



ARABIAN AEROSPACE

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

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TALKING TURKEY

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all set
for Qatar
take off

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Defence goes up the agenda as uncertainty spreads...

Yet another wave of instability and uncertainty is spreading across the region with the escalating troubles in Syria, Palestine, Libya and Iraq. Rising tensions see an increase in defence focus.

In this issue we look at where that defence spending is being made. Throughout the MENA region, governments are equipping themselves with some of the latest kit, as well as re-engineered or restored older technology.

For one part of our catchment area – neighbouring some of the hottest spots – the work has been on-going in developing its own indigenous industry.

Turkey is one of the fastest growing economies in the world and its investment in defence is beginning to pay off. At July's Farnborough International Airshow, Turkish Aerospace Industries (TAI) was out in force with a flying demonstration of its ATAK helicopter as well as its latest unmanned offering – ANKA – in the static display. Contracts were also being awarded for work on the military trainer Hurkus.

In this issue we look at the impact Turkey is having on the industry, both military and civil. From airports to airlines, the country is developing a great reputation for quality.

With the Istanbul Airshow taking place in September, the region's industry will get the chance to see first-hand how much is happening. And the world is certainly taking note.

Turkish Airlines joined Qatar, Emirates and Etihad in the list of the world's top 10 airlines as judged by Skytrax. And things can only get better. As new aircraft are joining the region's 'big four' the world's top designers are getting stuck into the challenge of cabin differentiation.

Etihad has gone beyond the 'bedroom in the sky' that is all the rage in the first-class battleground by launching an entire 'Residence' for its VVIP passengers. How the others respond will be interesting, to say the least.

Safe landings.

Alan Peaford, editor-in-chief
Arabian Aerospace

COVER: Turkish Airlines CEO Temel Kotil. PICTURE: IAN BILLINGHURST.

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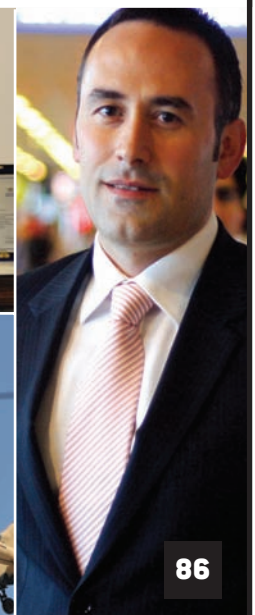
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Boeing to support RJ with rotatable part scheme

Royal Jordanian Airlines will have its B787 Dreamliners supported by Boeing's rotatable exchange programme. Under the 10-year agreement, Boeing will supply Royal Jordanian 787s with a dedicated pool of high-value, mission-critical parts, enabling the airline to greatly reduce its inventory management costs while improving component availability.

A rotatable part is designed to be repeatedly and economically restored to a fully serviceable condition.

Under the programme, Boeing establishes and maintains a pool of parts, selected to fit each customer's fleet needs. The customer contacts Boeing for quick replacement of programme-covered parts, which are shipped within a timeframe determined by the airline, based on their criticality.

"This programme offers a means of ensuring smooth introduction of our 787s while controlling costs, minimising component maintenance time and optimising fleet performance," said Imadedeen Farahid, head of engineering and maintenance for Royal Jordanian Airlines.

"That will allow us to deliver a seamless travel experience with exceptional service for our customers."

A350 completes hot weather testing

Airbus' A350 XWB flight test aircraft (MSN3) has completed hot weather testing in Al Ain. The objective of the tests is to check the behaviour of the engines and aircraft systems at temperatures reaching above 40°C.

The aircraft performed several tests in flight as well as on the ground, including heat soak tests. These involve the aircraft being left on the ground and in the sun for several hours with checks later performed on various cooling systems.

MoC is the real deal

Abu Dhabi Airports and Fujairah Airport have signed a memorandum of cooperation (MoC) to develop a master plan that will ensure the delivery of an efficient and adequate expansion programme for Fujairah International Airport.

Etihad buys 49% of Alitalia

Etihad has reached agreement with Alitalia to buy 49% of the troubled Italian flag-carrier.

Italian Infrastructure

Minister Maurizio Lupi was quoted as saying that Etihad was looking to invest \$762 million initially and was pledging a further \$940 million in the airline over the next four years. Etihad has not confirmed the figures.

Emirates reconsidering order

Emirates Airlines president Tim Clark has told the UK's *Financial Times* newspaper that the airline is reconsidering its order cancellation of 70 A350 XWB aircraft.

In June, the carrier decided to cancel the wide-bodied jets after carrying out a "fleet requirement review."

Clark revealed to the *FT* the airline plans to directly compare the A350 with Boeing's 787 Dreamliner. "At the end of this year, beginning of next year, we will re-engage with Airbus on the A350. We will also engage with Boeing on the Dreamliner."

Strata delivers first Boeing part

Mubadala subsidiary, Strata Manufacturing, has delivered its first advanced composite parts to Boeing

Commercial Airplanes.

Strata, based in Al Ain, delivered its first shipset of 777 composite ribs to Boeing fabrication facilities in the USA.

These structural components were installed in the vertical fin and horizontal stabilisers for a 777-300ER (extended range) that will be delivered to Emirates Airline this year.

Strata's confirmation as a Tier 1 supplier to Boeing meets an important goal set by the world's largest

aerospace company and Mubadala, the Abu Dhabi-based investment and development company.

Homaïd Al Shemmari, CEO of Mubadala's aerospace business said: "Mubadala is committed to increasing the UAE's capabilities in the aerospace sector, particularly in the production of advanced composites. Our long-standing successful partnership with Boeing reinforces this commitment

and we look forward to collaborating with Boeing as suppliers and partners."

Qatar delays plans for Saudi launch

Qatar Airways has delayed its plans to launch Al Maha, its subsidiary licensed for the Saudi Arabian domestic market. Qatar CEO, Akbar Al Baker, previously said the new airline would be launched mid-year using aircraft from the Qatar fleet with repainted tails featuring the Arabian oryx (Al Maha) in green rather than the Doha airline's signature maroon colours.

But, speaking at the Arabian Travel Market, he said the airline would now be using new A320s from Airbus and that they would not be delivered until later in the year.

Kaan do attitude

Turkey's Kaan Air has ordered an AW139 intermediate and one AW189 super medium helicopter in VIP configuration.

The contract expands the success of the AW139 in Turkey and marks the entrance of AgustaWestland's AW189 in the Turkish market.

Why Al Hamili is a pioneering trailblazer

Captain Aysha Al Hamili, UAE permanent representative to the ICAO council, received an international award in June for her work as a pioneering pilot and diplomat from the UAE.

The award was presented by the Daughters for Life Foundation, a Canadian-based organisation that aims to advance the education and health of girls and women in the Middle East.

Al Hamili said: "It is a special honour and I feel proud to be part of this great initiative by the Daughters for Life Foundation. This award truly motivates and encourages women from different walks of life to inspire and motivate others."

Al Hamili is the first Arab woman to receive the trailblazer luminary award.



Mubadala takes control of Piaggio

Mubadala has become the majority shareholder in Piaggio Aero, the Italian manufacturer of the Avanti II fast turboprop and the Hammerhead unmanned air system.

Mubadala bought out the shares held by India's Tata and has received formal Italian Government approval according to the "Golden Power" law. The company now holds 98.05% of the share capital of Piaggio Aero Industries. Piero Ferrari, on behalf of the Ferrari family, holds the remaining 1.95%.

Airbus wins ME VVIP order

Airbus has won an order from a Middle East customer for an Airbus ACJ320, which is being managed by Aviation Link of Jeddah, Saudi Arabia, and will be outfitted with a VVIP interior and seating for 30 passengers.

"Airbus corporate jets and their wider and taller cabins are popular in the Middle East because they allow larger business and family groups to travel in greater comfort and space than traditional business jets," said Aviation Link president and CEO Abdulaziz Al Rowaished.

Standard grows its capabilities

Dubai Aerospace (DAE) subsidiary, StandardAero, has expanded its component repair business to create a new 30,000sqft composite processing and repair centre within its MRO facility in Cincinnati, Ohio, USA. The centre aims to meet growing market demands for the development of new composite repairs for aircraft and ground-based engine hardware and aircraft structures.



Fujairah air crash is just good practice

A full-scale emergency was declared at Fujairah Airport – but it was part of a two-day exercise organised by the UAE's civil aviation authority (GCAA) and practised within the ICAO international framework governing air accident investigation processes.

Safety teams from Etihad Airways, led by Captain Adrian Aliyuddin, Airbus and the French BEA were all involved in the operation.

A team of Airbus accident investigation specialists, headed

by director for flight safety, Xavier Barriola, flew to the UAE from Toulouse, France to work closely on the project with GCAA.

Saif Al Suwaidi, GCAA director general, said: "The air accident training is an excellent and necessary exercise to further enhance the readiness of the UAE aviation operators. The GCAA is planning further training and practice exercises with international partners to test and develop the procedures. The next exercise is scheduled to happen in November with Emirates."



Turkey's air defence gets \$16.25m radar upgrade

Turkey's air defence radar system has been given a \$16.25 million technology boost following a new contract with Finmeccanica - Selex ES.

The company signed the contract with the NATO support agency NSPA to modernise three RAT 31 DL three-dimensional air defence radar systems. The radars are currently in active service in Turkey following a contract signed in 1995.

The modernisation programme will align the three systems to the latest NATO standards, further optimise operating costs and significantly improve procedural and maintenance times.

This upgrade allows the life cycle of the radar systems to be significantly extended, ensuring continuity of operations within NATO's air defence network and improving the overall availability of the systems.

Inspection passed

EgyptAir Training Center has passed an EASA inspection that recently reviewed training programmes, quality standards and the administrative structure of the engineering training instructors.

Jordan orders rocket

Jordan and the US Navy have formally signed an agreement for the first international sale of BAE Systems' advanced precision kill weapon system (APKWS) laser-guided rocket.

Engineering academy in Saudi

Bahrain-based AFAQ Institute of Aviation Technology (AFAQ) is to establish the first European EASA 147-approved aircraft engineering training academy in the Kingdom of Saudi Arabia.

The deal is in conjunction with Saudi airline Flynas and its MRO company NASTECH.

Biofuels boost

Embraer and Boeing are to create a joint biofuels research centre for the purpose of developing and maturing the knowledge and technologies that make it possible to establish a sustainable biofuels chain for aviation. The centre will be in São José dos Campos.

Qatar Executive MRO boost

Qatar Executive has received two new maintenance approvals.

The Bahrain Civil Aviation Authority has granted regulatory approval for maintenance services for Bombardier Challenger 604s and 605s and the manufacturer's Global series aircraft. Qatar Executive has also received approval from the Civil Aviation Authority of the Cayman Islands to perform line and base maintenance services on similar aircraft registered in the western Caribbean state.

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NATS trials its 'low-cost' portable ATM training concept



NATS, the UK air traffic management company, has introduced some new technology into its training facilities, which it believes will help develop a new low-cost and flexible training concept for developing markets.

Currently under trial, the concept is a mobile aerodrome-training set-up that combines NATS' own Ace simulator technology with a 360-degree easy-to-construct, pop-up dome that includes a display mechanism providing a virtual reality environment of an ATC tower.

The dome uses a number of projectors and Igloo's image-capture system to warp and blend the image on to its inner surface.

When in use, the new system could provide NATS with the flexibility to offer its training services anywhere in the world at lower costs compared to established training facilities.

"Training controllers is an expensive business," said Phil Wood, manager simulation design at NATS. "It often requires them to travel to a specific location and the technology is costly. In theory, this concept offers a more flexible, lower cost alternative that could be taken anywhere and then remotely supported with data and expertise by the NATS simulation team."

Aviation security deal

The Gulf Centre for Aviation Studies (GCAS) has signed a deal with Emirates Group Security - Centre of Aviation and Security Studies (CASS) to provide a number of joint aviation security training programmes.

The companies committed to providing niche training and development in the field of aviation security.

The courses will train aviation security personnel to plan, coordinate and implement the application of a broad range of airport security measures in accordance with national and international legislation.

NATS to train young Omani engineers

The next generation of engineering talent from Oman is to receive specialist training from UK air traffic management company, NATS.

Delegates from Muscat and Salalah airports attend a series of 16-week courses run at NATS' training college in Hampshire, England. Each will begin

with English language lessons followed by expert air traffic safety for electronics personnel (ATSEP) training.

The Omani Public Authority of Civil Aviation aims for all its engineers to achieve ATSEP compliance by 2016 as part of its modernisation and transformation programme.

Sabic's interior revolution

Sabic – the Saudi Basic Industries Corporation, headquartered in Riyadh – has launched two "revolutionary" polycarbonate sheet solutions called Lexan to be used in aircraft interiors.

The new products – clear Lexan XHR2000 and Lexan Light F6L300 – will help take out significant weight, resulting in a more fuel-efficient aircraft.

Quick certification

Textron Aviation's Cessna Citation X+, the world's fastest civil aircraft, has achieved Federal Aviation Administration (FAA) type certification. Meanwhile, Bombardier received its

certification for the Challenger 350 super midsize jet.

Flying Colours passes test

Flying Colours, the Canada-based completions, refurbishment and maintenance specialist, has received approval from the Qatar Civil Aviation Authority to carry out maintenance work on business aircraft registered in the State of Qatar.

RAK base opens

Air Arabia has begun operations from Ras Al Khaimah following the collapse of RAK Airways.

RAK becomes the airline's fourth international base, and second in the UAE.

Two new Airbus A320 aircraft are now based in RAK, following a strategic partnership signed between the airline and Ras Al Khaimah Department of Civil Aviation.

Launch routes include direct services to Jeddah, Cairo, Muscat, Islamabad, Lahore, Peshawar, Dhaka and Calicut.



Lifetime Award winner Peaford (centre) with Turbo Grune (left) and Vadim Feldzer (right).

Lifetime award for editor-in-chief Peaford

Arabian Aerospace editor-in-chief Alan Peaford was presented with a lifetime achievement award at the international aerospace media dinner at the Royal Aeronautical Society (RAeS) in London held during the Farnborough Airshow in July.

He received the award from aviation legend Lt-Col Marc "Turbo" Grune – the Luftwaffe Eurofighter squadron leader who, last year, smashed the Guinness world record for the number of flat spins carried out in a single aircraft manoeuvre with 85 complete spins – and event sponsor Dassault Aviation, represented by

communications chief, Vadim Feldzer.

The lifetime award is judged by media and industry professionals across the aerospace industry sectors and had a nominated shortlist featuring journalists and broadcasters from around the world. He was credited by the judges with "changing the face of daily newspapers" for his work over 20 years as consultant editor for Flightglobal's *Flight Daily News* and for *Arabian Aerospace Show Business*, as well as being behind the launch of *Arabian Aerospace* and sister-publication *African Aerospace*.

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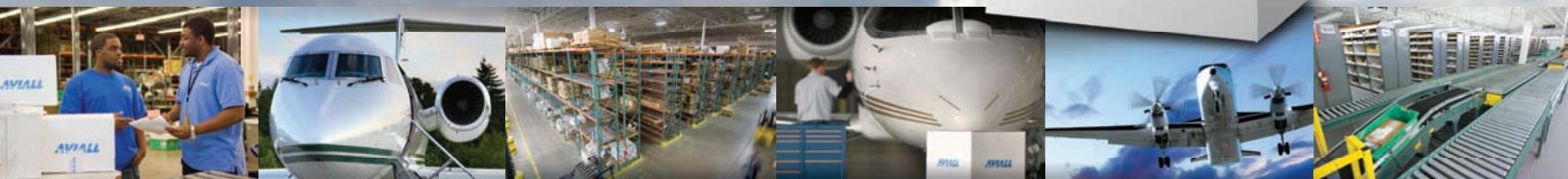
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Bangladeshi training by EgyptAir

EgyptAir Training Centre has begun supplying training to cabin crew from the Bangladeshi airline, Biman Air.

A group of training programmes was implemented for crews on emergency procedures and methods of services on type B777, as well as the training of the first crews of the aircraft maintenance engineers on type B777. The courses were held in Dhaka, Bangladesh.

EgyptAir said the cooperation could extend to include advanced aircraft structures and methods of engine run up.

Bombardier ups ME presence

Bombardier Aerospace is expanding its worldwide local response networks with the opening of a new regional support office (RSO) in Dubai.

The office – the 23rd Bombardier RSO to open in the network – will anchor regional support capabilities for Bombardier commercial aircraft customers throughout the Middle East and surrounding areas.

It is located alongside

Bombardier's business aircraft RSO and business and commercial aircraft sales teams within the Dubai Airport Free Zone.

This local presence provides customers with an additional level of support in conjunction with Bombardier's extensive parts and maintenance network of wholly-owned service centres and authorised service facilities (ASF), as well as its expert in-service engineering teams and 24/7 customer response centres.

Quantum leap for aviation finance

Quantum Investment Bank and Palma Capital, both based in the Dubai International Financial Centre, have been retained as the exclusive placement agents for the launch of a sharia-compliant aircraft-leasing fund (ALIF).

The fund is to be managed by the International Air Finance Corporation (IAFC) with Airbus and the Islamic Development Bank as anchor

investors and strategic partners. With a targeted size of \$5 billion from a combination of equity and debt, the fund will focus exclusively on Airbus aircraft.

MEBAA extends insurance deal

The Middle East and North African business aviation association (MEBAA) has extended its MIAS insurance programme beyond business aircraft operators. Insurance is now

available to MROs, pilots, ground handlers, refuellers, fuel sales agents and many more stakeholders in business aviation at competitive rates.

Etihad PALs up

Etihad Airways and Philippine Airlines (PAL) have signed a MoU, which includes codesharing, frequent flyer reciprocity, airport lounge access, air pass agreements, and cargo cooperation.

GCAS milestone

The Gulf Centre for Aviation Studies (GCAS) received a special milestone recognition award from the Airport Council International (ACI) during its annual world assembly in Seoul, South Korea.

The award was in "recognition and appreciation" of GCAS's dedication and commitment to hosting and facilitating ACI training programmes for more than 1,000 delegates over the past four years. These have covered most of ACI's portfolio of courses.

Dynamic duo take honours in Strategy awards



WINNERS: Max Kingsley-Jones (front left) next to the two main Airline Strategy Award winners Adel Ali and Temel Kotil.

Turkish Airlines chief executive Dr Temel Kotil and Adel Ali, group chief executive of Air Arabia, took the top honours at this year's Airline Strategy Awards organised by Airline Business magazine.

The executive leadership award went to Kotil for the transformation he has led at Turkish, where he has created a major force on the global airline stage.

Ali was presented with the prestigious airline business award. "Over the last decade, Ali has established Air Arabia across the Gulf with its innovative multi-hub network, bringing low-cost air travel to a new group of travellers," said chairman of the judges Max Kingsley-Jones. "In doing so, Ali has navigated many challenges and established Air Arabia as a profitable business and the region's leading low-cost carrier."

First Trent XWB engine ready for Qatar delivery



Rolls-Royce has dispatched the first production engine that will power the Airbus A350 XWB's entry into commercial service with Qatar Airways later this year.

The Trent XWB is specifically designed for the A350 XWB and is the fastest-selling civil large engine ever, with more than 1,600 already sold to 40 customers.

This latest derivative is 16% more efficient than the first-generation Trent engines that entered into service in 1995.

Qatar Airways has ordered 80 of the aircraft (43 A350-900s and 37 A350-1000s).

VIP variant of BBJ777 for ME

An undisclosed Middle Eastern customer has ordered a BBJ 777-300ER (extended range) aircraft – the VVIP version of the wide-body airliner.

“The year 2014 continues to be positive for BBJ with strong order activity,” said Captain Steve Taylor, president, Boeing Business Jets.

“Customers are showing strong interest in our wide-body VIP products and the BBJ 777-300ER is an aircraft that really provides unmatched comfort and range on long-haul flights.”

BBJ delivers the VIP aircraft without customised interiors. A completion centre of the customer’s choosing installs the jet’s VIP interior. The centre has not yet been named for this B777 variant. Other Middle Eastern triple sevens have been completed by Swiss-based AMAC.

A380 regional role

Emirates has launched the world’s shortest scheduled A380 flight with a routing from Dubai to Kuwait.

The arrival of the upgraded EK857 service, which touched down at Kuwait International Airport for the first time on July 16, marks 25 years of Emirates’ flights to the country.

Egypt becomes top C295 operator

Egypt has become the largest customer for the tactical airlifter, the Airbus C295. It has ordered eight more of the type, taking its total fleet to 20.

The new batch of aircraft will be delivered to the Egyptian Air Force by Airbus Defence and Space beginning next year and will follow the 12 aircraft previously ordered, of

UAE admitted into SAFA programme



The UAE has become the first non-European state to be granted full membership of the European Union’s safety assessment of foreign aircraft programme (SAFA).

HE Saif Mohammed Al Suwaidi, director general of the General Civil Aviation Authority (GCAA) said: “The GCAA, in cooperation with its strategic partners and in particular EASA, has built an efficient and safe air transport system to support the economic growth of the UAE and improve the quality of life and safety of UAE citizens.”

Ismail Al Blooshi, assistant director general, aviation safety affairs, said the GCAA was determined to continue to be a key player and active partner of EU and EASA with the irrevocable objective of improving and promoting safety in the UAE. He confirmed that the adoption by the UAE of the EU SAFA programme would facilitate the ability of the UAE to address some of its future aviation challenges.

which six are already in service.

The contract also includes a service support package for spares, training, and maintenance of the fleet.

Growing Empire in Africa

Dubai-based Empire Aviation Group (EAG) has added a Challenger 605 to its African-based fleet, which now consists of six business jets. The Bombardier aircraft will be based in Lagos, Nigeria and will be the first of EAG’s managed aircraft in Africa to be offered to the charter market.

Fair weather deal for Rockwell Collins

Air Algérie, the national airline of Algeria, has selected a comprehensive Rockwell Collins avionics suite for 13 new aircraft, including three Airbus A330s and 10 Boeing 737s.

Rockwell Collins’ new MultiScan ThreatTrack weather radar provides unprecedented capabilities for assessing lightning, hail and turbulence, and will be featured on Air Algérie’s Airbus A330 aircraft.



Region’s airlines dominate world class

Qatar Airways was named as the Middle East’s top airline and second best in the world behind Cathay Pacific in the latest Skytrax awards.

The airline also won world’s best business-class and best business-class lounge.

No fewer than four of the region’s airlines were in the top 10. Emirates was voted fourth, just behind Singapore Airlines. Turkish Airlines was fifth, and also took the award as Europe’s best airline for the second year. Emirates was also voted top for the world’s best provider of in-flight entertainment.

Etihad – despite its public spat with Skytrax and its demand to be removed from the Skytrax listings – was voted ninth best airline.

Qatar chief Akbar Al Baker is pictured collecting his award.

AMAC gets Dassault approval

The AMAC Aerospace facility at Ataturk International Airport, Istanbul has become a Dassault-appointed authorised service centre (ASC).

This latest approval bolsters AMAC Turkey’s maintenance service capabilities, which currently includes EASA Part 145 certification on aircraft under 5700kg, including the Pilatus PC-12 NG. It also underlined the company’s plans to expand its maintenance offering to service a wide variety of aircraft types in the Turkish region.

Phenomenal descent

Embraer’s Phenom 300 has received EASA certification for steep-approach operation, which enables increased descent angles of up to 5.5 degrees to allow access to restricted airports, such as London City.

Abu Dhabi socialises

Abu Dhabi Airports has launched its official Facebook page, further extending its presence across mainstream social media channels.

Jet rolls out refurb

Jet Aviation’s global refurbishment and corporate rebranding programme continues to be rolled out in EMEA and Asia. The company is currently rebranding its FBOs in Jeddah and at Dubai International Airport.

Oman service deal

Oman Air has signed a new deal with JorAMCo to provide the Omani national carrier with base maintenance services for two Embraer 175 and three Airbus A330 aircraft in its fleet.

