

# 3

■ Why did you choose London as its home?

It is best for me as nearly everyone who can afford a plane or to charter one and is based in the Middle East, Africa or the CIS countries or Europe, comes through London. I can really capture the eyes of the people being based here. And there is no missing our glass showroom in a prime position near Hyde Park Corner.

# 4

■ How has the market changed since you started in the industry?

I got my first job selling jets almost 30 years ago. During that time I did leave the industry briefly to work in investment banking and private equity.

When I returned to the aviation industry it had completely changed. Before I left, 80% of clients were in America, with the rest scattered between Europe and South America. But, when I returned, I discovered buyers were from Mongolia, Nigeria, Angola, Russia and China – far distant lands at the time.

Today, this extends greatly to the CIS countries and the Middle East region. A lot of my customers today are from the Middle East. I can count about nine members of royal families from three different countries in the region. It is a very big market for us.

The world is now growing with high-net-worth people who like to travel by private jet.

# 5

■ What does a typical day hold for you?

I'm up at 5:30am every morning. I come into the office for half-an-hour and check all my e-mails then I work out in the gym for an hour. I'll be back at my desk by 8am and will be in the office until 10pm every day.

There are three meetings a day here. We have meetings with potential clients, or pilots or private wealth clients. I make lots of calls a day to clients and potential ones.

Then I need to run the business generally, from marketing and negotiating contracts, to design and HR issues.

I used to travel 80% of my time but now it's more like 25%. I need to be in the office as much as possible as you never know who is going to walk in.

If you call me at 2am I will come and meet you. I live in the penthouse above the showroom and just take the lift down, so it's never a problem.



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