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CEOs and senior management of some 240 airlines travelled to Qatari capital Doha for the International Air Transport Association (IATA) annual meeting. Alan Dron reports.

Stage is set to tap into Middle East potential

The first AGM to be held in the Gulf, the Doha gathering was regarded by many as an acknowledgement of how the airline world's centre of gravity has tilted towards the region over the past decade.

Over that period, the share of global traffic accounted for by Middle East airlines has more than doubled, from 4% to 9%, with Qatar Airways, Emirates Airline and Etihad Airways responsible for a large proportion of that growth.

Appropriately, given this seismic shift, the CEO of Qatar Airways, Akbar Al Baker, presided over the formal sessions.

Highlights of the AGM included:

- IATA director-general and CEO, Tony Tyler, noting that, despite airlines carrying 3.3 billion passengers and 52 million tonnes of freight this year, enormous potential remained to be tapped if the aviation industry adopted a 'global mind-set';

- Following the disappearance of Malaysian Airlines flight MH370, IATA's aircraft tracking task force expecting to be able to deliver its options for monitoring airliners by September;
- A unanimously passed resolution calling on governments and the industry to cooperate on developing a balanced package of measures to deter what has become the significant problem of unruly passengers;

- And progress reported on the new distribution capability (NDC), which aims to modernise the way that airlines' products are presented through travel agents.

In his 'state of the industry' speech, Tyler noted the economic effects of the airline industry, creating some 58 million jobs globally and being responsible for \$2.4 trillion of economic activity annually.

Despite the importance to the global economy, airlines were still operating on wafer-thin profit margins, he said. While their global net profits of \$18 billion this year sounded impressive, their profit margin was a slender 2.5%, with carriers making on average less than \$6 income from each passenger.

This had improved from 1.8% in 2013 and just 0.9% in 2012. However, there remained "very little buffer to protect profitability in the face of

Qatar leads new data pilot programme

Qatar Airways is to join Aeroflot, Aer Lingus and JR Technologies (JRT) in a pilot scheme to test 'new distribution capability' schemes for IATA.

NDC is a travel industry-supported programme launched by IATA for the development and market adoption of a new, XML-based data transmission standard. It should enable the travel industry to transform the way air products are retailed to corporations, leisure and business travellers, by addressing the industry's current distribution limitations: product differentiation and time-to-market, access to full and rich air content and finally, transparent shopping experience.

"We are delighted to be the first Middle East airline to launch an NDC pilot," said Qatar Airways CEO, Akbar Al Baker. "We believe that, given our position as a leading full-service carrier, Qatar Airways will be able to benefit significantly from NDC features as this will enable us to better showcase the value of our five-star product offering to our passengers."

On May 21 2014, the United States Department of Transportation (DOT) tentatively approved resolution 787, which is the foundation document for NDC. In its decision, DOT said: "The use of common technical standards could facilitate the marketplace development of distribution practices and channels that would make it easier for consumers to compare competing carriers' fares and ancillary products across multiple distribution channels, make purchasing more convenient, allow carriers to customise service and amenity offers, and increase transparency, efficiency, and competition."

an increased tax, a rise in the price of fuel, a new charge, or a change in the economic outlook".

On safety, he said that in 2013 there were 29 million flights with western-built jet aircraft and only 12 hull losses, and that the IATA operational safety audit (IOSA) was a major factor in this achievement. Noting that Qatar Airways had been the first to join the IOSA registry, 392 airlines had now followed it and their safety performance was significantly better than the average for non-IOSA registered airlines.

To further improve this performance,

'enhanced-IOSA' would be a requirement for all of the association's members from 2015. This would change the oversight of an airline's safety performance from a 'snapshot' at one particular moment to constant monitoring.

However, the disappearance of flight MH370 was a reminder that the industry could never rest on its laurels.

"The loss of MH370 points us to an immediate need," said Tyler. "A large commercial airliner going missing without a trace for so long is unprecedented in modern aviation. And it must not happen again. IATA, ICAO and experts from around the world are working together to agree on the best options to improve global tracking capabilities. In September, a draft of recommendations will be given to ICAO.

Safety improvements

"Data will guide this and other safety improvements. We are moving forward with the global aviation data management project (GADM). This will create the world's largest resource of operational information. Fuelled by data collected from partners including ICAO, the FAA and EASA, it is perfectly consistent with the global mind-set needed for aviation's second century."

Another theme heard throughout the meeting was airlines' relationships with governments. "We need [governments] to understand the important economic catalyst that aviation can be," said Tyler.

"Airlines are highly taxed and subject to onerous regulation. One element of the success of the Gulf carriers is that governments in this region have avoided this. They understand that the real value of aviation is the global connectivity it provides and the growth and development it stimulates, not the tax receipts that can be extracted from it."

As AGM chairman, Al Baker was in ebullient mood, wielding the gavel with brio and dealing with a swathe of questions on both industry and local matters in a closing press conference. He clearly felt happier with IATA than some years ago, when he accused it of being run by a cabal of legacy carriers that were unresponsive to the needs of their Middle East counterparts.

His adoption as a board member has given the

70th IATA ANNUAL GENERAL MEETING

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Qatar CEO Akbar Al Baker takes centre stage as airline leaders face a grilling on the issues of the day at the Doha conference.



region's airlines a voice at the highest echelons of the organisation and his good relations with Tyler – a natural diplomat with a striking contrast in style to the more dramatic character of his predecessor, Giovanni Bisignani – were readily apparent.

Al Baker accepted that airspace congestion in the Gulf was a major problem – “We need more space to ensure our expansion” – and talks were under way with the region's regulators to create a more efficient air traffic management system.

A wide-ranging panel discussion that included International Airlines Group CEO Willie Walsh and other senior executives, such as Dave Barger of Jet Blue and Ivan Chu of Cathay Pacific, looked at the question of tracking airliners more closely in the aftermath of the MH370 tragedy. It was noted that the technology was already available; all said that cost would not be a stumbling block if it was decided by the industry and regulators that all airliners should carry new equipment.

The vexed question of state aid to carriers raised its head again immediately before the AGM got

under way, with reports that Etihad had access to an interest-free \$5 billion loan from Abu Dhabi's ruling family – a claim contested by the airline.

During the panel discussion, Al Baker noted that European airlines – notably Alitalia – were receiving what was, in effect, state aid through a government-brokered deal that saw the struggling Italian airline receive a €500 million (\$675 million) cash infusion late last year. This, said Al Baker, was a clear example of double standards by European airlines, which was “shameful”.

Inevitable questions

At the closing press conference he batted away the inevitable questions about airlines in which Qatar Airways was rumoured to be interested in taking a stake. He had no intention of investing in US airlines, nor Italy's Meridiana Fly, he said.

However, he was less dismissive when asked by a journalist if he planned to invest in India's Indigo low-cost carrier. “I was hoping to avoid that question,” he smiled. “We're very keen to

invest in Indigo if it's available. It's the most efficient, effective and progressively-run Indian carrier and we always like to associate ourselves with success.”

He described India as “a sleeping economic giant” with great opportunities, but previous Indian governments had not taken advantage of these. Most importantly, he said, New Delhi should rein in private airport operators from levying heavy charges on airlines that wanted to use their facilities: “It's untenable for airlines that have very low margins to continue to pay very high airport charges.”

Al Baker poured cold water on suggestions that Qatar should follow Abu Dhabi and apply to have a US immigration and customs pre-clearance facility at Doha's new Hamad International Airport. Passport clearance, he said, was not part of Qatar Airways' business and he was not prepared to take the risk of his aircraft being delayed by customs inspections of passengers' luggage.



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Missing MH370 prompts IATA tracking pledge

The strange disappearance of Malaysian Airlines flight MH370 was never far from the thoughts of industry leaders at this year's IATA AGM in Doha, with participants pledging to prevent any recurrence.
Alan Dron reports.

The ghostly wingspan of Malaysian Airlines' missing Boeing 777-200ER cast a long shadow over proceedings at the annual meeting of the world's airline industry.

Almost three months after the aircraft and its 239 passengers and crew disappeared on a routine Kuala Lumpur-Beijing flight, a palpable sense of shock and bewilderment could still be felt in the corridors and auditoria of Doha's Ritz-Carlton Hotel.

Senior executives were as baffled as everyone else as to how a modern airliner could simply vanish. Also detectable in the atmosphere, however, was a determination that the matter would not be allowed to rest until the aircraft's wreckage was found and answers determined as to what happened in the early hours of March 8.

In his opening speech to IATA members, director-general and CEO Tony Tyler referred to the "unprecedented loss" of MH370. Such an event "must never happen again", he said.

IATA's newly formed aircraft tracking task force (ATTF), he added, would focus on tracking, not constant data-streaming or on finding an aircraft after an incident. (As the media noted, the locator beacon on flight recorders typically runs out of battery power after a month and there have been calls in some quarters to greatly extend the battery life.)

Before the AGM, IATA had already set up the ATTF to develop recommendations to improve the global tracking of flights.

The ATTF includes representatives from every part of the airline industry, an indication of how seriously the disappearance of MH370 is regarded.

Apart from the main umbrella bodies of IATA and the International Civil Aviation Organization (ICAO),

representing the airliner industry and states respectively, several regional airline bodies plus the Civil Air Navigation Services Organization (CANSO), the Flight Safety Foundation, International Federation of Air Line Pilots Associations and the four major manufacturers – Boeing, Airbus, Bombardier and Embraer – are all represented.

"Aviation stakeholders are united in their desire to ensure that we never face another situation where an aircraft simply disappears," said Kevin Hiatt, IATA senior vice-president, safety and flight operations. "While states work through ICAO to develop and implement performance-based global standards, the industry is committed to moving forward with recommendations that airlines can implement now."

The ATTF confirmed at Doha that it expects to be in a position to deliver draft options to the ICAO in September.

This will be followed by a presentation to the airline industry before the end of the year.

Separately, but in conjunction with IATA, ICAO held a 'special multi-disciplinary meeting on global flight tracking' in May. One outcome was a consensus among member states and the international air transport industry on the near-term priority to track airline flights.

International standards

ICAO will also begin considering performance-based international standards, on a priority basis, to ensure broader adoption of airline flight tracking across the aviation system.

ICAO and IATA are working together to conduct a survey of vendors to identify options for improved tracking of airliners. By September the ATTF will have developed a set of performance-based recommendations through an assessment of available products and services used for tracking commercial aircraft against specific criteria, including factors such as performance parameters, coverage, security, and cost.

Additionally, the ATTF will define a minimum set of performance requirements that any system should achieve.

The IATA AGM heard from several speakers that equipment to more closely track airliners in flight was ready for fitting immediately. "Technology for tracking is available today. Let's implement it," said Dave Barger, CEO of US carrier JetBlue in a panel discussion on the industry.

Willie Walsh, CEO of International Airlines Group, parent company of British Airways and Iberia, cautioned against raising the public's expectation too high by promising that "we will do such-and-such in every aircraft, today. IATA is very sensibly saying, 'Let's see what's available today.' Let's get a single, simple global solution."

Several CEOs stressed that whatever solution was eventually agreed, the costs involved would not be an obstacle.

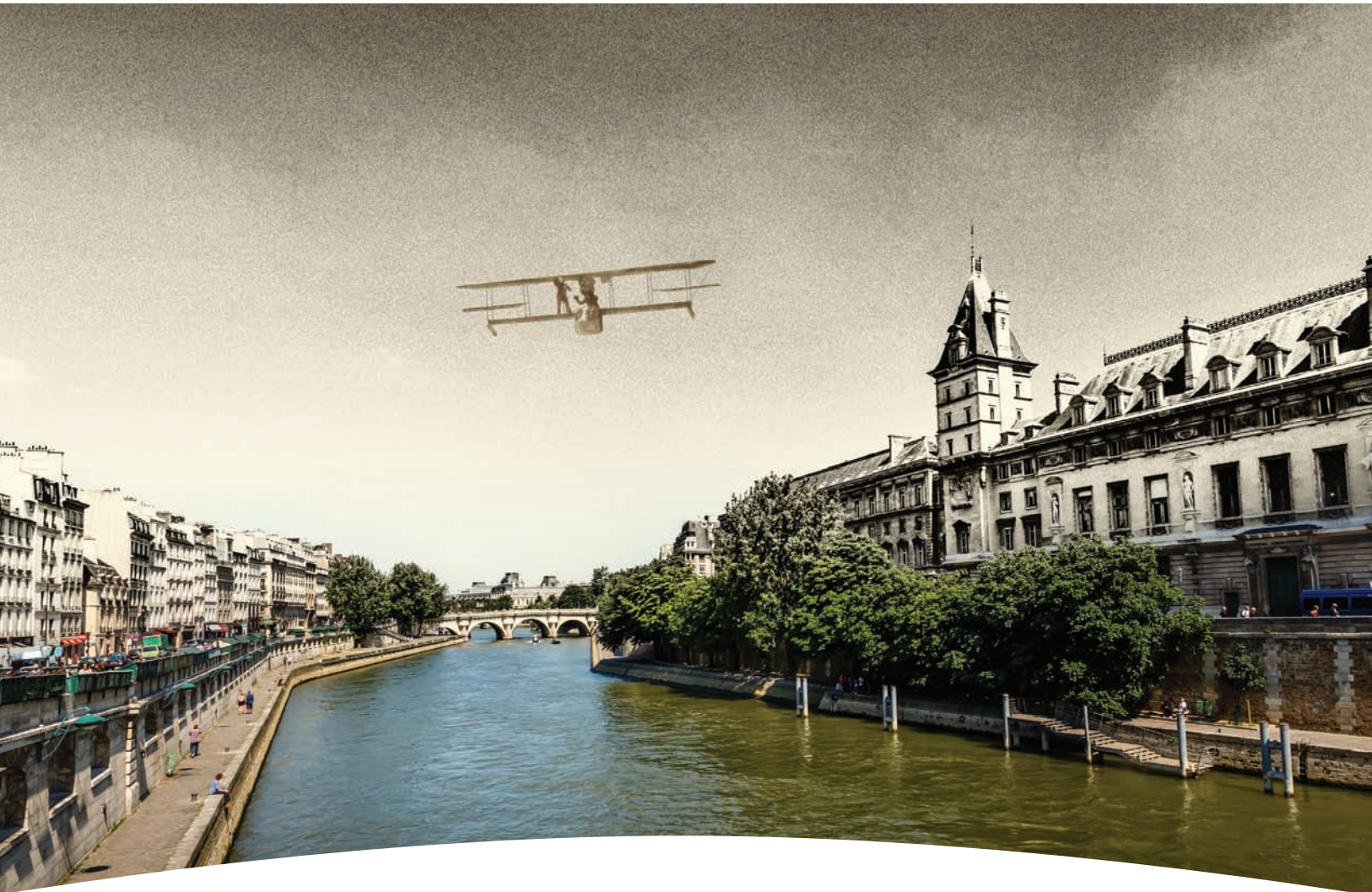
Qatar Airways' CEO, Akbar Al Baker, summed up the mood of the AGM when he said: "There is huge determination in the industry to stop this happening again."

"Technology for tracking is available today. Let's implement it."

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If all goes according to plan – and those plans include satisfying the demands of its famously fastidious CEO, Akbar Al Baker, in areas such as cabin amenities – the first Airbus A350-900 should be arriving in Doha for service with Qatar Airways before the start of December. Alan Dron reports.

FLEET FANTASTIC

The advanced new twin-aisle airliner is due to make up a major part of Qatar Airways' fleet for the next decade and is another example of the new balance of power in the airline industry, where Middle East airlines hold huge sway with manufacturers.

Few carriers have the influence and financial reserves to define the specifications of a new airliner and then to buy it in huge quantities, but the Gulf 'majors' fall into that category.

In the case of the A350, that means Qatar Airways buying 80 examples of the new twinjet – understood to be 43 A350-900s and 37 larger-1000s, although the airline declines to confirm that breakdown.

The new aircraft will be just part of a major upgrade in Qatar Airways' already modern fleet; having been an early recipient of the Boeing 787 in late 2012, it also put its first Airbus A380 (from an order for 13) into service over the summer.

The A350 featured heavily in this year's innovation days briefing session by Airbus on developments in its various programmes, but not always in the way in which the airframer would have liked.

The two-day event started with a joint statement by the manufacturer and Emirates that the Dubai-

based airline had cancelled its order for 70 A350s.

The deal for 50 A350-900s and 20 -1000 versions had been placed as long ago as 2007. The decision to cancel them was taken as a result of a fleet requirements review by the airline.

It was, as Airbus's chief operating officer, customers, John Leahy put it with commendable understatement: "Not the world's greatest news."

Sir Tim Clark, Emirates' president, "does change his mind from time to time", said Leahy, who added that while the decision was a blow commercially, it would have no impact financially.

Advanced twinjet

This was because Airbus, even after the cancellation, had 742 orders for the advanced twinjet on its books and because deliveries for the scrapped Emirates order were not due to begin until 2019, plenty of time in which to fill the hole in the production schedule.

Indeed, said Leahy, within two hours of the announcement, he had received phone calls from other airlines interested in taking Emirates' slots on the final assembly line.

It also seems that opportunities for the A350 to fly in Emirates' colours are not dead. Within weeks of the cancellation, Sir Tim announced that his

airline would be looking again at its order book late this year or early in 2015 and that both the Boeing 787-9 and the A350-900 were in the frame for an order of 50-70 aircraft.

He has declined to say why Emirates pulled out of the initial A350 deal, but told London's *Financial Times* that Emirates was seeking a mature aircraft. "When the aircraft [the A350 and 787] are mature, they will be better defined in terms of performance fuel burn," he told the newspaper.

In his innovation days presentation, Leahy said he did not believe that the current huge order backlogs of airliners – Airbus had almost 5,500 on its books in June – represented a 'bubble' that could explode or vanish.

"We don't see and are not forecasting any big peaks and troughs," he said. "Every 15 years air traffic doubles in size. There's a correlation between gross domestic product (GDP) and revenue passenger kilometres. If you don't have a collapse in GDP, you're not going to have a collapse in aviation, because GDP and aviation are becoming so entwined."

Mentioning the growing middle classes in countries such as India and China as one reason for his optimism in continuing growth, Leahy said he believed China would become a major competitor

The third A350 flight test aircraft completed hot weather trials in Al Ain, UAE, earlier this year.

PICTURE: AIRBUS, MASTER FILMS, H. GOUSSE



in the airline business “but it will take 20-25 years, like it did for us”.

China has struggled to certificate COMAC’s ARJ-21 regional jetliner, due to lack of familiarity with the complex procedures necessary to win airworthiness approval. Its next jet, the COMAC C-919, is likely to have a smoother passage as a result of this experience.

The predicted steady increase in the number of air travellers means that many airlines are looking for larger aircraft, rather than buying larger numbers of smaller models. The most obvious example of this is the A380 ultra-large airliner.

Questioned by journalists as to whether Airbus was yet looking at a stretched A380, Tom Williams, executive vice-president, programmes, said he felt there was “no particular rush” for such a development. “There are some customers, like Tim Clark, who has said that if there was a stretch, he would buy 50 tomorrow.” While it would be unwise to ignore Airbus’s biggest customer for the type, said Williams, there was some caution about optimising the aircraft for just one airline.

“There are quite a number of things that can be done first [to the existing aircraft] to optimise layout,” he said.

Airbus, for example, is looking at an 11-abreast

In other news...

- The unexpected defection of Air Canada to Boeing for its new single-aisle fleet was “probably due to the fact that we weren’t paying attention”, admitted sales supremo John Leahy.
- Airlines are increasingly seeking to cram more seats into the A380 ultra-large aircraft. Some airlines now admitted they initially “went a bit wild” on overly spacious cabin configurations and Airbus was now able to add around 50 more seats to new aircraft, said Leahy.
- Few new clients for the A380 are expected: “We’re talking to a few brand-new customers, but the majority of sales will come from airlines that already have it,” admitted Dr Kiran Rao, executive-vice president, strategy and marketing.

economy cabin in a 3-5-3 configuration. This is technically possible through raising the cabin floor by around two inches (50mm) to take advantage of the widest part of the fuselage.

Emirates has expressed interest in this configuration, although Sir Tim, while eager to increase capacity, has acknowledged the problem of the highly unpopular middle seat in the bank of five.

A similarly cautious reply came from Leahy

when asked about the possibility of an ‘A380neo’. At present there were no plans to re-engine the A380, he said, “but when your largest customer is encouraging you to do it, of course we’ll study it”.

On the single-aisle fleet, the trend of packing more seats into existing designs is rapidly advancing. Manufacturers including Airbus say new designs of slim seats allow more rows to be slotted into existing fuselages without compromising on passenger comfort.

On the A321neo, the largest member of Airbus’s refreshed single-aisle family, for example, a combination of the new seats, new designs of cabin ‘monuments’, such as galleys and re-arranging or suppressing exits, means that capacity can be increased from 220 to 240 in a high-density, single-class configuration. The regulatory authorities have agreed to the removal of some doors because the existing Type C doors fore and aft are larger on the A320 family than legally required, allowing faster evacuation.

In the 240-seat configuration, pitch would be just 28 inches. Airbus claims that its standard 18-inch wide seat (as opposed to Boeing’s 17 inches) means that it can cut up to 1.5 inches from pitch without changing passenger

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perception of the amount of available space, because the wider seat means they do not have to sit in a rigidly fore-and-aft posture. Airbus also says the sculpted backs of the new design “steal back” some space, especially with the pocket for magazines or laptops now moved to the top of the seat.

(Having sampled both seats in an Airbus mock-up at the event, there seems little real difference at waist level, although there is a slight but definite improvement around the shoulders.)

One reason for the emphasis on increasing the A321’s capacity is that Airbus sees it as a contender for the Boeing 757 replacement market. The 1970s-vintage Boeing airliner, long out of production, occupies a particular niche for relatively long routes that can be served by single-aisle aircraft, such as between the US west coast and Hawaii, or from London to the US east coast.

The trend towards airlines seeking larger aircraft is particularly noticeable in the A320 family. The A321 is racking up an increasing percentage of new orders, with 45% of the order backlog for the neo family being for the largest member.

Advanced twinjet

Although Airbus was careful to say that it had not reached a decision on whether to proceed with a re-engined A330neo, there was an unspoken feeling over the two days that the company was edging towards a positive decision.

Sure enough, on the first day of the Farnborough International Airshow, less than five weeks later, Airbus announced that the A330neo, with new Rolls-Royce Trent 7000 engines as the exclusive powerplant, would go ahead.

There are several reasons for Airbus proceeding with the project. Firstly, the A330 remains highly popular. The approaching A350 has not cannibalised its sales; indeed, orders for the A330 have actually doubled since the new aircraft was announced, said Leahy.

He accepted there were pluses and minuses when the re-engined aircraft is compared to the Boeing 787-9. Passenger capacity is about the same, as is fuel burn; the 787-9 has around 1000nm more range, but the A330neo will have a much lower capital cost.

The new engines would add around five tonnes to the aircraft’s weight (losing the aircraft’s weight advantage over the 787) and maintenance costs would be higher than the current version, but fuel burn would be less, said Dr Kiran Rao, executive vice president, strategy and marketing. An A330neo would have only a few aerodynamic clean-ups as the wing design “is already highly-optimised”. The cabin, too, was still very fresh and few changes would be expected.

In the short term, the proposed A330 Regional variant, designed initially for the Chinese market and typically aimed at the two-hour, 1000nm market segment with de-rated 68,000lb thrust Trent 700s and high-density seating, was regarded as a strong prospect, said Rao: “This is going to be the aircraft for the next five to 10 years.”



Looking (and sounding) good at 31,000ft

Alan Dron reports from on board the new Airbus A350

It was at 31,000ft over the Pyrenees that the Armée de l’Air came calling.

The Dassault Rafale took up station around 1km off the port wing of Airbus’s A350-900 before side-slipping under the prototype airliner to replicate its position off the starboard wingtip, then peeled off and disappeared.

Although the A350 is still a new shape in the air, Rafale pilots are used to seeing the flight test aircraft over southwest France and regularly use them to practice interceptions.

For most of the 150-plus journalists on board A350 MSN 002, however, it was their first experience of the aircraft that is scheduled to enter airline service in December with Qatar Airways.

MSN 002 has been used over the summer for the ‘early long flights’ programme, in which Airbus personnel played the part of passengers to give feedback on the aircraft from the consumer’s perspective.

Like the Airbus personnel, the journalists attending Airbus’s annual innovation days briefing sessions found a two-class aircraft, with 40 seats arranged in a 1-2-1 configuration in the business cabin and a further 160 in a 3-3-3 arrangement in economy.

A reminder that this was still a test aircraft, however, came with the presence of a bank of computer screens and engineers’ seats at the front of the economy cabin and bundles of cabling, with the traditional orange wires, denoting test equipment running the length of the cabin.

The three specialist engineers on board – the journalists’ flight was still an opportunity for Airbus to continue its test flight programme – split their time

between watching their instruments and answering a barrage of questions from reporters.

The A350’s cabin is evolutionary rather than revolutionary.

While it contains novelties, such as lighting that can run through a spectrum of shades to set a mood, it does not have the ‘gee whiz’ factor engendered by the Boeing 787 when it appeared a few years ago. However, it feels airy and spacious.

Seating is comfortable; Airbus’s much-vaunted 18-inch seats (as opposed to Boeing’s 17-inch models) do help in terms of personal space, particularly around the shoulder area. And the seatbacks in the economy cabin contain video screens whose size would have confined them to premium cabins just a few years ago.

One development that will be welcomed by passengers is the disappearance of the large AVOD boxes from beneath seats that badly restrict available legroom for those travellers unfortunate enough to encounter them. In the A350, all the boxes and their associated cabling have been banished beneath the cabin floor.

The aircraft is remarkably quiet. Climbing out of Toulouse-Blagnac at an (admittedly light) 192 tonnes, it was possible to talk to one’s neighbour without raising one’s voice. The only jarring note was the remarkably noisy flap retraction sequence – caused, apparently, by the same high-pressure (5000lbs per square inch) system used on the A380.

Wi-Fi is fitted as standard but was not switched on during the hour-long flight.

All in all, the aircraft interior looked and felt good. It is likely to be popular with passengers when it begins commercial service in December.

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Alan Dron reports on how Royal Jordanian is battling with the region's geo-political problems, as well as increasingly strong competition, as it seeks to modernise and secure its position.

Royal Jordanian's Airbus A340-200s will soon be departing as the more economical Boeing 787-8s arrive.



A RIGHT ROYAL SQUEEZE

Can Jordanian turn its back on regional problems?

Medium-sized flag-carriers in the Middle East increasingly face a pressure from both ends of the airline spectrum. On one hand they are being squeezed by the rapidly growing Gulf giants desperate for passengers to fill their fast-expanding fleets and funnel through their hubs. On the other, the newer phenomenon of low-cost carriers (LCCs) has overturned early predictions that local residents would not accept the idea of cheap fares, somehow seeing the airlines offering them as inferior to full-service carriers.

On top of this, the continued instability in several nations in the region is causing major problems for many operators – none more so than Royal Jordanian, based next door to strife-racked Syria.

The painful, long-running civil war in its neighbour has created considerable operational difficulties for the Hashemite Kingdom's national airline. The need to avoid potentially dangerous Syrian airspace – less than 100km from its Amman hub – has led to longer flight times compared to other airlines, which has deterred passengers. Diverting around Syrian airspace has also led to higher costs. Additionally, the airline has also been forced to suspend its four daily flights to Syria for the past two years.

Having turned around a substantial JD57.9 million (\$81.6 million) loss in 2011 into a modest JD1.1 million in 2012, the airline slipped into the red again in 2013 with a loss of JD38.7 million.

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With the conflict in Syria showing no signs of ending soon, Royal Jordanian is, according to chairman and interim CEO Nasser Lozi, talking to the Jordanian Government about possible financial compensation to offset the higher costs incurred in coping with the conflict and to shore up its balance sheet. No decision on any compensation had been reached at the time of writing.

The problems in the region have also had a chilling effect on tourism, a useful money-spinner for Jordan and its main airline. Leisure traffic from Europe and the US is down, said Lozi. "People don't understand the region," he added. Many potential tourists tended to think of the Levant and north Africa as one undivided area affected by violence, whereas Jordan itself has been largely unaffected by the troubles in Syria and Iraq.

Difficult to plan

The continuing problems in the region make it very difficult for the airline to plan, "because we don't know how fast markets will come back, or if there will be another round of instability", said Lozi.

Currently, Royal Jordanian has limited growth plans for its fleet "because there's a danger you will finish up with a lot of spare aircraft". The airline's Airbus A320 fleet serves most of the areas experiencing problems. Fortunately, with many A320s available for lease, this makes it relatively easy to increase or reduce the size of the fleet quickly to take account of fluctuating market conditions.

In recent times the company has slimmed down its fleet: two A321s have left already and, by the end of the year, an A330 and an Embraer E-Jet will have come to the end of their leases and also have departed. The company has also cancelled some routes, to destinations such as Milan and Colombo, which were not performing.

The other major problem facing the Amman-based carrier is the rapidly increasing level of competition from Gulf carriers, said Lozi. Most

of this competition is on routes heading towards Asia.

"The Gulf carriers are affecting us massively to the east. There's just so much capacity to the Indian sub-continent and the Far East."

The policy of several airlines, he said, was simply to fill up their increasingly large aircraft and this was causing yield problems. "It's very hard to compete with wider and wider-bodied aircraft. The economy of scale for us just isn't there."

Another increasingly significant competitor, said chief commercial and strategy officer Richard Nuttall, was fast-expanding Turkish Airlines. And, because of Turkey's proximity to Jordan: "We have to watch them very closely."

Despite these problems, however, he added: "It's not a question of radically changing our strategy, it's a question of right-sizing it to the realities of the last three years, which takes a bit of time. We're doing a bit more flying in the region and a bit less to Asia."

Royal Jordanian is currently less troubled by low-cost carriers (LCCs), added Nuttall, although he admitted: "I think the effect will be much bigger if the region settles down. While the Arab Spring has hurt us, it's limited the impact of LCCs."

Economies of scale

Royal Jordanian has looked at establishing its own LCC to help fend off competitors such as Air Arabia and FlyDubai. But, said Nuttall: "The volumes and the destinations aren't really there to allow us to get the economies of scale. I think we're much better off learning the lessons and adapting the way we fly within the region."

Looking to the immediate future, Nuttall believes that, despite the geopolitical hotspots and some one-off costs incurred by the arrival of the new batch of Boeing 787s, Royal Jordanian's underlying results will be "a bit better" this year.

The first of the eagerly awaited Boeing 787s was scheduled to arrive in August, with four more due to be delivered by the end of this year. Royal Jordanian has seven 787-8s on order from

Boeing, plus a further four to come from lessors. All should be delivered by 2017.

Like most airlines that ordered the advanced twin-aisle type, the aircraft are arriving around three years late, but the twinjet's introduction will make a big difference to the airline's bottom line, believes Nuttall. They will not be used to open up new routes – at least, not initially – but rather to enhance Royal Jordanian's performance on existing networks.

Their arrival will see the removal from the fleet of four A340-200s plus an A330-300. The departure of the four-engined A340s will create substantial fuel savings. This is important as around 45% of Royal Jordanian's operational costs are fuel.

Long-haul services

"The 787 is the right-sized aircraft for us. That 250-280-seat configuration is the ideal size for us," said Nuttall. With no long-range aircraft in service in Syria or Iraq and neighbouring MEA in Beirut having a small fleet of just four A330s for long-haul services, Nuttall foresees Royal Jordanian becoming the airline of choice for local travellers who want to fly to the US or Asian destinations, such as Thailand, from their region. He also expects the 787 'passenger experience' to attract customers.

Royal Jordanian intends to keep its A320s for the immediate future at least, but it has been in discussions with several manufacturers over a possible replacement for the single-aisle type.

The airline has called in consultants Seabury and Nuttall confirmed: "Our fleet plan depends on what comes out of that study."

Royal Jordanian is trying to reduce costs and to increase its ancillary revenues. "We are reviewing our baggage policy, not to reduce [what passengers can take on board] but to make the process simpler," said Nuttall.

"We're working to implement an upgrade system that gives people the ability to bid for an upgrade to business class. We're also working on the re-introduction of duty-free goods to the cabin."



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Bahraini flag-carrier starting to bridge the gulf

Good things come to those who wait and, after an inexplicable delay of three months, Gulf Air's 2013 financial results were finally published in May. Martin Rivers reports.

Needless to say, the Bahraini flag-carrier is still haemorrhaging money. It sunk another 95.4 million dinar (\$253 million) into the red this time – but, having been almost consistently loss-making for the past two decades, that should come as a surprise to no-one.

More importantly, following years of civil unrest and political interference at home, the state-owned airline can at last point to tangible progress in its turnaround plan.

Gulf Air's operating loss marked a 48% improvement on the previous year's result, propelled by an overall 28% reduction in costs. Those savings came from shrinking the fleet from 38 to 27 aircraft; cutting the workforce from 3,800 to 2,750 people; and re-negotiating some 2,000 contracts with suppliers.

Several questions remain unanswered – not least the status of its fleet orders and its long-standing bid to join an alliance – but acting chief executive Maher Salman Al Musallam is taking things one step at a time.

Commercial sustainability

"The results are positive, putting Gulf Air firmly on-track towards achieving long-term commercial sustainability, which is our ultimate goal," he said.

"To date we have been successful, but there remains much more to be done. Our efforts are directed at ultimately becoming an economically sustainable carrier that continues to provide valuable and strategic business links in support of the kingdom's wider economic development."

It is that vital economic role that ultimately saved the airline. Back in 2012, Bahrain's parliament blocked a 664 million dinar (\$1,760m) bailout amid calls for the flag-carrier to be dissolved.

Months of tense negotiation followed, with a smaller funding package eventually being snuck in by Royal decree. Although parliamentarians



Maher Salman Al Musallam: "Bahrain has seen a significant turnaround since 2011."

threatened to revoke the move, Gulf Air had secured time to press on with its recovery plan. Fortunately for the airline, this coincided with a simmering down of the Arab Spring and a revival of business traffic.

"Bahrain has seen a significant turnaround since 2011," Al Musallam confirmed. "As the kingdom's national carrier, this upward swing is reflected in our operations. We are seeing growing numbers of passengers on our flights now."

Even before civil unrest engulfed the region, predecessor Samer Majali had begun downsizing the network in deference to the airline's more modest role in the Gulf aviation scene.

Having conceded ground to Emirates, Etihad and Qatar Airways over the preceding years, in

2009 Gulf Air began withdrawing from long-haul markets and focusing on its regional footprint. The Arab Spring accelerated this pullback, with destinations like Rome, Milan, Kuala Lumpur and Colombo gradually being abandoned.

But, by the end of 2013, green shoots were emerging. Thiruvananthapuram in India re-joined the network, followed by Sialkot in Pakistan and Athens in Greece. Iran, Iraq and Lebanon are also now back, following their suspensions over security concerns.

"We continue to monitor routes that are profitable and are in line with our business direction to help in the flow of trade, tourism and investment between Bahrain and other countries," Al Musallam said. "In addition to this, we anticipate frequency adjustments in 2014 that will further strengthen our network."

Regional connectivity

The airline's redoubled focus on regional connectivity is already evident in rising frequencies to Riyadh and Jeddah – now operated four and three times daily.

Cooperation with Al Qatani's upcoming airline venture SaudiGulf – which Gulf Air is assisting in a consultative capacity – should facilitate further traffic sharing and revenue growth.

It would be foolhardy, of course, to over-hype the 2013 financial results. Gulf Air is still heavily loss-making; it remains exposed to civil unrest and regional competition; and its reluctance to disclose precise operational data is unsettling. No figures are available for revenue, RPK traffic, ASK capacity or load factors.

But halving your losses at a pivotal moment in your history is worthy of praise. In February, Bahraini transport minister Kamal bin Ahmed Mohammed glibly said that "no-one wants" the top job at Gulf Air. It will be interesting to see if that remains the case indefinitely.



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DWC ramps up the facilities for horse flies

Dubai World Central is building up its passenger numbers and its freight figures but one charterer has now added a new service through the airport – horses.

Livestock and bloodstock transport specialists Intradco – acquired in February by global aircraft charter firm Chapman Freeborn – and operator National Air Cargo coordinated a project to fly 47 horses from Dubai World Central Al Maktoum International Airport (DWC) as part of the world-famous Cavalia equestrian tour in Ostend, Belgium.

The huge operation meant choosing the right aircraft for the job, which, in this case, was a Boeing 747-428, while maintaining the comfort and wellbeing of the horses.

“We source the best aircraft for the job, both in terms of price and suitability for the load. For this particular movement the client required to move 47 horses, plus various parts of staging equipment that would be used for the theatre show,” explained Charlie McMullen, global business development manager.

“We then also provide all in-flight horse stalls for the movement, along with our own team of professional grooms that are essential to a smooth loading and offloading process, as well as tending to the horses during the flight.”

Logistically, there are various areas that needed to be taken into consideration, including movement of horse stalls from Europe to DWC, organisation of horse trucks from the stables to the airport and also from Ostend airport to the final stables.

“The key aspect of our service is project managing the whole network of stakeholders

It's not just humans that take to the skies – animals also frequently experiencing flying. Dubai's new airport has invested in a special loading ramp and, as Marcelle Nethersole reports, one UAE-based charter firm was quick to be the first to try it.

within the flight. The airline, shipper, consignee, airport authorities, trucking companies, customs, handling agents at both ends, veterinary authorities and grooms all need to be aware of specific responsibilities and timings,” said McMullen. “Keeping everyone informed ensures that no errors occur within the process.”

Something the horses will not have known is that they were the first animal cargo on the 747-428 to make use of the newly constructed horse loading-ramp at DWC.

McMullen explained: “The ramp was designed and built by the Dubai Airport services, in collaboration with a few local horse agents in Dubai. It is designed so that horse trucks can arrive and lower their own ramps directly on to the horse ramp. This creates a seamless transition. Once on the ramp the horses have a

lot of room to walk, which also gives our grooms the chance to visually check their health before loading them into the in-flight stalls.

“At the opposite end of the ramp there are three bays where the in-flight stalls are positioned, and the horse can be walked through the ramp into the stalls. Provided there is an experienced unit of grooms managing the loading of each stall, this allows three stalls to be loaded simultaneously. For large charters this assists in a quick loading/offloading process and, therefore, reduces the net transit time for the horses.”

Intradco intentionally rerouted the flight from either DXB or SHJ so that it could utilise the new horse ramp.

“We knew that DWC would give us great handling attention, and now they have an excellent loading/offloading ramp it makes it a great choice for future charters. It is these types of investments that we welcome, and we expect it will be profitable investment for DWC in the long run,” said McMullen.

During the flight, the horses coped well. “They were a dream to load and they all stayed very relaxed through to their end stables in Ostend. Besides regular watering and feeding, the grooms just needed to be paying attention in case of any issues during flight. For this particular flight no such issues occurred,” said McMullen.

Intradco has more than 27 years’ experience specialising in equine and other animal transportation. It has approximately 50 other horse charters this year, in addition to various other livestock.

*In just two decades, Coyne Airways has become the world's 91st largest cargo carrier by traffic – not bad for an airline that has no aircraft and specialises in serving warzones. CEO Larry Coyne tells **Martin Rivers** how he pulled it off.*

Coyning it in... the airline with no aircraft

With the air cargo industry struggling to maintain yields in the face of rampant over-capacity, Coyne Airways presents an intriguing vision of how freighter markets may evolve over time.

The London-headquartered airline does not own or lease any aircraft, and it eschews the hub-to-hub distribution model favoured by most global cargo operators.

Instead, Coyne Airways enlists the services of various partner carriers to build a scheduled network through recurrent block space agreements and interline deals. By reserving part or all of the space on other airlines' freighters, the company has developed specialised hubs in Dubai and Tbilisi that connect Europe, North America and Asia with countries like Iraq, Afghanistan and Kazakhstan.

Its focus is undoubtedly on "difficult-to-reach destinations", chief executive Larry Coyne explained, and while the model may seem unorthodox, there is no disputing its appeal to freight forwarders.

Coyne Airways is placed 91st in a list of the world's 100 largest cargo carriers by *Airline Business* magazine, growing its traffic by 7.7% in 2012 to reach 195 million revenue tonne kilometres.

Further growth is now on the cards – 2013 has already seen expansion into Africa – but Coyne is candid when asked about the airline's more humble beginnings.

"I'd previously been working in the property industry and there was the downturn in the early 1990s," he said. "So I was unemployed. I tried various things. And then I met a Russian guy who was in London to re-insure aircraft for the vast number of mini-Aeroflots that had sprung up."

Coyne was referring to the fragmentation of Russian flag-carrier Aeroflot after the collapse of the Soviet Union, which left hundreds of Ilyushin Il-76s dotted around former Soviet republics in central Asia and east Europe.

"Many of them were out there looking for work, and a lot of the companies had never flown them and didn't even have insurance," he continued. "The Russian said that if I could find work for them, then he would insure them."

"So I set up a charter brokering business, and it became very successful very quickly."



The Coyne team: growing rapidly.

Initially focussing on markets in the Commonwealth of Independent States (CIS), Coyne Airways launched operations in 1994. Its second year involved more than 400 flights. The airline indirectly benefited from America's efforts to rebuild its embassies in central Asia, but expansion necessitated the development of ties with local, often sceptical authorities.

"Some of these places, like Aktau [in western Kazakhstan], were cities where westerners weren't allowed in," Coyne said. "They were custom-built Soviet cities, and we were going into the unknown."

Despite the challenges, the chief executive quickly identified growth opportunities across the Caspian Sea. The region's emerging oil sector had created buoyant freight demand, and it was not long before operations began in Baku, Azerbaijan.

But it was Tbilisi that would ultimately become the company's base in the Caucasus. After securing its own air waybill and designator in the Georgian capital, Coyne Airways began using interlines to develop a specialised hub-and-spoke network. That model now involves picking up European and American freight in Amsterdam; flying to Tbilisi on an Etihad freighter; and breaking down the cargo for onward shipping to Kazakhstan and Turkmenistan by air, or Armenia and Azerbaijan by truck.

Etihad's freighter – which replaced a seven-year-long partnership with British Airways – then travels on to Dubai World Central, from where further interlines offer connectivity to Iraq and Afghanistan.

Coyne Airways broke into the Iraqi market in 2004, one year after the US-led military invasion. "We'd been working on it for months, and there was a general reluctance for us to get involved, because it was so dangerous," Coyne recalled. "So I made a promise to the staff that no-one had to go to Iraq. We found agents to represent us. And within about three or four weeks of agreeing that, it all happened."

The scheduled Iraqi network now includes Baghdad, Basra, Sulaymaniyah and Erbil, utilising partners such as RUS Aviation. Four points are also served in Afghanistan, with flights beginning in 2006 and now spanning Kabul, Bagram, Kandahar and Camp Bastion.

Offering scheduled services to warzones on set days of the week has a clear appeal to global freight forwarders. Single air waybills, with proof of delivery and online tracking facilities, further enhance the customer service proposition, while logistics supply chains can be extended via ground-based transport partnerships.

"So that formula has developed over time," Coyne said. "We have used the designator and

“As long as we have an available supply of aircraft that we can easily call on, the business model works.”

LARRY COYNE

No matter how effective the “non-asset-based” approach proves to be, it always raises eyebrows. Yet the appeal of the model is self-evident. Just as many carriers prefer the flexibility of leases over capital purchases, Coyne Airways prefers being able to “pick and choose” aircraft on an even more flexible, flight-by-flight basis (although, in practice, many of these arrangements last for years).

On services between Georgia and Kazakhstan, for example, the airline’s existing Antonovs will likely soon be replaced with smaller 737s. On markets that handle outside cargo, meanwhile, Soviet aircraft remain the preferred solution. And on flights to Iraq, military agreements make it necessary to use US-built types like the 747-400F.

“As long as we have an available supply of aircraft that we can easily call on, the business model works,” Coyne said.

Asked if he would ever consider acquiring assets, the chief executive pointed to the “risk of ownership” faced by legacy carriers. Not only do their freighters depreciate in value rapidly, but also mega-orders from the Gulf are flooding their markets with excess capacity. “The 777 can easily carry 25 tonnes in its belly, which is not much less than a 707,” he noted. “So when you see orders for 400 or 500 large wide-body aircraft, that’s the equivalent of 100 new freighters coming out.”

Although block space agreements mitigate such concerns, Coyne Airways is not immune to yield pressure. The airline suffered a 14.3% decline in revenue in 2012, despite its healthy traffic growth.

Thus, the strategy continues to evolve. Limited availability of spare freighters in Africa – a key growth region for the carrier – may soon force Coyne to consider short-term leases. Soviet aircraft are also steadily being phased out due to their lower fuel efficiency and flying restrictions in Europe.

But the overarching model will not change. “We have the advantage of being able to use very efficient, very expensive new aircraft without owning them,” Coyne concluded. “We’ve become an airline without aircraft. It’s a brilliant model.”

the air waybill code to set up other routes.”

As the drawdown of US troops in Afghanistan continues, America’s strict regulations about the use of US-registered aircraft for military cargo have made Coyne Airways a favoured service provider. The relationship is a valuable one, with the US Defense Department allocating more than half of its \$3 billion annual transportation budget to the private sector.

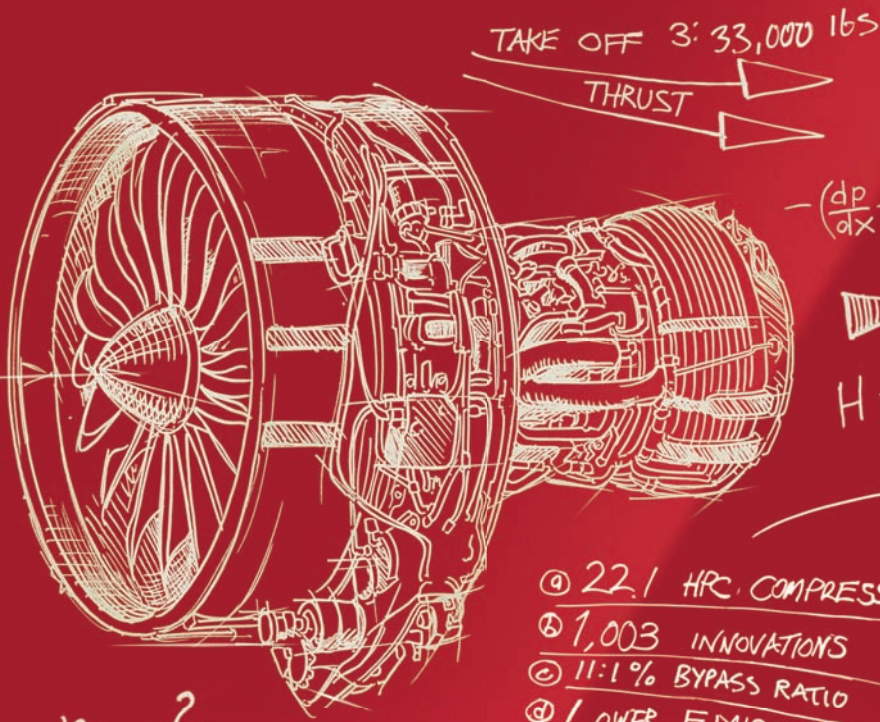
But Coyne stressed that his client base hails from across the world. Alongside the majority of European and American customers, Japanese, Chinese and Malaysian firms are steadily growing their presence in the Caspian region.

And while you might presume that flying into warzones entails immense operational challenges or added costs, Coyne stressed that international air safety standards make it

business-as-usual in most cases. Iraq, long ago, stopped requiring corkscrew landings to protect aircraft from surface-to-air missiles, and the vast size of Afghan military bases like Bagram similarly keeps cargo pilots safe.

Commercial negotiations, however, can be more troublesome. “When we started, the biggest problem we ran into was that there was a residue of Soviet inefficiency,” Coyne said. “Some of the airports had very little equipment – so it was difficult to offload an aircraft – and they had very high charges. Developing countries are notorious for treating aviation as a cash-cow.

“We spent a lot of time persuading these airports that they’ll get more business if they don’t charge an arm and a leg. We paved the way, their rates became reasonable, and their business started to develop.”



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MORE TO BELIEVE IN

With Egypt's tourism sector still under pressure, one Saudi-backed airline is carving a niche in the regional market. Martin Rivers talks to Ahmed Aly, CEO of Nile Air.

The source of Nile's success

When Nile Air was publicly unveiled at the 2007 Dubai Airshow – at the height of the Gulf aviation-buying spree – the Egyptian start-up signed a memorandum of understanding for nine Airbus A321s.

Seven years on, the Saudi-owned company operates a more modest fleet of two smaller A320s. Its launch coincided with the onset of a global financial crisis, followed by two successive political revolutions that decimated tourism to its home market.

But, having weathered these storms, Nile Air is now charting a clear path to expansion. The airline continues to be shielded from the downturn by its diverse traffic mix, and it is gradually benefiting from Egypt's improved ties across the region.

"The markets between Egypt and the Middle East have been extremely resilient," said Ahmed Aly, the newly appointed chief executive of Nile Air.

"The number of seats being offered between Egypt and Saudi Arabia has grown by 96% when comparing January 2014 to January 2011. They have actually registered exceptional growth despite all the issues occurring in Egypt. And that is very different to the more sensitive European tourism market."

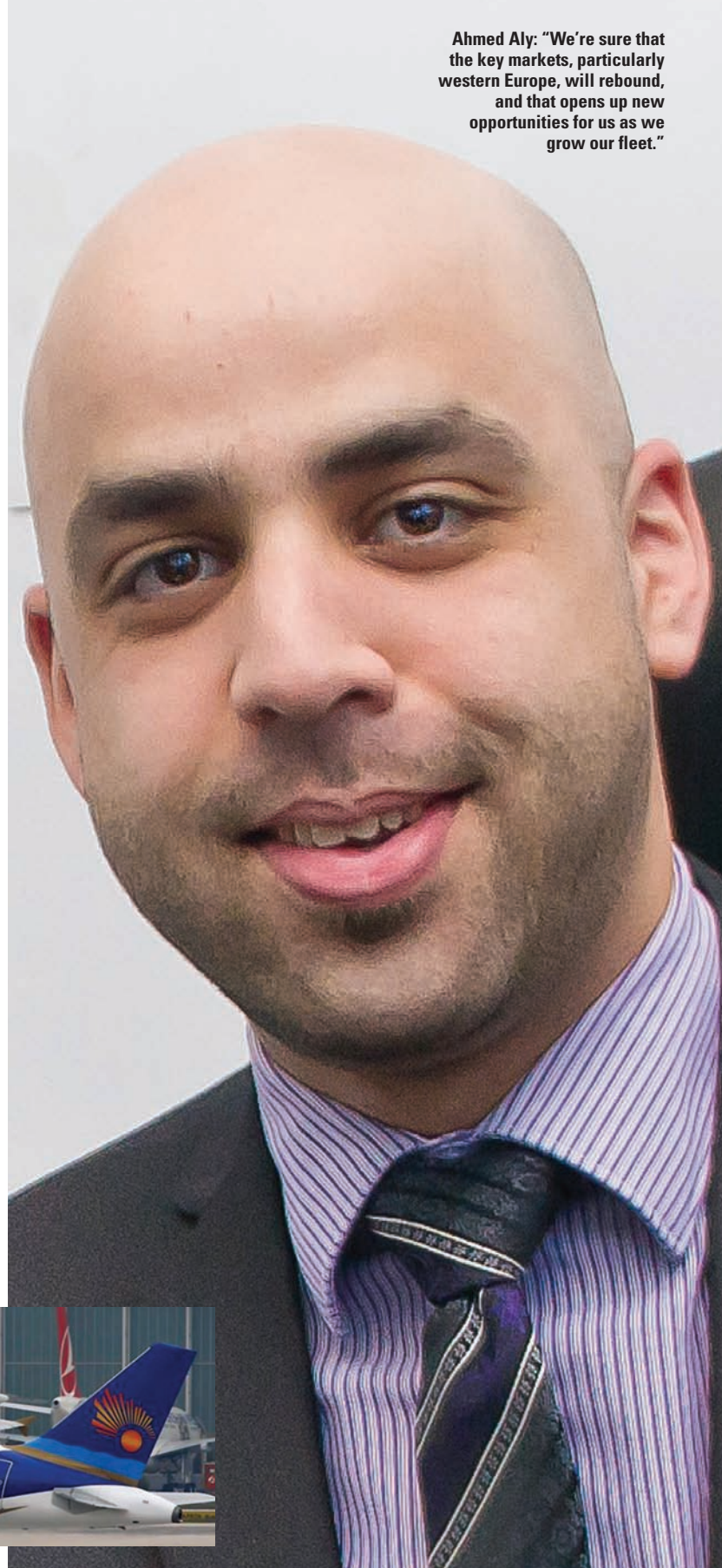
Nile Air today operates out of three Egyptian airports (Cairo, Alexandria and Luxor), serving five points in Saudi Arabia (Jeddah, Tabuk, Qassim, Ta'if and Yanbu) plus Kuwait.

Much of its inbound traffic comprises Gulf-origin tourism and business flows which, according to Aly, have "held up much better" than from Europe. The fact that Nile Air's owner, Nasser Al-Tayyar, is chairman of Saudi travel firm Al-Tayyar Travel Group undoubtedly spurs demand, giving the airline "very strong clout" among the kingdom's high-spending holidaymakers.

But tourism is just one facet of its customer base, which is evenly split between Egyptian nationals and foreigners. "There's also a large diaspora of Egyptians living in Saudi Arabia and Kuwait, so we've got strong visiting friends and relatives (VFR) traffic," Aly noted. "And Egyptians are the second largest nationality that travels to Saudi Arabia for religious purposes, which will continue to grow."

Continued
on Page 36

Ahmed Aly: "We're sure that the key markets, particularly western Europe, will rebound, and that opens up new opportunities for us as we grow our fleet."



CONTINUED FROM PAGE 35

With Nile Air also providing the only business class option on some routes – securing custom from government, military and corporate travellers – the airline has an enviable spread of passenger types which has proven “extremely resilient to the current changing landscape in Egypt”.

Last year saw Nile Air grow its passenger numbers by 21% against load factors of 72%, and the airline remains focused on new expansion opportunities.

Its fleet size will double to four A320s during 2014, Aly confirmed, with operating leases of at least five years being targeted for the new units. The longstanding A321 order is meanwhile “subject to ongoing contractual negotiations” with Airbus.

Asked about the appeal of the smaller A320s, Aly described the type as “the most versatile and flexible aircraft” for Egypt today, noting that 90% of traffic to the country originates within a five-hour flying range. The airline has reduced the size of its A320 Business Class cabins from 16 to 8 seats, lifting overall capacity to 164.

Longer term, Nile Air is still finalising its future fleet plan and has not ruled out adding wide-body aircraft at some point. “Wide-bodies will obviously give you lower costs per available seat kilometre (CASKs) and a competitive edge,” Aly said. “It’s certainly something on the radar.”

Expanded fleet

Putting the expanded fleet to work will undoubtedly require network growth, and the chief executive sees no shortage of target destinations to evaluate.

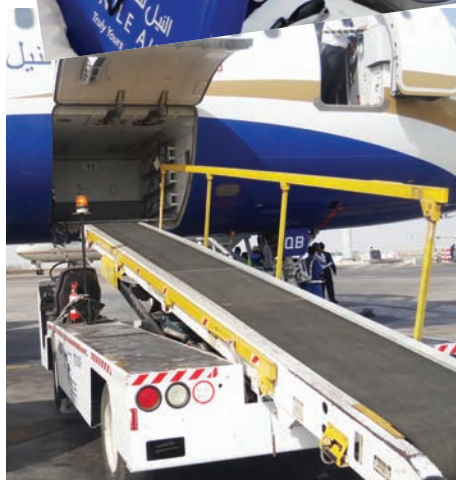
“When you look at the largest markets out of Egypt, the big three in the Middle East are Saudi Arabia, Kuwait and the UAE,” he said, hinting at new links with Dubai or Abu Dhabi. About 300,000 Egyptians live in the UAE, making it a potentially lucrative VFR market for Nile Air. “When we look at north Africa, we also see Libya and Sudan as being strong areas for growth in the future.”

But with the Egyptian diaspora estimated at up to eight million, the airline is also now looking beyond the Arab world.

“The UK is a strong market for Egypt given the large Egyptian population there,” Aly noted, pointing to his own roots in Britain. “Likewise with Italy. And Turkey has a liberal visa process for Egyptians, so it’s seen as a good tourist destination for Egyptians. These markets are relatively under-served given their attractiveness.”

Even with the advantage of VFR traffic, however, expanding into Europe will be risky until tourism flows stabilise. Visitor numbers to Egypt dropped 28% in the first two months of 2014, setting the tone for another challenging year.

Tourism plummeted from 14.7 million visitors in 2010 to just 10 million the following year, when President Hosni Mubarak was overthrown during the Arab Spring uprisings. A tentative



Nile is increasing revenues from cargo and passenger markets with modern comfortable aircraft.

recovery in 2012 was promptly derailed by last year’s ‘Second Revolution’ against the Muslim Brotherhood – pushing the 2013 figure down to 9.5 million – but Aly has no doubts about the long-term prospects for Egyptian aviation.

“We’re sure that the key markets, particularly western Europe, will rebound, and that opens up new opportunities for us as we grow our fleet,” he insisted.

“The Egyptian market is highly dynamic. We’ve got several very strong advantages, which I would define as high potential. Egypt is a

tourism destination with global appeal – the country offers history, culture, and beaches. There’s also a significant population centre with more than 85 million people, and a growing middle class. And we have a strategic location; we’re at the crossroads of Africa, Asia and Europe.”

Although Nile Air has begun exploring far-flung destinations, there is no denying that improved relations closer to home have lifted its performance.

Riyadh had been among the strongest regional critics of the ousted Muslim Brotherhood party, straining bilateral relations during the group’s short time in power. But with the two countries now rekindling political and economic links, Aly points to “much stronger volumes coming out of Saudi Arabia” in the summer 2014 season.

Nile Air is perfectly placed to benefit from this trend because of its unique position in the local market. As well as enjoying close ties to a major Saudi travel firm, the airline has carved a niche as a private scheduled carrier in a space traditionally occupied by low-cost charter operators or hub carriers.

“Last year more airlines started to go into scheduled areas,” Aly admitted, likely referring to the evolving strategy of EgyptAir’s regional affiliate Air Cairo. “But we’re not concerned in terms of additional competition, because we believe that the market has significant pent up demand.”

Emerging demand

He cited Nile Air’s upcoming route between Luxor and Kuwait as evidence of its ability to react quickly to emerging demand.

However, it was the March 2014 launch of flights from Cairo to Jeddah that marked perhaps the biggest milestone in its recent history. Long restricted to flag-carriers EgyptAir and Saudia, the market was liberalised with a twice-weekly Nile Air service, in what Aly described as “genuinely a very big step forward” by the authorities.

“Cairo-Jeddah is the single largest route out of Egypt, and the largest origin and destination (O&D) market in the Middle East,” he noted. “The authorities have realised the benefits of encouraging the growth of aviation. They’ve taken proactive steps.”

Aly also cited the 2004 liberalisation of all Egyptian airports outside of Cairo, saying that the move precipitated 580% growth in overall flight operations at Alexandria Airport. Talks are on-going about the possibility of easing traffic restrictions further in Cairo, as well as permitting self-handling for ground services by private carriers.

“The pace [of reform] has been slower than in other countries in the region, but we’ve seen positive developments,” Aly concluded. “We hope it continues. I think it will be to the benefit of the economy of Egypt.”



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POISED FOR **GROWTH**

Governments worldwide are being urged to adopt new measures to close legal loopholes that allow unruly passengers to evade punishment for their actions on board aircraft, with Gulf airlines taking a zero tolerance approach to bad behaviour.

Alan Dron reports.

RULES

FOR THE

UNRULY

Even experienced travellers can be alarmed when a passenger becomes rowdy at 35,000 feet. The effect on the more nervous can be terrifying.

Abusive language, drunkenness, even physical assaults, are bad enough on the ground, where people nearby usually have the option of moving away from the incident. In a metal tube six miles up, there's nowhere to go.

In recent years there have been increasing numbers of incidents where bad behaviour above the clouds has resulted in cabin crew having to restrain troublemakers. Sometimes the captain has had to divert to another country to offload the culprit. But the guilty party in such cases has often walked free because local law enforcement officers do not have jurisdiction over the incident.

Now, following an April diplomatic conference attended by around 100 governments at the International Civil Aviation Organization (ICAO) in Montreal, that unsatisfactory situation may be about to end.

ICAO members agreed revisions to the Tokyo Convention, which provides the legal framework for dealing with passengers whose behaviour leads to physical assault or poses a threat to the safety of a flight.

The Convention dates back to 1963 and says jurisdiction over offences committed on board aircraft should lie with the aircraft's state of registration. With many airliners now leased, however, the state of aircraft registry is often

neither the country of the operator nor where the aircraft lands in the event of a diversion.

If a captain offloads a passenger in a country other than that of his airline's home base for an incident that occurs in international airspace, the police in that country usually lack jurisdiction. The passenger is simply released, even if he (or she) has been responsible for a serious incident, such as assaulting a crew member.

Under the agreement reached in Montreal, governments plan to close this loophole by extending the jurisdiction from the country of aircraft registration to the state where an aircraft lands.

The agreed changes also give greater clarity to the definition of unruly behaviour. There are also new provisions to deal with the recovery of costs arising from unruly behaviour – if, for example, an airliner has to divert to offload the passenger.

Ratify the measure

The next step is to get 22 ICAO member states to ratify the measure. That will allow it to come into effect. This is likely to take two to three years.

Mid-air incidents involving unruly passengers used to be virtually unheard of. Today, with social conventions and respect for authority in decline, they are becoming all too frequent.

Since 2007, IATA has been collating statistics on unruly behaviour in a database incorporating 170 airlines' experiences. In the latest figures available, the number of incidents rocketed from 5,081 in 2012 to 8,217 just a year later. That means that in 2013 there was an incident every

1,370 flights, says IATA.

However, reporting such incidents is non-mandatory and the true scale of the problem is, therefore, likely to be under-represented.

This year's IATA AGM in Doha unanimously adopted a resolution calling on governments and industry to work together on measures to deter and manage unruly air passenger behaviour.

"Many airlines have trained both ground staff and cabin crew in procedures not only to manage incidents of unruly behaviour but also in measures to prevent them. But a robust solution needs alignment among airlines, airports, and governments," said IATA's director-general and CEO Tony Tyler.

"It's a very significant challenge that airlines and cabin crew have to deal with on a daily basis," said Tim Colehan, IATA assistant director of external affairs, who has been heavily involved in the issue. "The small minority of unruly passengers are having an impact on safety, which is the industry's number one priority."

They also potentially disrupt the travel arrangements of hundreds of other passengers on the flight, not to mention airlines' operations. The cost of diverting a flight can reach \$200,000, taking account of factors such as having to dump fuel to make an emergency landing plus ground handling fees.

"We don't know why the number of incidents is increasing, to be absolutely frank," said Colehan. "Whether it reflects societal changes, where anti-social behaviour is becoming more prevalent, could be one reason."



The tendency is to assume that most incidents are caused by alcohol – often consumed before boarding – but that is just one of the trigger factors behind incidents, he said.

Any number of stress factors can act as a trigger: emotional issues such as relationship breakdowns, frustration at a broken IFE system, or the behaviour of another passenger can all send a passenger over the edge.

Colehan's comments are supported by Ashish Jain, Qatar Airways' senior vice-president, group safety and security. There was not one primary cause of incidents on board, but a "broad spectrum" of reasons behind unruly behaviour. "On a number of occasions it's the lack of information to the customer, or a lack of customer awareness of airport processes and formalities."

Factors as mundane as airport information boards not displaying accurate details of flights, or check-in staff having problems in processing a passenger, could cause frustration and be initial triggers for anti-social behaviour that later erupts on board.

Jain agreed with Colehan that alcohol consumed at airports all around the world before the passenger even sat down in the cabin could be a factor – particularly if a flight was delayed, allowing a passenger to spend more time drinking.

Different languages could also be a factor, with passengers frustrated if they could not make themselves understood to staff. Even non-verbal communication could sometimes be a problem: "A particular gesture or hand movement can be

Governments plan to close the loophole by extending the jurisdiction from the country of aircraft registration to the state where an aircraft lands.

perceived very differently from one culture to another," said Jain.

Qatar Airways has robust safety management measures, where crew are encouraged to report incidents, he added.

Cabin crew undergo extensive training to help them defuse potentially difficult situations but, in the worst scenarios, are trained in how to physically restrain passengers. Qatar Airways has a zero tolerance policy once a passenger passes a certain point and, in those circumstances, will always hand miscreants over to police.

"I'm pleased to say that the local authorities in Qatar view this as robustly as we would like them to," he noted.

Airlines around the Gulf regularly meet for safety and security seminars. Bad behaviour "has certainly been a regular topic for discussion", he said. "We're aligned in our thinking, even in terms of formulating processes – in training, for example – in dealing with this."

When an incident does occur on board, good communication between the cabin crew and flightdeck is vital, said Colehan. The captain, isolated behind the locked cockpit door, must rely on information from the cabin crew to make a decision on what action to take. It is the captain who must authorise the restraint of a passenger.

IATA wants airline ground staff and airport personnel to play their part in watching out for embarking passengers displaying unusual or agitated behaviour. Gate staff should be able to decide whether a passenger is fit to travel.

It also wants airport concessionaires, such as bars and restaurants, to play their part in not serving more alcohol to passengers who are becoming intoxicated before their flight.

"This Montreal agreement is good news for everybody who flies – passengers and crew alike," said Tyler. "The changes, along with the measures already being taken by airlines, will provide an effective deterrent for unacceptable behaviour on board aircraft."

"The Tokyo Convention was not originally designed to address unruly behaviour and there is a great deal of uncertainty among carriers as to what actions crew can take to manage incidents in the air."

"Unruly passengers are a very small minority. But unacceptable behaviour on board an aircraft can have serious consequences for the safety of all on board. The goal is to effectively deter such behaviour and ensure safe flights for all by making the consequences of such behaviour clear and enforceable."



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Iraqi F-16 flies straight into trouble

Iraq became the 28th and latest nation to operate the F-16 fighter when the first F-16IQ was formally delivered in a ceremony at Fort Worth on June 5. But the country's prime minister, Nouri al-Maliki, isn't happy.

Jon Lake reports.

The new Iraqi Government first expressed an interest in buying the F-16 in September 2008, seeking up to 36 to try to reduce the nation's reliance on US air power and to allow a further withdrawal of more American forces from the country.

Eventually, in March 2010, the Iraqi Government formally requested 24 F-16C/D fighters from the US, and in 2011 an initial order for 18 F-16IQ aircraft was announced.

Even before the ink was dry on the first contract, Iraq requested a further batch of 18 aircraft in December 2011 and a formal order for these was announced in October 2012.

But these 36 F-16s represented only a start, with an eventual requirement for a total of up to 96 fighters.

The F-16IQ ordered by Iraq is a version of the Block 52 F-16C/D, fitted with the AN/APG-68(V)9 radar and powered by a Pratt and Whitney F100-PW-229 Improved Performance Engine.

The F-16IQ will be equipped with AN/AAQ-33 Sniper targeting pods, and armed with a range of air-to-ground ordnance, including AGM-65 D/G/H/K Maverick air-to-surface missiles and Paveway II and Paveway III laser-guided bombs.

Four Goodrich DB-110 recce pods will also be supplied.

But, though the Block 52 is the latest model of the F-16, and one of the most advanced, those for Iraq are subtly downgraded.

None of the latest air-to-ground weapons are being supplied (such as JDAM, SDB, JSOW, or SLAM-ER) and air-to-air capabilities are restricted by the decision to supply AN/APX-113 advanced identification friend or foe (AIFF) systems without mode IV interrogation, and especially by the provision of 150 semi-active radar-homing AIM-7M-F1/H Sparrow air-to-air missiles, rather than more modern active radar-homing AIM-120 AMRAAMs.

Deliveries were expected to begin in September 2014 and then continue at a rate of about 12 aircraft per year until the autumn of 2017.

The Iraqi F-16IQs are expected to comprise 12 two-seater F-16Ds and 24 single-seat Block 52 F-16Cs.

Training has already begun and 11 Iraqi Air Force pilots have converted to the F-16 at Tucson with the US Air National Guard.

Four days after the ceremonial F-16 delivery at Fort Worth, the Islamic State of Iraq and al-Sham

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(ISIS) Sunni insurgents began a major offensive in Iraq, killing hundreds of soldiers and more than 1,000 civilians, and seizing control of a number of towns, including Tikrit (Saddam Hussein's birthplace), Fallujah and most of Mosul, the country's second most populous city.

The ISIS offensive prompted the evacuation of US contractors from Balad Air Base, and this will further delay the delivery of F-16s to Iraq.

Prime Minister Nouri al-Maliki complained about the slow pace of deliveries and told the BBC that he regretted ordering the F-16s which, he claimed, could have been used to halt the insurgents.

"I'll be frank and say that we were deluded when we signed the contract," he said. "We should have sought to buy other jet fighters like British, French, and Russian, to secure the air cover for our forces; if we had air cover we would have averted what happened."

But the F-16s are not the only aircraft ordered by Iraq that could have been used to combat the insurgency. The Iraqi Air Force is awaiting the delivery of three different types of armed trainer and light attack aircraft, including 24 Beechcraft AT-6C Texan II turboprops, 24 KAI T-50 Golden Eagle jets and 12 Aero L-159 ALCA Advanced Light Combat Aircraft.

The Iraqi Air Force already operates 15 unarmed T-6A basic trainers, delivered from December 16 2009 under a \$210 million contract.

The Government of Iraq purchased the first eight aircraft on August 12 2009, while the remaining seven were funded by the United States in a contract placed five days after the Iraqi order.

Counter-insurgency aircraft

These serve with the 203rd Squadron of the Iraqi AF College Flight Training Wing at Tikrit. No armed AT-6s were included, though Iraq had requested up to 36 AT-6B counter-insurgency aircraft in December 2008.

Finally, on May 13 2014, the US State Department notified Congress that it had approved a \$790 million order for 24 AT-6C aircraft. These will be fitted with a BAE Systems ALE-47 countermeasures dispenser and an ATK AAR-47 missile launch detection system. Their armament remains unspecified.

Iraq ordered 24 Korean Aerospace Industries T-50 trainers in December 2013. These will probably be delivered in FA-50 light attack configuration, for tactical and weapons training.

In April 2014 Iraq ordered 12 ex-Czech Air Force Aero L-159 ALCA light attack aircraft. These were to have been delivered by September, although Iraq's requirement that two of the aircraft should be in two-seat training configuration (which require conversion) would seem to make this difficult.

The non-arrival of all these aircraft types left Iraq with only the most rudimentary offensive air power capabilities. At least some of the air force's



Helicopters are an essential element of the Iraqi investment for its army.

11 Cessna 208B Grand Caravan aircraft have been outfitted with ATK's STAR fire control system, L-3 Wescam MX-15D electro-optical/infrared and laser designator turrets and AGM-114 Hellfire air-to-surface missiles. They serve with the 3rd Reconnaissance Squadron at Kirkuk.

There are also a number of armed helicopters in service with Iraqi Army Aviation.

No 88 Squadron at Taji operates six ex-French Army (ALAT) SA342M Gazelle helicopters, but more modern scout helicopters are being delivered, in the shape of the Bell 407 ARH-70 (also known as the IA-407 in Iraq) and the Airbus Helicopters EC635T2+.

The Iraqi Aviation Command officially accepted an initial three Bell 407s, configured as T-407 trainers, on December 15 2010.

Another 27 examples, with XM296 .50 cal machine guns, M280 2.75-inch rocket pods and AGM-114 Hellfire ASMs, were delivered from 2012. These have allowed the formation of the 21st Attack Helicopter Squadron at Taji and the 22nd Attack Helicopter Squadron at Al Taqaddum/Habbaniyah.

Iraq has also signed a €360 million (\$488 million) deal for 24 Eurocopter (now Airbus Helicopters) EC635T2+ helicopters, plus training and maintenance. The first of these was reported to have arrived in Iraq by June 2011,

and 55 Attack Helicopter Squadron at Taji has formed with the type.

Eurocopter, in conjunction with South Africa's Advanced Technologies & Engineering (ATE), has developed a new stand-alone weapons system (SAWS) for light and medium helicopters, allowing the Iraqi EC635T2+ to carry a French Nexter NC-621 20-mm cannon pod or a Belgian FN Herstal HMP-400 12.7-mm gun pod, as well as the Denel Ingwe anti-tank missile.

A SAWS-equipped Iraqi Army Eurocopter EC635T2+ has undertaken initial test flights at the Murray Hill Test Range, a weapons test facility near Pretoria, South Africa.

The Iraqi army has also made a significant investment in Russian helicopters, which are rugged, relatively cheap and dependable, and which the country had experience of operating in the Saddam Hussein era.

There are plenty of experienced pilots and groundcrew, and probably some remaining support equipment and spares.

Reports surrounding the helicopter deals with Russia have been confused and, in some cases, contradictory.

Iraq ordered a number of Mi-17s from Poland but many of these were out of hours or in poor condition, and not all entered service. Together with Mil Mi-17s operated by the Iraqi Air Force before the 2003 war, Iraq was left with a fleet of



Iraq has seen a diverse fleet ranging from the Cessna C208 through to the Su-25.

between 16 and 30 Mi-17s, equipping the 4th Squadron at Basra and Habbaniyah.

In 2006 Iraq ordered 22 more Mil Mi-17CT (also described as Mil Mi-171E) 'Hips' from the Carlyle Group's ARINC, which modified the aircraft at Sharjah in the UAE prior to delivery to Taji.

The new aircraft were delivered from October 2010, and the last two were handed over ahead of schedule in June 2011. The new variant equipped the 15th (SOF) Squadron at Taji, for use in the counter-terrorism role.

Officially, it has been acknowledged that Iraq will be receiving "around 40" more helicopters from Mil's Rostvertol factory, probably comprising 15-25 Mil Mi-28NE 'Havoc' night attack helicopters, and 20-28 Mi-35 'Hind' heavy attack helicopters, though some sources have placed the number of Mi-28NEs as high as 30-36.

Iraqi aircrew and technicians were trained at the Russian army's Torzhok centre, with two courses graduating in September 2012 and November 2013.

In November 2013 Al-Maliki announced that Iraq had taken delivery of the first batch of Mil helicopters (four of six Mi-35Ms on order) from the Rostvertol factory.

It was later also announced that 23 Mi-28NEs had been delivered to the Iraqis, the first batch of 10 arriving in September 2013 and the second

batch of 13 in January 2014. Iraq thereby became the third country (together with Russia and Kenya) to operate the Mi-28.

Other sources suggest that an additional batch of three Mi-28NEs and four new Mi-35Ms arrived in Iraq in July 2014, on board an Antonov An-124 Condor transport aircraft. Hameed al-Maliki, the Iraqi Air Force commander, said that the new batch of Russian helicopters had been delivered to "keep up the momentum" of the campaign against ISIS.

In response to Iraq's urgent requests for assistance following the ISIS offensive, the nation received about a dozen Su-25 'Frogfoot' ground attack aircraft from a variety of sources.

The first five of 12 promised Sukhoi Su-25 combat fighter jets arrived at al-Muthanna Air Base at Baghdad Airport on board a chartered Antonov An-124 Condor on June 28 2014. These machines were second-hand, ex-Russian Air Forces aircraft, hastily refurbished at the 121st ARZ workshop at Kubinka.

A further batch of five to seven Su-25s flew into Imam Ali Air Base, near Nasiriya, under their own power, arriving around July 1 2014. These aircraft appear to have come from the Iranian Revolutionary Guards Corps (IRGC) or Pasdaran, judging from their colour scheme and two-digit tactical codes, which match photos of the IRGC aircraft.

Increasingly close ties have been forged between the Shia governments in Baghdad and Teheran, leading to some speculation that Iran might hand back some of the aircraft that sought sanctuary in that country during the 1991 Gulf War, and which were subsequently assimilated into the IRIAF. There have been some unconfirmed reports that Islamic Republic of Iran Air Force Su-24 'Fencers' and F-4 Phantoms have undertaken anti-ISIS missions over Iraq since June 21.

Seven Iraqi Su-25s were among the aircraft flown to Iran, and these were later joined by three new Su-25s to form a squadron within the IRGC. The aircraft were subsequently upgraded in Georgia. This means that at least some of the Su-25s delivered to Imam Ali must be former Iraqi air force aircraft!

The Iraqi Air Force reportedly still has four pilots with Su-25 experience, and more experienced jet pilots are likely to have undergone a quick conversion course under Russian and Iranian supervision, though it would seem likely that the aircraft will also be flown by Iranian pilots (10 of whom have reportedly deployed to Iran), and perhaps by Russian 'advisors'.

A further delivery of Su-25s from Russia is expected before September.

Strenuous efforts

Perhaps spurred by seeing its influence in Iraq being eroded by the latest Russian weapons shipments, the USA has made strenuous efforts to streamline the delivery of the US aircraft ordered by Iraq, and to provide relevant new systems for the fight against the ISIS insurgency.

Bob Menendez, the chairman of the Senate foreign relations committee, has withdrawn his objections to deliveries (having previously held up aircraft transfers over concerns about Maliki's authoritarian tendencies and the regime's mistreatment of Iraq's Sunni minority). This should mean that two F-16s would arrive in Iraq this autumn.

A US Congressional panel has now agreed to a Pentagon plan to deliver six Boeing AH-64D Apache attack helicopters, upgraded to a partial AH-64E Apache Guardian configuration, to Iraq under a leasing arrangement with the US Army to allow Iraqi Apache training to begin.

The aircraft will be accompanied by 152 AGM-114K Hellfire ATGMs, and 12 M261 rocket launchers. These will be delivered in the summer and should be closely followed by 24 new-build AH-64E Apache Guardians, which are to be delivered over a three-year period, together with 480 Lockheed Martin AGM-114R Hellfire missiles and other weapons.

If Iraq survives, its force of attack helicopters will give it a powerful counter-insurgency capability, with more than 120 dedicated armed helicopters including Bell 407s, EC635s, Mil Mi-35s, Mil Mi-28Ns and AH-64E Apaches. In addition, the army's Mi-17s can also be armed for attack missions.

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The MC27J Praetorian is now battle ready.

Praetorian's guards now on show

Alenia Aermacchi's MC-27J Praetorian gunship and multi-mission special operations transport aircraft is now flying in its intended production configuration. Jon Lake takes a look.

The Praetorian prototype made its maiden flight at Alenia Aermacchi's Turin-Caselle flight-test centre on April 25.

It has all of the hardware necessary for palletised mission packages to be installed and had a full suite of defensive aids fitted, as well as an L-3 Wescam MX-15Di electro-optical sensor turret fitted under the port side of the nose.

The aircraft also features Link 16 datalink software and provision for a new Selex ES advanced cryptographic system.

It will be delivered to the Italian Air Force for testing in an operational scenario. Phase 2 of the programme will see the installation of the 30mm cannon, while Phase 3 will add

precision weapons, including Raytheon's Griffin-B missile and MBDA's Viper-E. These will be fired from a ramp-mounted common launch tube set.

The MC-27J is a roll-on/roll-off 'combi' transport/gunship conversion of the C-27J Spartan tactical transport, with specialised mission equipment being loaded and unloaded via the rear ramp. This allows the aircraft to be rapidly re-rolled for maximum flexibility.

It uses mission systems derived from those developed for the Royal Jordanian Air Force's MC-235 gunships, though it is permanently installed in these aircraft, which cannot be fully re-rolled.

Work on a gunship derivative of the C-27 began in mid-2008 when the US Air Force Special Operations Command (AFSOC) made a \$32 million budget request to purchase a C-27J light tactical transport plane and convert it into a prototype AC-XX 'Stinger II' gunship, using "proven/known" weapons and systems.

AFSOC hoped that it would be easier and cheaper to integrate new precision weapons, like GBU-44 Viper Strike and Hellfire, on a new airframe, thereby leveraging new capabilities at a more affordable price.

The AC-XX prototype would function as a systems integration and risk mitigation platform, as much as a prototype for a new light gunship, that would be able to operate from austere locations, with a smaller support tail of

manpower and logistics. It also offered increased operational flexibility, though AFSOC's then-commander, Lieutenant General Donald Wurster, expressed strong support for the C-27J based AC-27J 'Stinger II' gunship and said that AFSOC was looking to field about 16 of these aircraft.

In the event, funding for the AC-XX was not forthcoming and AFSOC focused on adding roll-on, roll-off kits to the existing MC-130W Combat Spear aircraft.

But work on the AC-XX programme laid the foundations for the current MC-27J, and Alenia Aermacchi estimated that there might be a possible market for about 50 aircraft, including current and potential C-27 users in the Middle East,

South America, and the Far East, including Australia. A partnership between Alenia Aermacchi and ATK (heavily involved in Jordan's CN-235 gunship conversion programme) was unveiled during the 2012 Farnborough International Airshow.

The new Praetorian programme was for a convertible or 'combi' multi-mission derivative of the C-27J tactical transport, with a roll on/roll off weapons system designed by ATK.



The M27J first flight passed without a problem.

Ironically, with the US Army's small fleet of C-27J joint cargo aircraft put up for disposal, there seemed a real chance that at least some of them might be assigned to AFSOC, which was briefed on the capabilities of the MC-27J and which, therefore, played a significant part in the development and test effort, designing and certifying the test events at Eglin AFB in Florida.

The aircraft completed phase 1 testing of the GAU-23 roll-on/roll-off 30mm gun system in June 2013.

On November 18 2013 Italy became the first MC-27J customer, signing a contract to convert up to six of the AMI's 12 C-27Js to the MC-27J Praetorian configuration.

An initial three C-27J Spartan transport aircraft will be modified to accept the palletised gunship kits by the end of 2016, for the support of the Italian Comando Operativo Forze Speciali (COFS) special forces unit. A further three C-27Js will be 'equipped for, but not with' the Praetorian system.

Two Airbus Military CN235-100M transports, converted to light gunship configuration for the Royal Jordanian Air Force, made their public debut at the special operations forces exhibition and conference (SOFEX) show in Jordan earlier this year. Jon Lake reports.

Jordan sees the light...

The two new aircraft are the result of a collaborative programme between the US company Alliant Techsystems (ATK) and Jordan's King Abdullah Design & Development Bureau (KADDB).

Now designated as MC-235s, the gunships undertook missile-firing tests and crew training in Jordan before the SOFEX show.

The new MC-235s meet a Jordanian requirement for a gunship aircraft capable of participating in low-intensity conflict and of undertaking responsive defence, counter-piracy, counter-insurgency, border surveillance and security missions, as well as providing protection for critical national infrastructure and offering real precision strike, close air support and day/night intelligence, surveillance and reconnaissance (ISR) capabilities.

ATK's special mission aircraft division designed the new gunship version of the CN235 in association with KADDB.

ATK has considerable experience of designing and integrating mission systems architecture and complex sub-systems in a succession of special mission aircraft modification programmes.

These have seen ATK incrementally integrating a range of sophisticated ISR capabilities on to more than 60 aircraft, including Iraqi and

Lebanese Cessna Combat Caravans, US Department of Homeland Security Bombardier Dash-8s, and a number of Hawker Beechcraft King Airs and Lockheed Martin C-130s.

The heart of these disparate modification programmes lies in the company's STAR mission system, which consists of an integrated package of electro-optical ISR and targeting sensors, including a chin-mounted Wescam/L-3 MX-15D imaging turret, as well as new tactical displays. This gives a STAR-equipped aircraft the ability to acquire, monitor and track targets, and even to designate them for attack.

ATK has now leveraged this STAR mission system on 'weaponised' aircraft, integrating light attack and intelligence, surveillance, target acquisition, and reconnaissance (ISTAR) capabilities on two Cessna Caravans for the Iraqi Air Force, transforming them from 'clean wing' day/night ISR aircraft into precision strike/close air support platforms.

ATK's new light gunship special mission aircraft capabilities package was a logical step forward from these programmes.

The company's incremental 'building block' approach has ensured low technical and programme risk for the Jordanian MC-235, though the CN235 gunship is probably the most

ambitious project the company has tackled so far.

The Jordanian gunship programme was revealed at the International Defence Exhibition and Conference (IDEX) in Abu Dhabi in February 2011. Under the terms of the co-development agreement, ATK was assigned responsibility for development, systems integration, aircraft modification and testing, with work being undertaken at ATK's facilities in Fort Worth, Texas; Mesa, Arizona; and Pelham, Alabama. ATK sees some potential for converting further aircraft for Jordan, perhaps with more work being undertaken in-kingdom.

When the contract with ATK was signed, Jordan was not an operator of the CN235, though it had briefly leased a pair of CN235s from Turkey. It had also discussed buying two from Indonesia during 2006.

The Royal Jordanian Air Force does operate a pair of C295s with No3 Squadron at Marka, alongside C-130H and C-130E Hercules transports. But Jordan was aware of the CN235's attributes and recognised that its large unobstructed cabin, low-level handling qualities, plentiful hardpoints for sensors and excellent manoeuvrability promised to make the aircraft a great gunship.

The aircraft were modified from a pair of ex-Spanish Air Force Airbus Military CN235 transports, which were refurbished by Airbus prior to conversion, test flying at Seville in the Spring of 2011, fully painted in a smart dark grey colour scheme, with Jordanian national markings and 'Jordan Special Operations Aviation' titles. These were removed for US testing.

By October 2013 the aircraft were flying from Fort Worth-Meacham International Airport, Texas, though ATK only announced completion of the first flight test in December 2013.

ATK's CN235-100M conversion results in a dedicated, permanently role-equipped MC-235 gunship, rather than a roll-on/roll-off 'combi' transport/gunship. The Jordanian aircraft do retain some unobstructed cabin space to allow them to undertake limited transport tasks, or to carry personnel and equipment to support self-deployment.

ATK also offers much the same as a palletised,



Jordan has built incrementally with the CN235 programme.



Jordan's CN235 on the ground.

'plug-in' system designed to be loaded and unloaded via a suitable transport aircraft's rear ramp, thereby allowing the aircraft to be re-rolled for maximum flexibility. This is the option being pursued by ATK and Alenia in the development of the MC-27J Praetorian.

The MC-235 carries an L-3 Wescam MX-15 integrated electro-optical/infrared intelligence, surveillance and reconnaissance sensor (incorporating a bore-sighted laser designator) under the port forward fuselage, with a turret-mounted Thales I-Master Ku-band synthetic aperture radar/ground moving target indicator to starboard. The aircraft also incorporates beyond-line-of-sight communications gear, including tactical datalinks providing full-motion video to ground stations or other aircraft.

The heart of a gunship is its armament, and the MC-235 is fitted with a single side-firing link-fed M230LF 30mm chain gun firing through the rearmost cabin window on the port side, just in front of the port para-door.

The ATK-developed M230LF chain gun is also used by the AH-64 Apache helicopter and is a relatively lightweight, low recoil weapon, with a higher rate of fire than the GAU-23 Bushmaster II cannon (also an ATK product) used on the AC-130J/W gunships.

Light weight and high rate of fire would usually tend to result in lower accuracy but this is not the case with the M230, which is a tried and tested weapon and which offers good accuracy.

"This is not like installing a Bushmaster," said Jed Holzapfel, ATK's group vice president for international business. "It offers a high degree of combat and cost-effectiveness. Ten rounds from

the cannon can be as effective as a Hellfire missile – and very much cheaper."

The MC-235 also has new outrigger stub wings mounted adjacent to the main landing gear sponsons, and these are fitted with weapons hardpoints that allow the carriage of a pair of AGM-114M/K Hellfire laser-guided air-to-surface missiles, or a single Hellfire and guided or unguided 70-mm/2.75-in rockets.

Jordan is buying the BAE Systems advanced precision kill weapon system (APKWS) for the MC-235. Deliveries to Jordan will be made from 2016, with the US Naval Air System Command's PMA-242 acting as programme manager, supporting the integration of the new weapon.

Defensive countermeasures

The aircraft is fitted with defensive countermeasures, including AN/ALE-47 chaff/flare dispensers, directed infrared countermeasures (DIRCM) and an AAR-47 missile approach warning system. The aircraft also incorporates ballistic panels, providing protection for the cockpit and cabin.

The aircraft will be based at King Abdullah I Airbase at Marka, near Amman. Marka is the home of the Prince Hashim Bin Abdullah II Aviation Brigade, Jordan's special forces air support unit, which includes No28 Squadron (equipped with Hughes 500Es and MD530FFs), No30 Squadron (equipped with Sikorsky UH-60L Blackhawks) and No31 Squadron (notionally equipped with three An-32s).

The new aircraft are expected to join a newly formed No32 Squadron.

On June 17 it was announced that ATK,

KADDB and Airbus Defence and Space would cooperatively work together to convert an existing Royal Jordanian Air Force C295 transport aircraft to gunship configuration.

Airbus said that the new AC-295 gunship configuration would be based on what it called "the AC-235 light gunship", including integrated mission and fire control systems, electro-optical and radar sensors, Hellfire missiles, ATK's side-mounted M230 30mm chain gun, an integrated defensive suite and 2.75 inch guided rockets.

It was not made clear whether the aircraft would have the six under-wing pylons that form part of the C295 special operations/gunship version previously described by Airbus.

ATK, meanwhile, sees a wide global reach for gunship and ISTAR conversions of EADS-CASA's CN235 family, and sees opportunity all around the world, with the aircraft's efficiency, small airfield operating capabilities and low cost giving it a powerful edge.

ATK missile products group president Mike Kahn stressed that the company's gunship package was adaptable to multiple platforms, and not just to the CN235 and C295.

"Countries without a big budget, but with a need for some light attack capability on either their existing aircraft, or to modify aircraft that they are buying, will have the option with our package. It is a cost-competitive option as we can work with a wide variety of aircraft," he said.

The company has looked at the Airbus C295, CASA C212, and Antonov An-32 as potential gunship platforms, and has talked to a number of potential customers, including Saudi Arabia and the United Arab Emirates.

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Qatar's Mirage 2000-S performed in Libya.



Qatar fights for rapid expansion

*While increases in Saudi defence spending have hit the headlines, with the country leap-frogging the UK, France and Japan to become the world's fourth-largest defence spender, Saudi Arabia merely plans to double the size of its air force. Coming from a much smaller baseline, Qatar apparently hopes to transform its own air arm in even more spectacular fashion. **Jon Lake** reports.*

With just 12 single-seat Mirage 2000-5s and two twin-stickers equipping a solitary fighter squadron, it is understood that Qatar now wants to acquire up to 72 new fighters (in batches of 36), to equip as many as six fighter squadrons.

To permit such an expansion, it is expected that Qatar would rely heavily on contract and loaned fighter pilots (probably with many coming from Pakistan), but the nation is preparing for a major expansion in training of its own pilots, having signed up for 24 Pilatus PC-21 turboprop trainers.

Ground tests of the first Qatari PC-21 began in February 2014 and deliveries are expected to follow those of the aircraft ordered by Saudi Arabia.

It remains unclear as to whether the PC-21s will replace the Alpha Jets now used in the advanced training role, or whether they will be used for basic flying training, with a further new type replacing the elderly French jet trainers when the fighter choice is finally made.

If Qatar opts for the Eurofighter Typhoon, then a version of the Hawk advanced jet trainer (AJT) might be selected, while an F-16 selection might lead to the procurement of the KAI T-50 Golden Eagle. The Aermacchi M-346 Master may also be under active consideration.

Types known to be under consideration to meet the Qatari fighter requirement include the Dassault Rafale, the Eurofighter Typhoon and the Boeing F-15 Eagle and F/A-18E/F Super Hornet.

It is understood that the Rafale enjoys the support of perhaps the most influential element within the Qatar Air Force, though it may not have been the preferred choice of all of the evaluation team pilots.

Sheikh Tamim Bin Hamad Al-Thani, the Emir of Qatar, visited Paris in June 2014 to meet with French President François Hollande and Defence Minister Jean-Yves Le Drian. Rafale was understood to be on the agenda.

But, while selection of Qatar's new fighter (or fighters, since there seems to be every chance that Qatar will opt for different aircraft in its two 32-aircraft procurements) has yet to be finalised, the air arm is also expanding its support elements.

Qatar announced a series of orders for military aircraft and helicopters on March 27 during the Doha International Maritime Defence Exhibition and Conference (DIMDEX). These have a value totalling 87 billion Qatari Riyals (\$24 billion), which represents a similar amount to Australia's entire defence spending in 2013 (and more than was spent in that year by Turkey or the UAE).

Naturally, this figure will be

Continued
on Page 50

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spread over several years, but it gives an interesting glimpse of Qatar's commitment and ambition, and the planned fighter acquisition promises to further increase the total.

Within the package of orders, Qatar signed up to buy three Boeing 737 AEW&C aircraft, which will be able to provide airborne early warning, wide area airspace surveillance and command and control, and which will dramatically enhance the efficiency and combat effectiveness of other force elements.

The Qatari decision to purchase the Boeing 737 AEW&C is noteworthy – the air force is going straight from having no AEW&C capability (or experience) to operating what is arguably the most capable and most advanced AEW aircraft available today.

The UAE, by contrast, has acquired a pair of Saab 340 Argus ERIEYE AEW aircraft as an interim step, hoping to gain experience and create an operational doctrine, before signing for a more capable platform solution. Even Saudi Arabia (a long time operator of the Boeing E-3 AWACS) has acquired a pair of Saab 2000 ERIEYE AEW&C aircraft – apparently as an interim measure.

Refuelling tanker aircraft

Qatar also announced its intention to buy a pair of Airbus Military A330 MRTT air-to-air refuelling tanker aircraft, becoming the third GCC nation (after Saudi Arabia and the UAE) to order the type.

The exact configuration and engine choice for these aircraft has not yet been revealed, but a layout with under-wing refuelling HDUs and a centreline boom (for refuelling large aircraft like the C-17) might seem most likely.

The aircraft will, however, be built to the new 'MRTT Enhanced' standard, matching the

commercial A330's improved new production standard, with avionics and aerodynamic improvements and reduced fuel consumption.

Six aircraft now on order by Singapore will be the first tankers built to the new standard.

The Qatari shopping spree included a long-anticipated order for 23 Boeing AH-64E Apache Guardian attack helicopters. A proposed Apache deal was notified to the US Congress by the DSCA on July 10 2012.

Qatar also announced that it had selected the NHI NH90 (though detailed exclusive negotiations are understood to be continuing). It is also understood that the order is planned to be for 22 helicopters, divided between 12 tactical transport helicopter (TTH) versions and 10 naval frigate helicopter (NFH) variants.

It is unclear as to whether the new helicopters will be operated by the air force, or whether they will form new army and naval aviation elements. Qatar may opt to follow the UAE's example and form a tri-service helicopter unit, perhaps with a particular emphasis on supporting the nation's special forces. Currently, Qatar's ageing Gazelle and Sea King/Commando helicopters are all operated by the air force.

Interestingly, Qatar also signed a memorandum of understanding (MoU) with Thales at the DIMDEX show, covering the co-development of an optionally piloted vehicle – aircraft (OPV-A) for intelligence, surveillance, target acquisition and reconnaissance (ISTAR) duties, including a full end-to-end training solution.

Qatar is among the first nations to look seriously at fielding an optionally manned ISTAR or ISR aircraft – something that promises to offer the advantages of a UAV for the classic 'dirty, dull, and dangerous' missions that are the niche for unmanned systems, but while retaining the ability to have a human pilot (and operators) on

board for those missions where more situational awareness is required, or in circumstances that mitigate against the down-loading of real time intelligence data in flight.

The planned purchases will transform Qatar's air force from one of the smallest and most modest in the GCC to one of the largest, equivalent in most areas to that of the UAE.

Qatar's desire to play a greater role on the world stage was initially signalled as long ago as 2008, when it purchased a pair of C-17 Globemaster strategic transport aircraft, and four C-130J-30 Hercules tactical transports.

Before this, the Qatar Air Force did not have a military air transport element, apart from the plethora of airliner and business jet types used by the Emiri Flight.

Humanitarian missions

The two C-17A aircraft were delivered on August 11 2009 and September 10 2009 respectively.

Two options were subsequently exercised and a third and fourth C-17A were delivered in 2012.

The four C-130J-30 Hercules were all ceremonially handed over at Marietta on September 28 2011, making Qatar the first C-130J operator in the Middle East.

These are frequently deployed on long-range humanitarian missions, and one of the C-17As is painted in an eye-catching colour scheme – reminiscent of that worn by the Gulf nation's flag-carrying airline, Qatar Airways. But the new heavy-lifters were also intended to allow the Gulf nation to support deployed and out-of-area operations by its forces.

The Qatar Air Force has since played an active role in coalition operations in Libya, and, in June 2014, its sole frontline fast jet unit participated in the multi-national Anatolian Eagle exercise, held at Konya in Turkey.

Although in Qatar Airways colours the C-17 plays a vital role for military transport and humanitarian missions.





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The latest MD Helicopters military variant – the MD540A – was publicly unveiled at the Special Operations Forces Exhibition (SOFEX) in Jordan earlier this year. Jon Lake looks at the aircraft's unusual history.

Little bird with a split personality

Although the US Army has abandoned its long-running search for a replacement for the OH-58 Kiowa in the armed reconnaissance helicopter and armed aerial scout programmes, large numbers of export customers – including several in the Middle East – exist for such an aircraft.

Many countries are unable or unwilling to use bigger, more expensive and less suitable AH-64 Apaches in the scout role – though this has been the cash-strapped US Army's solution.

Interestingly, several of the most promising contenders to meet emerging requirements for new armed scout helicopters are derivatives of the same basic helicopter – the Hughes OH-6A (Model 369A), which won the US Army's 1965 light observation helicopter (LOH) competition.

Hughes Helicopters was sold to McDonnell Douglas in 1984, becoming McDonnell Douglas Helicopter Systems. What had been the Hughes Model 369 became the MD500 and MD530.

McDonnell Douglas merged with Boeing in August 1997 and Boeing sought to sell the company's civilian helicopter lines to Bell Helicopter in 1998 but was prevented from doing so by the US Federal Trade Commission (FTC).

Civilian line

Instead, in 1999, Boeing sold McDonnell Douglas Helicopters' civilian line to MD Helicopter Holdings, an indirect subsidiary of the Dutch company RDM Holdings. In 2005 this was sold again to Lynn Tilton's Patriarch Partners investment fund, becoming MD Helicopters.

This left the AH-64 Apache being built at a new-to-Boeing helicopter factory at Mesa (in addition to the company's facilities in Philadelphia), while commercial MD500s and derivatives were built at Mesa by MD Helicopter Holdings, and from 2005 by MD Helicopters.

Complicating the neat split between the Apache and the MD500 were the military export versions of the MD500 family (about 470 MD500 Defenders were built by Hughes and McDonnell Douglas Helicopter Systems) and, most importantly, the series of MD500



The MD530F training Afghan pilots.

derivatives built for the US Army's special forces as the AH/MH-6 Little Bird.

Early versions were mostly built by McDonnell Douglas Helicopters (or converted from Hughes-built OH-6s). However, later models have been built by Boeing using fuselages and other components supplied by MD Helicopter Holdings or, from 2005, by MD Helicopters.

From 2004, Boeing demonstrated its unmanned Little Bird; subsequently incorporating its technologies into the A/MH-6X mission-enhanced Little Bird. An improved AH-6S Phoenix was developed to meet the US Army's armed aerial Scout programme, with an advanced cockpit, composite main rotor blades and an extended aerodynamic nose housing new avionics. An export derivative, the AH-6i, flew on September 16 2009.

Early on in the US Army's armed reconnaissance helicopter programme, Boeing and MD Helicopters cooperated to offer the mission-enhanced Little Bird to meet the requirement, and in 2011 MD Helicopters announced a "collaborative production agreement" with Boeing to produce the AH-6i.

In the meantime, MD Helicopters had turned its attention to the military market, selling militarised and armed versions of its aircraft to armed forces and government customers in Japan, Jordan, and Italy, and to US special operations and

police forces. In March 2011, the US Army placed a contract with MD Helicopters to provide six MD 530Fs to train pilots for the Afghan Air Force, with options for 48 more. This contract was the catalyst for MD Helicopters to bring a more powerful scout helicopter to the market, according to Lynn Tilton, whose company began developing a new MD530G armed aerial scout and a more heavily modified MD540F.

But, when it offered the latter as a contender in the armed aerial scout programme in April 2012, Boeing moved to block its rival, claiming that there were agreements between the two Mesa companies that meant that MD Helicopters could not sell any "similarly configured" aircraft to any US or foreign military organisation.

A federal court ruled that MD Helicopters could not be blocked from selling its aircraft in this way in July 2013, leaving the two companies offering very similar but competing derivatives of the original Hughes Model 369 to export customers, both using airframes built by MD Helicopters.

Lower-end offering

MD Helicopters' lower-end offering is the MD530G, a version of the MD530F, still powered by a 425shp Rolls-Royce 250-C30 engine, and still with a five-bladed main rotor, but with most elements of the MD540A's advanced weapon system, including a new mission/weapon system from Moog.

The type was unveiled at Heli-Expo in February 2014 at the Anaheim Convention Center, California, and was expected to be certified in the second quarter of the year, with deliveries slated for the third quarter.

The latest MD Helicopters military variant is the MD540A, publicly unveiled at the SOFEX show in Jordan. This was developed to meet the US Army's armed aerial scout requirement.

Originally expected to combine the larger cabin of the MD600N with MD530 dynamics, the MD540 as flown uses an MD530FF airframe with an upgraded 700shp Rolls-Royce M250-C47E/3 (250-C30HU) turboshaft with dual-channel full authority digital engine control (FADEC), driving



a new six-bladed main rotor with composite blades provided by Van Horn Aviation. This gives much improved hot and high performance and greater payload capacity.

The MD540 is fitted with a heavier-duty skid landing gear from the MD 600N, allowing a nominal 4,100lb maximum take-off weight (900lb higher than the 530F's).

The rear cabin can accommodate passengers, or can be fitted with a Mace Aviation extended-range weapon wing (ER2W), which fits across the rear cabin and contains extra fuel, as well as having four external hardpoints to carry a range of weapons including a .50-caliber cannon (successfully test-fired on the aircraft in February 2013), a 7.62mm minigun, 70mm Hydra rockets, laser-guided rockets, such as the Lockheed Martin DAGR, Raytheon Talon and BAE Systems APKWS, and AGM-114 Hellfire missiles.

Target acquisition is provided by an under-nose L-3 Wescam MX-10D electro-optical turret, with built-in laser designator.

When being offered to meet US requirements, the MD540F featured dual multifunction flight displays, a helmet-mounted display and tracking system, and a weapons management system from

Israel's Elbit Systems. For Arab customers other alternatives may be offered, including a Thales Scorpion helmet-mounted display.

FAA certification for a commercial MD540F variant is expected in late 2015 to early 2016.

From the aft cabin bulkhead backwards, Boeing's contender, the AH-6i, is very similar to the MD540, based on the Block 3 MELB (A/MH-6M), with a six-bladed main rotor (which effectively adds 272kg of payload), a T-tail, and an uprated engine – in this case the 710shp Rolls-Royce Model 250-C30R/3 turboshaft engine (rated at 600shp in the AH-6i), the military variant of the commercial Model 250-C47 engine, fitted with dual channel FADEC. The AH-6i even incorporates the same crash-worthy stroking seats.

Different proposition

But, forward of the bulkhead, the AH-6i is a very different proposition, incorporating advanced technologies, mission systems and avionics architecture from the Boeing AH-64E Apache multirole attack helicopter, albeit with smaller, COTS, ITAR-compliant avionics black boxes.

Though it is one third of the size and one third of

the cost of the AH-64, the AH-6i has Apache chromosomes running through it, according to Boeing's Mike Burke, the company's director of vertical lift attack helicopters business development.

The AH-6i is permanently fitted with avionics and a weapons 'plank' behind the pilots' seats, and so cannot use the rear cabin for carrying personnel, though they can be carried externally on bench-like planks.

The aircraft is offered with L-3 Wescam MX-10D or MX-15D sensor turrets, the Raytheon ZSQ-2 used by the A/MH-6 not being cleared for export.

The AH-6i flew in its production configuration on May 1 2014, with N306HX serving as the first international customer development aircraft. That customer is thought to be the Saudi Army National Guard, following an October 2010 foreign military sale request for 36 AH-6i aircraft and a mid-2012 letter of agreement.

Jordan announced a letter of intent to purchase the Boeing AH-6i Little Bird four years ago, but no contract has followed, and many believe that the cheaper MD540F may supplant the Boeing-built aircraft on Jordan's shopping list.



The Saudi Air Force F-15s performed well in the joint exercises with the French and proved a useful experience for the Saudi staff.

The Royal Saudi Arabian Air Force (RSAF) has participated in the fourth Green Shield exercise with the French Armée De L'Air. Photographer **Joris van Boven** was there to record the highlights.



Green Shield gets the RSAF stamp

The Green Shield exercises, devised to reinforce the relationship between Saudi and French forces, began seven years ago at the King Khalid airbase at Khamis Mushait in Saudi-Arabia. The inaugural event was known as Tiger Gust.

In the intervening years, the biennial event changed its name to Green Shield and saw successful collaborations in Dijon in 2009 and at the King Faisal airbase at Tabuk in 2012.

This year it was held at Nancy airbase in eastern France, under the command of Commandant Henry Jeandet.

A number of fighters and helicopters flew their missions twice a day over the two weeks of the exercise.

These included:

- Six Boeing F-15Ss (four single-seater and two double-seater) from No2 Squadron of the seventh wing of the King Faisal airbase/Tabuk Airport;

- Dassault Rafales from the nearby St-Dizier airbase;
- Dassault Mirage 2000 (-5F and -C) from Luxeuil and Orange airbases;
- EC725 Caracal CSAR helicopters from Cazaux airbase; and
- Dassault Mirage 2000D from the hosting Nancy airbase.

During the second week, a French Boeing E-3F flew missions from its home base at Avord controlling the airspace; while during the first week control was performed via ground station CDC Drachenbronn.

Both in the air and on the ground, Saudi air controllers sat next to their French counterparts to exchange experience and reinforcing relationships.

RSAF air transport consisted of two Lockheed C-130s and two new Airbus A-330-MRTTs, which brought the cargo and some 200 personnel from the kingdom.

Another key part of the exercise was to improve the

knowledge of aerial combat and the coordination of the crews through a set of air defence missions. The focus lay on electronic warfare, the Link16 inter-connection, the threat-countering of ground-to-air missiles (using SA-8 systems and 'Smokey SAMs' from ground positions) and combat search and rescue (CSAR).

Some 140 French and 60 Saudi missions were flown, resulting in 200 flying hours. First Lieutenant 'Barqi' from No2 Squadron has more than 500 flying hours and 300 missions in the F-15S but this was his first Green Shield exercise in France. He flew six missions against Rafales and against Mirage 2000s.

He said the learning points for him were the electronic warfare 'attacks' and the jamming during the air-defence missions; followed by the complex CSAR missions of protecting the slow-moving helicopters. "I enjoyed the opportunity to train against dissimilar aircraft types like the Rafale and the Mirage 2000," he added.



Delivery of Syria's Yaks have been delayed.

Syria to get its

Russia's state-owned arms export corporation, Rosoboronexport, says it will deliver the first batch of nine Yakovlev Yak-130 jet trainers (of 36 on order) to the Syrian Government by the end of this year. Delivery was originally scheduled for 2013 but was delayed due to Syria's civil war.

The first batch of aircraft have reportedly already been manufactured at the United Aircraft Corporation Sokol factory in Nizhny Novgorod, and have been waiting only for a decision (and the installation of engines and avionics) prior to delivery.

Under the newly announced revised delivery schedule, 12 further aircraft will be delivered in 2015, with 15 in 2016.

The \$550 million contract was signed in December 2011



new Yaks by end of the year

and an advance payment of about US \$100 million (covering the first six aircraft) was transferred by Damascus last year.

Russia has repeatedly claimed that it is only supplying Syria with defensive weapons and is not violating international law.

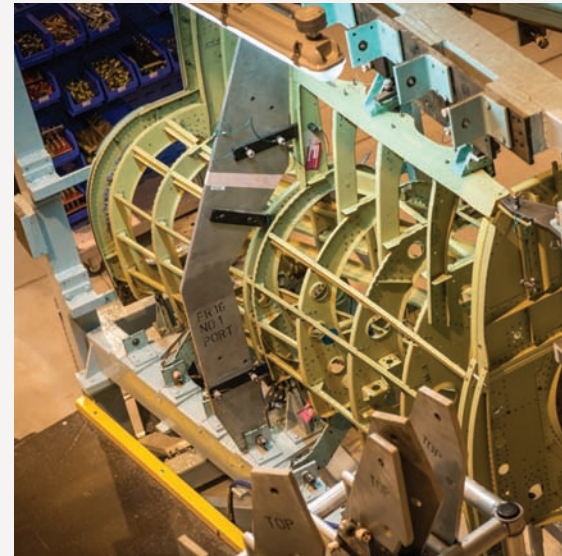
The Yak-130 is a combat-capable trainer able to carry a weapon load of up to 3,000kg (6,600lb), including guided and unguided missiles, rockets and bombs.

Its much less capable predecessor in Syrian Air Force service, the Aero L-39, has been heavily used in the counter-insurgency role against Syrian rebels. The new Yak-130s may be used in the same way, as well as keeping Syria's Air Force supplied with trained pilots.

Russia is also delivering air defence missile systems and associated equipment to Syria, providing a powerful deterrent against any western attempt to impose a 'no-fly zone' over the country.

There are some concerns that Russia will now deliver MiG-29 fighters (another type that has been used against Syrian rebels) to Syria.

Twelve MiG-29M/M2 multi-role fighters ordered by Syria (four of which have already been completed) are due to be delivered in 2016-17, according to RAC MiG CEO Sergei Korotkov, and there are fears that an interim shipment of basic MiG-29 'Fulcrum-As' may be delivered before that, following the shoot-down of a Syrian MiG-29 by a Turkish fighter in March 2014.



Work underway on the Omani Hawks.

Omani Hawks start production

A ceremony has been held at BAE Systems' Brough facility in Yorkshire, UK, to mark the beginning of the start of production of eight Hawk Advanced Jet Trainer (AJT) aircraft ordered by the Royal Air Force of Oman (RAFO).

Group Captain Abdullah Amour al-Kiyumi and members of his RAFO team watched as work began on the first airframe.

The UK Hawk production line had closed but was reinstated in response to orders for a further 30 aircraft, 22 for the Royal Saudi Air Force and eight for the Sultanate of Oman.

The Hawk aircraft is now back in production in the UK (India also has a production line) and the first aircraft is due to fly from Warton in 2015.



Detail manufacture and sub-assembly work is carried out at Brough, while wings are built at BAE Systems' Samlesbury site in Lancashire. Final assembly and flight test is undertaken at the Warton site (also in Lancashire), where a new assembly line has been established, adjacent to the Typhoon final assembly facility.

The Omani Hawks will be completed at Warton following the 22 aircraft now in production for Saudi Arabia.

These latest orders bring the total count of Hawks produced and on order to nearly 1,000. The aircraft serves with 14 nations, having been retired in Kenya, Korea, Switzerland and Zimbabwe.

The Omani Hawk order was announced in December 2013, when it was revealed that Oman had ordered eight Hawks along with 12 Eurofighter Typhoon multirole fighters. Manufacture of the Typhoon aircraft is already under way at Samlesbury.

The first Omani Hawk is expected to fly in 2016 and to be delivered in 2017.

BAE is reportedly currently in discussion with a number of potential customers for additional Hawk sales, with prospects identified in the Middle East, Europe and India. The Hawk programme sustains some 1,000 jobs within BAE Systems and more throughout the supply chain.



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The European business aviation show, EBACE, is becoming increasingly important to Middle East operators. **Alan Peaford** was at the Geneva event to report on the highlights for the region.

Piaggio's EVO-lution

Mubadala-owned Piaggio Aero has unveiled an upgraded version of the P.180 Avanti twin pusher with a clear aim to breathe life back into the seven-seat turboprop programme.

Mubadala – the Abu Dhabi sovereign wealth fund company – has begun making its mark after buying out India's Tata Industries' 45% holding in April to take control of Piaggio Aero, which remains part owned by the Ferrari family.

Piaggio Aero has launched a maritime surveillance derivative of the Avanti and an unmanned system – Hammerhead – but its executive aviation business has been hit hard by the collapse of the light business aircraft sector.

Deliveries of its Avanti II fell from a record 30 aircraft in 2008 to just two last year, according to industry figures.

But the new version of the Avanti – called the EVO – could change that, the Italian manufacturer said at EBACE.

"This marks an historical moment under the new ownership of Mubadala, and vividly displays its commitment to Piaggio and our aircraft," said chairman Alberto Galassi. "Mubadala's commitment has also been shown through investment in new production facilities, notably a new aircraft and engine manufacturing base in Villanova d'Albenga, Savona," he added.

The EVO features a host of

improvements and upgrades, which are, according to Galassi "designed to boost efficiency, reduce operating costs and provide greater levels of comfort for passengers".

With a maximum speed of 400kt (740km/h), the EVO is the fastest turboprop in the world and faster than many jets – doing so at fuel economy and emissions levels significantly below that of rival aircraft, the manufacturer said.

The new edition has seen a number of improvements to the airframe – including winglets, redesigned nacelles, and a reshaped front wing to help boost efficiency and cut emissions by 3%. Climb performance also

increases by 3% compared with its predecessor.

The new-look aircraft is equipped with new five-blade scimitar propellers, which combine with aerodynamic changes to considerably reduce external noise by 68% – 5dB(A.)

The EVO's "whisper quiet" cabin reduces internal noise by 1dB(A).

The cabin design has also undergone a revamp with new VIP seats – developed by Italian company Iacobucci – new cabin air conditioning and lighting systems.

Piaggio is also offering an increased range option, which boosts the Avanti's reach from 2,720km (1,470nm) to 3,180km (1,717nm).

"This marks an historical moment under the new ownership of Mubadala," said Piaggio Aero Chairman Alberto Galassi pictured here with CEO Carlo Logli.



Dassault 8X targets the Middle East

The Middle East has been identified as a key target market for Dassault's new flagship aircraft.

Launched at the Geneva show, the ultra-long-range Falcon 8X is the French manufacturer's longest range and largest cabin Falcon.

The unveiling of the 19-seat tri-jet came just seven months after the French airframer had taken the wraps off its all-new and widest cabin Falcon 5X.

The new aircraft is a stretched version of the successful 7X programme, which entered service in 2007 and has already seen more than 250 manufactured – including four to Saudi Arabia's SPA.

"The Falcon 8X will be our new flagship and a great complement to our product line," said Dassault Aviation chairman, Eric Trappier. "It builds on Dassault expertise in aerodynamics, in precision design and manufacturing, and in advanced digital flight controls. It embodies the best of Falcons that have come before with the most capability of any Falcon ever."

The 8X will be pitched against Gulfstream's G550, G650 and Bombardier's in-development Global 7000 and 8000.

With a range of 6,450nm (11,950 km) – 500nm more than the 7X – it will offer a more extensive list of one-leg missions than its stablemate, thanks to an extra fuel tank within the centre fuselage section. This enables the 8X to carry up to 15,800kg (34,900lb) of fuel. The 7X has capacity for 14,500kg (30,864lb).

The 8X will also feature a redesigned ultra-efficient wing derived from the Falcon 7X. "The wing structure has been redesigned to minimise the overall aircraft

drag during cruise while achieving 600lb weight saving," said Olivier Villa, senior vice president, civil aircraft. "It will also feature an optimised leading-edge profile and winglets. These improvements are expected to increase significantly the lift to drag ratio."

The 8X will be equipped with three Pratt & Whitney Canada PW307D engines, which offer a new full authority digital engine control system, as well as a significant reduction in fuel consumption, noise and nitrogen oxide emissions.

The 8X has the same cabin cross-section as the 7X but is around 1.1 metres longer, bringing the total cabin length to 13 metres.

"This extra space has enabled us to offer the most

diverse selection of cabin layouts on the market," Villa said. "More than 30 configurations will be available and three galley sizes, two with a crew-rest options."

Priced at around \$57 million, the 8X will be equipped with a totally redesigned cockpit modelled on the 5X. It will feature a new generation of the EASy flight deck – based on Honeywell Primus Epic avionics – featuring a head-up display (HUD) that combines synthetic and enhanced vision and offers a dual HUD capability.

The first flight is expected in early 2015 with certification in the middle of 2016 and initial deliveries before the end of the year.



Bombardier order to meet Qatar's global Vision

Qatar Executive used EBACE to announce the order for a second Bombardier Global 5000 Vision for its fleet in time to meet its busy summer schedule.

The Doha-based operator bought its first Global 5000 Vision last year to join two other Global 5000s, three Challenger 605s and a Global XRS.

The operator has received "exceptional" feedback from its first Global 5000 Vision "with its ultra-long range, superior cabin comfort and cutting-edge

technology," according to the company.

Qatar Airways CEO, Akbar Al Baker, said: "The Global 5000 Vision is the private jet of choice for today's travelling elite. With its extended range, maximum comfort levels and state-of-the-art technology, our latest aircraft caters perfectly to the requirements of leaders, who need to be connected to their global businesses around the world in the shortest amount of time."



Dubai leasing launch

Dubai is to be the home of a new executive jet leasing company, Veling Tayara.

The company, which is setting out to offer innovative leasing structures and simple and straightforward "off balance sheet" financing, is headed by former Embraer Executive Jets chairman Ernie Edwards and former Embraer vice president of sales for Europe, Middle East and Africa, Colin Steven, who is managing director.

"Our structured finance model provides more than just an operating lease package for a client's business jet. Instead of tying up an owner's cash, an operating lease will permit the owner to invest in appreciating assets instead of depreciating capital equipment," Edwards said.

The new venture will be headquartered in Dubai and is part of Mauritius-based airline leasing firm Veling, headed by former Air Mauritius chief Nirvan Veerasamy.

"Veling Tayara will remove the burden of owning the asset and provide inherent options throughout the lease period. It will provide flexible operating leases designed to clients' individual needs, permitting upgrades to larger, newer aircraft as the business grows." Steven said.

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Gulfstream pushes the range

Gulfstream has pushed the limits for business aircraft with the unveiling of its new G650ER at EBACE.

Gulfstream has always been popular with Arab owners of private aircraft and the new variant will meet specific range requirements.

The ultra-long-range aircraft – powered by twin Rolls-Royce BR725 engines – will now be able to travel 7,500 nautical miles (13,89km) at Mach 0.85 and 6,400 nm/11,853km at Mach 0.90. This represents an increase of up to 500nm/926km over the range of the G650, which entered service in 2012.

“The G650ER provides our customers with greater mission flexibility and the longest range of any business jet,” said Scott Neal, Gulfstream’s senior vice president, worldwide sales and marketing. “It’s the only business aircraft in the world capable of travelling 7,500nm. This opens up significant non-stop city pairs, including Dallas to Dubai and San Francisco to Delhi. G650ER owners in Dubai will be able to reach most of the contiguous United States. Thanks to the G650ER, the world just got a little smaller.”

The G650ER will share the same cabin, avionics and systems as the G650 and is currently undergoing FAA certification. Current G650 owners and order-holders will be able to upgrade their original G650 to a G650ER, beginning in the first quarter of 2015.



SkyView panoramas are the windows to watch...

High-net-worth individuals are used to viewing the world through panoramic windows from penthouse apartments or luxury yachts – but when they step on their business jets they are restricted to peering through tiny windows.

But, according to Dutch firm Fokker Services, all of that is about to change.

The VIP completions and refurbishment provider has teamed up with Boeing Business Jets and, at EBACE, its SkyView panoramic window, which is larger than three windows on a next generation Boeing 737, made its debut.

“We did a feasibility study on the window and told Boeing it was very do-able. BBJ president Steve Taylor was very excited by the whole idea and it took off from there,” says James Aspell, Fokker Services

vice president technical services.

Boeing engineers tested the concept and, while Fokker owns it, Boeing will do the validation. By working together, Aspell says, EASA and FAA certification could be complete as early as the third quarter 2015.

“Since we unveiled the new window here we have had incredible reaction – especially from designers,” Aspell said. “This could really change the whole design palette.”

Aspell said the SkyView windows would be ordered as an option and the work done at the completions stage. “Although we would love to do the completions at our centre, we would go to other centres to assist. Logically this work could be done at the same time as auxiliary fuel tanks are being fitted.”



Steve Taylor was very excited by the new window.

Rolling out more ASCs

Engine manufacturer Rolls-Royce said at EBACE that it will be extending its Authorised Service Centre (ASC) network and introducing a new parts centre into the Middle East this year.

The UK company also said it is making further improvements to CorporateCare, its comprehensive engine maintenance management programme for new and in-service Rolls-Royce BR725, BR710, Tay and AE 3007 engines.

The programme operates on a fixed-cost-per-flying-hour basis, and more than 70% of new delivery Rolls-Royce-powered aircraft are said to be enrolled in the programme.

The company plans to extend its ASC network of approved maintenance providers to more than 70 by the end of this year, compared to 54 at the end of last year.

As well as the Middle East, the growth will take place across key service regions, including Asia, South America and the USA.

Steve Friedrich, Rolls-Royce, vice president, civil small and medium engines, said: “This ensures customers have trained people with tooling and spare parts near them, wherever they fly.

Friedrich said the company’s mobile repair team, which responds globally to on-wing care (OWC) and other complex issues, will see its services further developed as Rolls-Royce places some key OWC specialists nearer to customers in Europe, the Middle East and Asia.

Friedrich said that the support programme brought longer-term benefits for owners. “Aircraft buyers increasingly recognise the risk-transfer benefits and increased asset liquidity that CorporateCare brings in a market where pre-owned aircraft sales are very busy,” he said. “Our analysis shows that CorporateCare-enrolled aircraft sell at least twice as quickly as those outside the programme.”



Sharklet ‘first’ for Alpha Star

Saudi Arabian private jet operator and management company, Alpha Star Aviation Services, has become the first Airbus ACJ320 customer for an in-service retrofit of sharklets.

The sharklets will be fitted to the ACJ320, which is already in service with the Riyadh-based operator, in 2016.

The retrofit has local structural reinforcement of the outer wing, a software upgrade to several flight-control computers, and replacement of the existing winglets.

“We pride ourselves on having a modern and efficient fleet, and adding sharklets to our Airbus ACJ320 and also adopting FlySmart [Airbus’ performance calculation software for iPad] will help us to keep it that way, as well as improving our day-to-day operations,” said Alpha Star chief executive Salem Abaid Al Muzaini.



DCAF's spacious hangar at Dubai World Central.

DC up to the Challenger

DC Aviation has been granted approval from the European Aviation Safety Agency (EASA) to expand its maintenance capabilities in Dubai to include the Bombardier Challenger 604/605 type of aircraft.

Through its integrated facility located at Dubai World Central, DC Aviation Al-Futtaim (DCAF) – the joint venture between DC Aviation and Al-Futtaim, can now offer line maintenance support to customers operating the Airbus 320 family and Bombardier Global Express, in addition to the Challenger aircraft type, with maintenance performed in a 5,700sqm dedicated hangar – the only business jet hangar at Al Maktoum International Airport.

DCAF said customers could look forward to receiving a diverse range of maintenance support from spare parts supply, procurement and storage, to maintenance and airworthiness certification.

“We are expanding our maintenance capabilities to the benefit of our customers and are pleased to add the Challenger aircraft type,” said Michael Lindgren, DCAF’s director of maintenance. “We have invested in our technicians, adding tooling and equipment to support the Challenger aircraft operators. Our team of experts is committed to meet the highest quality standards to ensure our customer’s assets are safe and secure.”

As part of its customer commitment, DCAF is currently in an advanced stage of receiving the GCAA CAR145 approval.

DCAF’s offering includes a state-of-the-art hangar, which has enough space to accommodate four ACJ or BBJ type aircraft of the heavy business jet category as well as two ultra-long-range business jets, such as the Falcon 7X, Bombardier Global Express or Gulfstream G550.

In addition to minimal taxiing time and unlimited slot availability, DCAF offers VIP customers the ultimate convenience of boarding their aircraft in a matter of seconds. Their private jet will be parked right in front of the lounge with security facilities including immigration, customs and security services provided at the facility itself.



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Waking up to a regulatory nightmare

As business aviation is once again under the same scrutiny as its commercial cousin – this time for fatigue management – the Flight Safety Foundation offers a wake up call. Liz Moscrop is alert to the possibilities.

Ali Al Naqbi is a worried man. As chair of the Middle East Business Aviation Association (MEBAA), he is constantly fighting fires, and the latest conflagration has ignited heated debate.

Business aviation is beleaguered by rules and regulations that most appropriately apply to its commercial counterpart, but which hamper the evolution of the fledgling sector.

One such is the hint of imposing the same flight time limitations on the corporate sector as those needed by the airlines.

In a bid to head off such stringent rulemaking, earlier this year the San Diego Flight Safety Foundation announced its duty/rest guidelines for business aviation, a joint effort with the National Business Aviation Association (NBAA).

The FSF is an independent, non-profit, international organisation that aims to be the leading voice of safety for the global aerospace community. The report is the brainchild of NBAA's fatigue task force, headed by Leigh White. She wrote in its foreword: "This combined effort set out to achieve a consensus that meets the safety and operational goals of the

general aviation community. Similar analyses of various industry sectors are being done throughout the world by regulatory authorities that have predominantly focused on commercial air transport."

The task force consisted of the leading fatigue management scientists plus industry experts with experience in all parts of flight operations. The goal was to develop and publish a guide that was practical, easy to understand, and easy to implement.

White is also president of Alertness Solution, the organisation former NASA scientists Kevin Gregory and Mark Rosekind founded to translate scientific principles into practical solutions for combating fatigue. The firm says on its website: "We are passionate about creating practical, science-based solutions for the challenges brought on by fatigue. Using the latest scientific knowledge about sleep and circadian rhythms, we provide strategies that improve safety, performance, and quality of life in demanding operational settings."

Al Naqbi welcomed the FSF



CONTINUED FROM PAGE 63

report, explaining that the industry must create its own guidelines regarding flight time limitations or else fall foul of hugely restrictive policies that pertain to the airline industry. He said: "For many reasons we have not introduced hours limitations. This would mean operators would have to hire double crew for aircraft that for 95% of the time do not fly long haul."

He pointed out that large airline operators have strict procedures to cater for regular routes that are allocated on an exact time. "They are able to roster their crews a month in advance," he said. "Most business aviation flights do not need crew rest periods. The airline regulations are very strict and do not really work in the private aviation environment."

To address the potentially disastrous imposition of such regulations, MEBAA has established a joint venture with the US General Aviation Manufacturers' Association (GAMA) to help draft rules that could work for the private sector.

This spring MEBAA hired a GAMA consultant and it will announce a new committee to tackle the topic at the MEBA show in Dubai in December. The association is also looking to hire another consultant to help draft rules, including crew limitations.

Al Naqbi added: "Airline crews fly 20 sectors in a month, whereas ours might just fly for six."

Fastest developing sectors

Both the UAE and Saudi Arabia are among the fastest developing sectors in the world for business aviation. It is hard to keep up and ensure the safety of the market, but MEBAA is working hard to ensure this is the case. Al Naqbi elaborated: "We do not want to have to make more rules and policies. We understand that no rules and no policies are also a problem, but we're tackling it. We have to make sure not to complicate things even further, but to get the correct rules and regulations in place." Stringent rules, such as those used by commercial carriers, would hike up operator costs immensely. "Business aviation cannot roster for a month. The whole point is that it flies on demand. Pilots do not always know when they can take a break or take leave."

Indeed, it is not uncommon for the owner or customer to arrive a couple of hours after his or her scheduled departure. In such instances, Al Naqbi said, the pilot is often sitting around drinking coffee in the comfortable environment of the business jet cabin. "He is relaxed and not rushing round doing a lot of work like his airline cousin. If the principal arrives five hours later and he was under flight time limitations, he would be out of hours just after he'd done his engine run-ups and would have to clock off."

The FSF report reflects what MEBAA is aiming to do. Among other recommendations it offers up is a suggestion that each operator must develop a fatigue management approach that addresses the challenges of its unique operation.



"We definitely do not need to have more rules imposed on us."

ALI AL NAQBI

There are many ways to manage tiredness, FSF says, such as building in a break during a duty day. The report recommends that for two-pilot crews, when the duty day includes a period of six hours or more on standby at an en route stop, pilots can obtain a maximum rest/sleep opportunity at a local hotel. In such cases, every two hours of hotel rest might be used to extend the duty day (but not flight time) by one hour.

Another trick is to add in pre-departure protected rest. For crews anticipating a maximum-length duty day, operators could schedule pre-departure protected rest at a local hotel near the departure airport. Protected rest periods help to facilitate good quality sleep, by protecting sleep opportunities from potential disturbances (for example, due to calls from other personnel, or external noise). This helps to ensure that the duty day starts with little or no sleep debt. In some cases, preparation of the aircraft by a back-up crew may afford additional mission flexibility.

Demonstrated effectiveness

Controlled rest on the flight deck is another tactic. Scientific data obtained during non-augmented, long-haul flight operations has demonstrated the effectiveness of a planned cockpit rest period of up to 40 minutes to promote performance and alertness.

It is well known that performance can decline as a function of time spent on a given task. Breaks from continuous, prolonged performance of a required task, such as monitoring, are important to maintain consistent and appropriate levels of performance. Both restorative breaks and adequate sleep, which includes recovery sleep, are important to help sustain optimal performance.

The FSF suggests that periodic restorative breaks – taken one pilot at a time on about an hourly basis – should be an integral part of in-flight crew activities. The report concludes: "All possible strategies that maintain or improve safety should be considered."

Al Naqbi said: "Of course we don't want to fly unsafely. In fairness, we have received a lot of understanding from the authorities, which do seem to understand that calculating our crew rest time on an airline base would not work. Safety is our number one priority, too.

"We are setting up different committees to look at all our needs. We definitely do not need to have more rules imposed on us."

He cited the example of the lack of support at many airfields, where the pilot not only has to be the operator, but the cleaner, and technician. Should the aircraft develop a fault, it is not always possible to get it sorted at a small airport, whereas an airliner landing at a large international airfield has help immediately at hand. The GA pilot still has to get the job done.

The FSF report is available free on its website – www.flightsafety.org.



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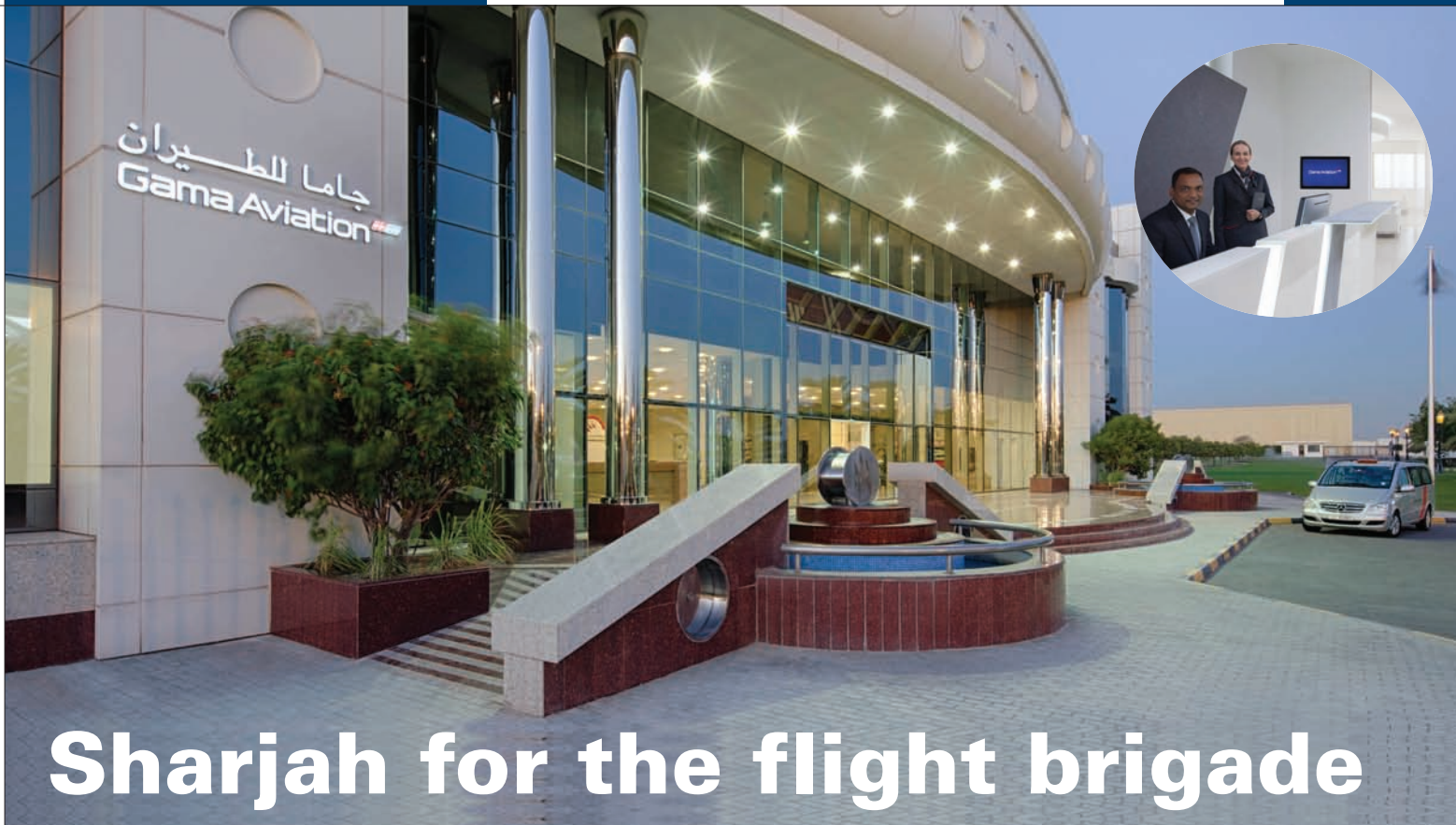


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Sharjah for the flight brigade

Gama Aviation has opened a new private terminal in Sharjah.

Liz Moscrop looks at why this could be a game-changing advantage for the emirate.

HE Sheikh Abdullah Bin Mohammed Al Thani formally opened Gama Aviation's executive terminal and its fixed base operation (FBO) at Sharjah International Airport in July.

Sharjah is now a full-service private aviation hub serving Sharjah, Dubai and the northern Emirates.

The new facility is the latest evolution of Gama's development in the region, alongside investors Crescent Enterprises, Growthgate Capital, and Sharjah's Department of Civil Aviation.

HE Ali Salim Al Midfa, chairman of the Sharjah Airport Authority, said: "Sharjah is getting increasingly popular for general aviation and business jet operators, given its uncongested ease of operations and speedy processes."

According to Gama, the FBO is already performing above its target for weekly movements as operators and owners seek to cut the transit time of principals and crew to the northern Emirates.

Duncan Danes, chief marketing officer explained: "Many parties have been involved in this project and continue to be involved in our \$15 million investment into Sharjah. The ceremonial launch of the lounge is a celebration of their support and our mutual desire to create a business aviation hub there that will provide a credible alternative to other business aviation airfields in the region. The lounge, itself, is just the tip of the iceberg; the most visible manifestation of the infrastructure we are developing."

Marwan Khalek, Gama's CEO elaborated: "We have long seen the strategic potential of Sharjah as a private aviation hub. Our new lounge facility complements our dedicated hangars, maintenance facilities and fuel services. Phase two is to start shortly with the development of a new hangar that

will incorporate an expanded maintenance facility, as well as a much needed increase in aircraft storage capacity."

Crescent Enterprises' chief Badr Jafar explained why he is backing the initiative: "Over the last decade, Sharjah has developed into an internationally recognised hub for low-cost aviation and air freight. Much less well known is the extent of the airport's private aviation operations, which will help grow Sharjah's aviation economy by creating new employment opportunities."

The project received a fillip thanks to the runway closures at Dubai International Airport (DIA), which had a knock-on effect in terms of driving traffic to Sharjah.

Danes said: "The closure has obviously restricted access to DIA and all the indicators suggest that business aviation will be marginalised there due to the lack of slot availability, just as it has been at major hubs in the past such as London Heathrow. This provides an opportunity for Dubai World Central and Sharjah International to serve the business aviation market. Naturally, we hope people migrate to us. However, the main requirement is that owners, brokers, etc, have a choice of where to land to access the northern Emirates."

While remaining tight-lipped on statistics, he added that he anticipates a boost in business, evidenced by what the company has witnessed already at the site. "We don't disclose our traffic forecasts. However, we are in line with our expectations, plus we are seeing a rise in the number of owners placing aircraft at Sharjah International – one of the leading indicators for this being fuel sales.

"We are also anticipating a rise in engineering traffic as we build the capability here alongside the new hangar we are creating as part of the phase two development."

In the meantime, the lounge has been fully operational since June 15.



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CIVIL AIRSHOW IS READY TO RECEIVE THE WORLD

From a modest start in 1996 displaying just two aircraft, the Istanbul Airshow is set to become one of the most important events in the region's aviation calendar, as Marcelle Nethersole discovers.

Turkey is gearing up for the only civil aviation show in Eurasia. This year's show will mark the 10th year of the international civil aviation and airport exhibition to be held at Istanbul Atatürk Airport General Aviation Apron from September 25-28.

More than 150 exhibitors are expected with over 50 aircraft to be displayed at the biennial event, which is expected to attract tens of thousands of global visitors.

"The show hosted two aircraft at its opening in 1996 but, today, it has surpassed most of the largest aviation shows in the number of civil aircraft on display. More than 50 civil aircraft were exhibited in 2012 and more are expected this year.

"Global companies make up 75-80% in terms of allocated area," said Ali Musfik Isik, CEO, of organisers, Mint Exhibitions.

Aircraft manufacturers displaying at the show in 2012 included Embraer, Bombardier, Cessna, Gulfstream, Cirrus, Dassault, Diamond, Piaggio, and Hawker Beechcraft.

"The event is also unique as it offers aircraft manufacturers and operators the option of parking their aircraft next to their chalets plus the flexibility to taxi in and out throughout the event for actual customer demonstration flights," said Isik.

The air show, supported by Turkish Airlines, not only features aircraft, parts and equipment, but also aircraft operation and aviation services, including air ambulance, air cargo and aerial photography.

Flight schools and training centres will unveil their latest products and airport service providers such as fuelling, catering, security and duty free companies, will showcase

their portfolios, alongside many other specialists in the industry.

"The event is also a statement of the importance of Istanbul as an international aviation hub," said Isik.

"Turkey is among the most active international civil aviation and airports markets. Not only Turkish Airlines, but also other private airlines such as Pegasus, have been growing significantly above international averages. Also, the aviation industry supply chain is given more weight in parallel to Turkey's macro-plans of manufacturing its own aircraft by 2023."

Business aviation hub

Besides commercial aviation, Istanbul is also becoming an important business aviation hub in the region, and with new investments made by Turkish Technic and others, the city has also become an important MRO base.

"Very aggressive strategies are set for the airport projects, with more than 20 airports planned to be built in the next decade. One of the largest airports in the world is on its way to Istanbul offering a 150 million passenger capacity," said Isik.

"Turkish contractors and operators have already undertaken major international construction and operation projects. To be in the middle of such a promising and growing market is vital for all industry members. Having entered the era of restructuring and investment earlier than most nations in the region, Turkey sets a perfect benchmark for aviation markets and thus plays an important pioneering role for both the aviation and airport industries in Eurasia and the Middle East."



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A DIFFERENT SCALE ALTOGETHER.



Temel Kotil: "Subsidies from government to any company – airline or any commercial activity – is poison."

When Turkey's Government lowered its stake in Turkish Airlines (THY) to 49% in May 2006, the national carrier had fewer than 100 aircraft in its fleet and was operating an average of 460 flights per day.

Roughly half of those services were domestic flights, with the airline having enjoyed a monopoly on internal sectors for almost all of its seven-decade-long history.

But, following its transition to private hands, THY's fleet has ballooned to 235 aircraft; its flight count has reached 1,200 per day; and its home market has been transformed into a vibrant, competitive landscape where the flag-carrier provides barely half of all domestic capacity.

This remarkable growth took less than a decade to achieve and Kotil said a similar timeframe must now pass before THY even considers slowing down.

"By 2023, the 100th anniversary of the Turkish Republic, we will have about 440 aircraft," said the one-time academic.

"This year we will receive 37 more aircraft, so by the end of 2014 we will have 267," he continued, noting that a handful of older units will be retired.

"Today we go to 246 destinations – 202 of them international – and by the end of this year it will be 260. We are growing about 20% this year just on frequencies to existing destinations.

PRIVATE'S PROGRESS

Turkish Airlines has enjoyed extraordinary growth since privatisation in 2006. Chief executive Temel Kotil tells Martin Rivers what is fuelling the flag-carrier's expansion and why he detests the "poison" of state subsidies.

AnadoluJet, our low-cost carrier, is growing by 60% this year."

These dizzying statistics often evoke comparisons with the Gulf super-connectors. But while THY's sixth-freedom model has undeniable similarities with those state-owned airlines, its listing on the Borsa Istanbul, Turkey's stock exchange, exposes it to greater financial scrutiny than Emirates, Etihad or Qatar Airways.

For Kotil, who became CEO a year before privatisation, the profitability that has

accompanied this growth validates his long-standing belief in private sector efficiency and competition.

"Subsidies from government to any company – airline or any commercial activity – is poison. It will kill you," he insisted. "When I became CEO, this place was a government company. Then in 2006 it became private and I saw the difference. The difference does not come from government, it comes from the attitudes.

Continued
on Page 72



Turkish A330-200F is helping the airline develop its freight business.

CONTINUED FROM PAGE 71

“In state companies, workers believe the boss is the government. In private companies, employees believe the boss is the passenger. So, in 2006, we changed the boss. We have 60 million bosses today – some of them young kids! And we love that. That’s the attitude.”

The seeds for Turkey’s aviation boom were planted in 2003, when transport minister Binali Yildirim, who is now running for the mayorship of Izmir, revoked THY’s monopoly on domestic services.

Yildirim argued that, although the flag-carrier would lose market share, the government and the country at large would benefit from a more competitive aviation sector. He was ultimately proved right. VAT revenue from air travel has quadrupled since 2003, with the entry of private companies like Pegasus and Atlasjet securing compound annual growth rates of 23% for domestic passengers over the past decade.

“This year we expect 44 million domestic passengers [across the entire sector],” Kotil said, pegging the 2003 figure at closer to 5 million. “Without other operators, there is no way the number of domestic passengers would be 44 million. We need them. They keep me awake!”

Indeed, the exponential growth has allowed the government to secure higher revenues from airlines even as it lowers the tax rates they pay. Before liberalisation, domestic air travel was treated as a “luxury” in Turkey, Kotil said, with airfares attracting 20% levies. Jet fuel taxes on domestic services stood at 40%. By lowering these duties, Yildirim “gave us – Turkish, Pegasus, Atlas – the sense that this government is good, they are supporting airline business”.

Catalyse travel

Nor was the expansion limited to Turkey’s borders. Easing visa restrictions helped catalyse travel to countries that once had strained relations with Ankara. The Russian capital, Moscow, is now served up to seven times daily by THY, compared with once daily in 2003. Another seven Russian cities are in the flag-carrier’s network, with two more to be added this year.

The privatisation of THY in 2006 cemented this growth trajectory, freeing management from the risk of political interference. Alignment with government policies is good for most sectors, Kotil stressed, “but only as long as the political rule-makers are not touching these companies”.

“If the government is getting \$1 more as a tax

from an airline company, it can lose the industry 20 or 30 times that much,” he reiterated. “Turkish Airlines’ revenue increased from \$1.5 billion to hopefully \$11.4 billion this year. In total, Turkish Airlines contributes to the Turkish economy \$50 billion this year.”

The indirect economic benefits that THY brings to Turkey are borne out through the country’s trade figures.

The flag-carrier has grown its African network from just four destinations in 2003 to 36 today.

Over the same period, Turkish exports to Africa have skyrocketed from \$2 billion to above \$13 billion. The more that people travel to and from Turkey, the more business capital flows through the country.

Kotil admitted that it can be “difficult to understand” why THY consistently grows so fast. “But we are always under-capacity,” he quickly asserts. “Istanbul is an excellent place to link Africa to Asia, Africa to Europe, Europe to Middle East.”

Indeed, as in the United Arab Emirates and Qatar, it is mostly inter-continental transfer traffic that has driven the overseas expansion. Sixth-freedom connecting passengers accounted for 39% of THY’s international traffic in 2012,

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Regional development has seen a growing role for the Airbus A321.

compared with 20% in 2006. That underscores the success that Kotil has had in developing Istanbul into a bridging point for the globe (challenging the dominance of the Gulf carriers in the process).

Yet connecting traffic only works if you have an extensive hub-and-spoke network through which to collect and disperse traffic. Hence THY's insatiable appetite for adding destination after destination.

The flag-carrier's immense scale becomes apparent with even a cursory glance of its route network, but Kotil is adamant that it should grow larger.

"We don't yet cover the whole world," he joked, when asked which markets he is prioritising. "What we have done in the last 10 years, this can be continued... We are roughly 2% of the worldwide airline business today. But an airline with our coverage or our geography, it could be very easily 4%, 6%."

The already-confirmed route launches for 2014 include Boston, Montreal, Rotterdam, Catania, Münster, Varna, Bordeaux, Pisa, Astrakhan and Stavropol.

THY's African network will also soon benefit

from 10 more destinations, Kotil said, including two new routes to Egypt, and one each to Algeria, Mali, Eritrea, Benin and Angola. THY later said that Guinea is also being targeted.

Expansion will, furthermore, continue in Europe, with tentative plans for new destinations like Baden Baden. But transatlantic operations are arguably set for the steepest growth.

At present, THY serves just six destinations in North America (New York, Washington, Chicago, Houston, Los Angeles and Toronto) plus two in South America (Buenos Aires and Sao Paulo). On top of the upcoming Boston and Montreal launches, San Francisco and Atlanta are both "in the pipeline", Kotil said.

The Irish capital, Dublin, may serve as a springboard for fifth-freedom connections. In South America, THY has already decided to launch flights to "Mexico, Bogota, Havana, and Caracas".

Australasia remains one noticeable hole in THY's network. Despite reports suggesting otherwise, Kotil gave no indication that this will change soon. Instead, effective from May 1, an expanded codeshare agreement with Star

Alliance partner Singapore Airlines will bolster THY's indirect access to the region.

In addition to opening new markets, the airline is also continuously boosting frequencies. Kotil estimated that THY should ideally operate "at least 2,000 flights per day" for a network of 260 destinations.

"This means we are at half of our matured frequencies. Today, our priority is to increase frequencies on existing routes," he affirmed. "Chicago, LA, DC, Houston – they need to double. Twice daily to Tokyo should be increased."

Higher frequencies

The airline has already announced higher frequencies this year for Nairobi, Tehran, Basel, Lisbon, Marseille, Budapest, Donetsk, Edinburgh and London Gatwick.

With such buoyant demand – passenger numbers increased 23.6% to 48.3 million last year – THY is firmly committed to growing with its own metal, rather than buying stakes in foreign carriers. It briefly acquired 49% of Bosnia's B&H Airlines in 2008, but pulled out of the joint venture after just four years. A proposed investment in Poland's LOT also fizzled out around the same time.

"We are very busy with the organic growth," Kotil insisted. "So this means the other things will come later, if they come... I believe there is no limit on any type of cooperation for Turkish and other airlines, but this goes case by case."

Although investments are not the priority for now, THY maintains close ties with its strategic partners. The flag-carrier has a 50/50 joint venture with Lufthansa called SunExpress, which specialises in tourism traffic



Technology leaders Turkish were the first airline to retrofit the 'Sharklet' on the A320 fleet.



CONTINUED FROM PAGE 73

between Turkey and Germany. Its 63-strong fleet also provides wet-lease services to AnadoluJet.

Relations between the two parent companies were strained last year when Lufthansa unilaterally stopped codesharing with THY amid heightened competition between the Star Alliance members. That dispute put paid to long-standing talks of a joint management deal but Kotil said SunExpress was unaffected by the fall-out and he remains committed to the venture.

“Our relationship is solid. Any company can make any commercial decision, we understand that,” he stressed. “We are a Star member and we want to stay with Star forever. And we speak about friendship.”

Bright future

As if proof were needed of SunExpress’s bright future, in February it placed a firm order for 25 Boeing 737-800s and 15 737-8 MAXs. The aircraft will be delivered between 2015 and 2021.

Mega orders are a staple feature of THY’s mainline unit too, with the flag-carrier splitting its commitments evenly between the two main manufacturers.

On the narrow-body front, there are separate outstanding orders for another 83 737s and 89 Airbus A320-family jets, mostly re-engined MAXs and neos. The airline’s wide-body commitments, meanwhile, comprise 20 more 777-300ERs and 17 A330-300s – all due to arrive by 2017. Narrow-bodies account for roughly three-quarters of the fleet, and maintaining that ratio will require further wide-body deliveries before the end of the decade.

Asked how soon the airline might place

“I believe there is no limit on any type of cooperation for Turkish and other airlines, but this goes case by case.”

TEMEL KOTIL

another large wide-body order, Kotil said: “Most likely it could be 2015. This year is very unlikely because we are very busy with what we are doing today.”

Plans to retire six A340s have been put on hold while the airline scrambles to meet surplus demand. But even with about 80 long-haul aircraft due to be in operation by 2016, Kotil said there is an urgent need for yet more short-term leases. THY already wet-leases three 777-300ERs from Jet Airways, and it has previously been linked to possible 787 or A380 contracts. Neither type is ruled out by Kotil, but he hinted that media reports about specific deals had jumped the gun.

“We are still looking for more aircraft, but it’s not finalised,” he said of future short-term leases. “I don’t want to say names, companies, aircraft. But that is our common practice. In the middle of the year, beginning of the year, end of the year, we get additional wet-lease and dry-lease aircraft.”

Amid seemingly unstoppable growth of the fleet, traffic and revenue, the one area failing to keep pace is expansion of Turkey’s ground infrastructure.

Istanbul’s proposed 150-million capacity third

airport has encountered repeated political delays, most recently seeing construction blocked for up to a year while an environmental impact analysis is carried out. The fate of the \$30 billion project on the European side of the city is far from certain, but Kotil remains sanguine about delays, highlighting the ambitious scale of the development. “It is a big project and any project has difficulties,” he insisted. “The potential is pushing this forward.”

Maximum capacity

Simultaneous expansion work is, therefore, planned for Istanbul’s two existing hubs. Atatürk Airport, which handled 51 million people last year, is fast approaching its maximum capacity and may add a new runway. Expansion is also on the cards for Sabiha Gökçen Airport, on the Anatolian side of the city, although its 19 million footfall has some way to go before new facilities are urgently required.

“We will focus on Sabiha, focus on Esenboğa [in Ankara], and utilise the slots we have at Atatürk for our premium networks,” Kotil said. “We can accommodate whatever growth until the new airport is ready.”

With Sabiha Gökçen lifting its traffic by 27% last year, the chief executive admitted that relying on Istanbul’s secondary airport marked “a little bit of a change on our strategy”.

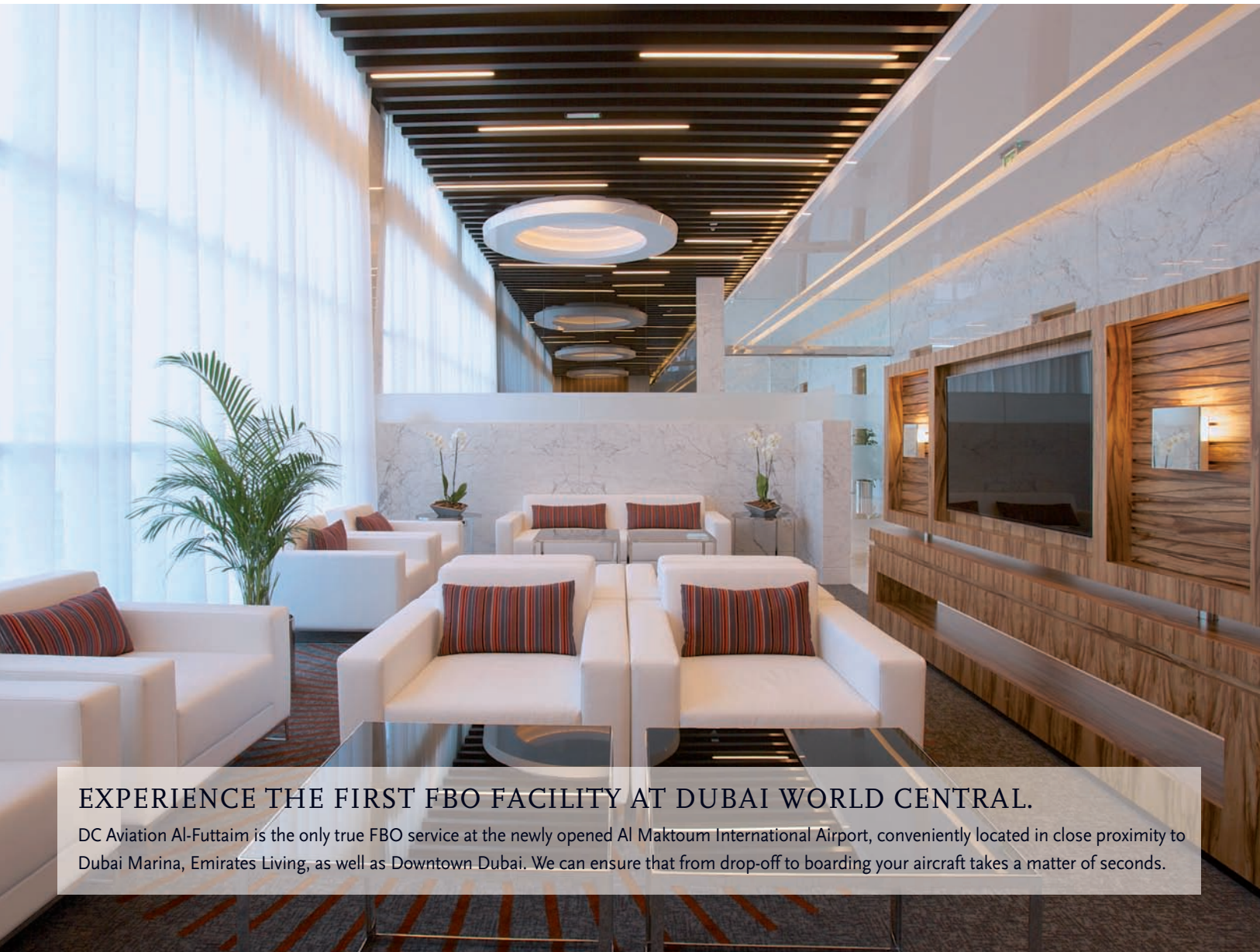
“But who knows, maybe it will work perfectly,” Kotil added. “The catchment area of Sabiha is excellent. There are many manufacturing facilities around Sabiha, so Sabiha could be very tasty.”

For a man who favours tropes when discussing his business, “tasty” can surely also be used to describe Turkey’s broader aviation prospects.



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Shining examples of Turkey's rising star

Turkey is a shining light for international private aviation. Liz Moscrop has been following its star.

Gözen Air Services has a customer portfolio of more than 800 commercial, military, cargo airlines, private airlines and general aviation enterprises.

Turkey's first president, Mustafa Ataturk, once said: "A youth on wings is the greatest assurance in terms of a country's future."

He is surely smiling on from another place as he looks at what his country is achieving today in terms of aviation.

Turkey is emerging as a rising star. According to business aviation consultancy Avinode, domestic travel is the major driver in the market, accounting for almost 60% of all arrivals and departures in the nation. This strong indigenous market could indicate that the country has an underdeveloped road and rail infrastructure, plus poor travel connections.

The Turkish statistical institute latest figures support this theory. The country's economy is strong with a gross domestic product (GDP) expansion of 1.70% in the first quarter of 2014 over the previous quarter.

GDP growth rate has actually averaged 0.96% from 1998 until today. So, because of its large geographical area, Turkey relies quite heavily on business aviation to stimulate its economic growth.

Onset of hostilities

There's a gloomy note, however, from the 2013 statistics, which indicate that, following the onset of hostilities with Syria, Turkey has seen a 13.6% decline in the domestic market and a 4.1% decrease in overall business jet traffic.

On the plus side, Avinode says that international travel appears unaffected by the unrest, having experienced an uninterrupted growth of 3.9% for arrivals and 3.5% for departures last year, likely due to its geographical placement between Russia, Africa and the Middle East.

Inbound traffic to Turkish airports comes from around

the world, with the majority of traffic originating from Germany, Russia, Italy, the UK, the UAE, the Ukraine and Saudi Arabia.

At the heart of Turkey's success is top international flight service support.

With a customer portfolio of more than 800 commercial, military, cargo airlines, private airlines and general aviation enterprises, Gözen Air Services has become a main player, offering 24-hour service for ground handling services, personal transportation and catering services, flight support, brokerage, aviation consultancy, fuel, hangar and lounge services.

The company operates from eight bases around the country: Adana, Ankara (Esenboga), Antalya, Milas (Bodrum), Izmir (Adnan Menderes), Mugla (Dalaman), Istanbul (Ataturk and Sabiha Gokcen Int'l), Travazon

"Since our establishment, we have been working closely with all our authorities to obtain slot and traffic rights for more than 100 airlines from several continents which are operating to Turkey. We manage charter, scheduled services, low cost, cargo, military carriers... The different nature of all of them guarantees we have a clear idea of what is going on in every step of their operations," the company said.

Operators in Turkey include Kaan Air, which signed for Europe's first VIP Agusta Westland AW189 helicopter in June this year. The firm also placed an order for a VIP AW139.

Internet and voice system

Istanbul MNG Jet is also a key player, and earlier this year obtained EASA approval for its Honeywell Aspire internet and voice system on the Bombardier Challenger 300 type. The operator is now planning to add Aspire on all its Challenger and Global Express aircraft.

Another major native operator is critical care airlift services provider, THK Gökçen Aviation, the commercial arm of the Turkish Aeronautical Association. The firm recently took delivery of a twin engine Airbus Helicopter EC135, which will help service its five-year EMS contract with the Turkish Ministry of Health.

Ataturk and Sabiha Gökçen Airport-based Swan Aviation took delivery of a Dassault Falcon 900EX and is due to receive a Falcon 7X. Other fixed-wing charter providers include one of Turkey's largest operators, Bilen Air Services, and Kocoglu Aviation.

There are also several firms like Redstar Aviation, which arranges medical evacuation and related services. Helicopter offerings come from firms such as Kaya Air, Betaz Aviation and Uray Aviation among others.

Fabio Gamba, CEO of the European Business Aviation Association (EBAA) said: "Turkey is a nascent market, still in its infancy. That makes it so interesting to us, because there we see a remarkable level of youth and enthusiasm."

Ataturk's vision is coming to pass.





NEW CEO ENGINEERING

*Turkish Technic welcomes Ahmet Karaman as its new chief executive at an interesting time in the company's development. It has just opened a new world-class MRO base, its anchor airline is expanding and it is signing customers in new regions. **Chuck Grieve** reports.*

Ahmet Karaman is, in many ways, the ideal man to pick up the reins of Turkey's biggest MRO provider, Turkish Technic. An aeronautical engineer, he brings experience on both client and supplier side to one of the more important roles in Turkish aerospace.

Karaman was promoted to chief executive this past spring to succeed Dr Ismail Demir, who has moved to head up the Undersecretariat for Defence Industries.

A graduate of Queen Mary College, University of London, Karaman joined Turkish Airlines (THY) for five years in the mid 80s before going into the private sector and working his way up. In 2005 he joined Onur Air, the largest private airline in Turkey, as chief executive.

He returned to the THY group in March 2013 to lead THY Technic negotiations for the acquisition of MNG Technic, and remained to

run MNG as a subsidiary of THY Technic.

One of his first jobs was to preside over the opening, on June 27, of the massive new MRO centre at Sabiha Gökçen International Airport. HABOM, as the facility is called, is one of the world's largest, with capacity to handle 11 narrow-body and three wide-body aircraft simultaneously.

Karaman is no stranger to HABOM: it's where he had been running MNG as a parallel operation with THY Technic.

The full opening of HABOM leaves the THY Technic facility at Ataturk Airport to handle the requirements of parent Turkish Airlines exclusively. The two airports are about 70km apart and both serve Istanbul – Ataturk from the European side of the Bosphorus Strait and Sabiha Gokcen from the Asian.

The HABOM hangar has been in operation since last November, with about 30 customers.

Most of its equipment is installed and, although some shops handling specialised functions remain to be opened, the site is ready for its operational audit. Karaman is hopeful that it will be fully open this summer.

The company currently employs about 2,500 people, 1,500 of them at the new facility on the Asian side. Under current expansion plans, in a year or two, the staff will grow to between 3,000 and 3,500.

One of the newest customers for HABOM is Sharjah-based budget carrier Air Arabia, which signed a contract with THY Technic in June for the supply of components and support services. Components will be supplied from Istanbul and all repair and overhaul work will be executed at the Turkish Technic sites in Turkey.

The contract pushed THY Technic's component pool market past the 500 aircraft mark while broadening its component service area to the Middle East. Despite this success, said Karaman: "We don't have any plans specifically for developing our business in the Gulf area." Rather, THY Technic will follow up similar opportunities to provide component support.

Hangar capacity

The Gulf area, he noted, has plenty of hangar capacity – probably over-capacity. But in the area of components, there's room for another player.

THY Technic is also interested in strengthening its involvement in engine maintenance, but considers it a difficult area in which to compete.

However, its joint venture with Pratt and Whitney, Turkish Engine Centre (TEC), runs a successful operation in Turkey overhauling and repairing CFM56 and V2500 engines, and could provide the vehicle for expansion in the Gulf. "It's an area we are interesting in looking into in the near future," said Karaman.

THY Technic's third-party customer base is still mainly airlines and operators in the countries in the CIS, the old Soviet Union. Given the sizable fleets of older Boeing and Airbus aircraft in service there, the company sees no reason to change tack. Karaman explained: "We have certification to service most of these types." The company still holds a licence for the Boeing 727, examples of which are operated mainly in VIP configuration.

Turkish Technic is talking to various low-cost

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A BRIGHT FUTURE...



“Our main aim is to look after Turkish aircraft better.”

AHMET KARAMAN

carriers in the UK and now in the Gulf area as well. “We’re open to all negotiations,” said Karaman, but he added: “We don’t want to be in the position where we feel we have to sign a contract at any cost. We have to charge a reasonable amount. We don’t want to rob an airline, but we have to make a profit from our operations.”

THY Technic has the undeniable advantage of guaranteed business from its parent, THY, which accounts for more than 60% of its

capacity. It has stated the intention of increasing third-party business to as much as 50% of capacity.

This ambition is not the classic case of a company worrying about having all its eggs in one basket. As Karaman puts it: “These are our baskets and our eggs. That’s why we can negotiate with others.”

The work for THY doesn’t make Turkish Technic complacent. It continues to come under pressure from its parent to give priority to

improving its efficiency in servicing the airline’s 250-aircraft fleet. It’s a powerful argument: with turnover just 10% that of the airline, the gains the airline would make from reduced downtime are far greater than the value the MRO side would add from selling that capacity to third parties.

“Our main aim is to look after Turkish aircraft better,” said Karaman. “Anything else we do doesn’t increase group income a great deal.”

THY is already one of the world’s top 20 airlines, ranked 13th by Business Insider, with the fourth largest flight network and numerous awards, including Best in Europe. Its expansion plans, particularly in Africa and Asia, mean that THY Technic’s work appears to be cut out supporting it with line maintenance stations in a wide spread of locations.

Karaman admits there’s little room to manoeuvre in the Gulf. Fleets are newer, owners richer and OEM maintenance contracts more prevalent than in Asia.

Big potential

Opportunities may lie in the subcontinent and points east in the area of components support. Iran has big potential for the future, as does Iraq. As yet THY Technic has no approvals from either country.

“We’re always hopeful of new business but our main focus at the moment, and for the foreseeable future, are the CIS countries,” said Karaman. “They are our main third-party customers. This is where growth in the next few years is expected to come from.”

“We have a couple of advantages. These airlines tend to plan short-term, so we end up with aircraft arriving in Istanbul for servicing with little advance warning.”

“Fortunately, we have the flexibility that usually allows us to accommodate them. For example, we have a limited number of expats in our workforce so we don’t run into the problem of having nobody around in the summer, and we can call staff back from holidays more easily if we have to.”

Turkish Technic continues to have a high annual intake of technical high school graduates into its training programmes. Currently it has about 1,500 trainee MRO engineers, of which about a third are expected to be licensed within the year.

Karaman expects training to continue at the same intensity for the next five years. Despite losing almost half his new licencees to other airlines, including those of the Gulf, he is not worried. It would be a challenge to find jobs for all 500 new licencees a year who Turkish Technic, as a 49% state-owned company, has a social obligation to train. “We all gain,” he said.

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Turkish Air Force F-16s go through the Peace Onyx III upgrade.

TURKEY STARTS TO FLEX ITS MUSCLES

The Turkish presence at the Farnborough International Air Show (FIAS) was headed up by the Savunma Sanayi Mustesarligi (SSM) – Turkey’s defence procurement agency – tasked with supervising all government military expenditure.

Recently SSM has been hitting the road and taking many of its defence companies with it.

At the recent Defence Services Asia (DSA) exhibition in Kuala Lumpur, the Turkish presence was massive. The same happened at ILA Berlin in May. A big export drive is now on.

SSM coordinates all its aerospace projects through Turkish Aerospace Industries (TAI), established back in 1983.

Today, 30 years on, the place is unrecognisable from the one that cut its teeth manufacturing F-16s for the Turkish Air Force and, later, Egypt. There are five business units – unmanned aerial systems, fixed-wing, helicopters, aerostructures, and satellites, all of which have big projects going on.

Its massive aerospace structures build, among others, composites for Airbus, Agusta Westland, Boeing, Eurocopter, Lockheed Martin and Sikorsky and, in so doing, bring in a revenue stream that funds research and development.

Turkey has been beefing up its presence at international aviation and defence shows and this year’s Farnborough was its biggest ever, with the T129 ATK multi-role combat helicopter and Anka UAVs appearing in the static/flying displays.

Alan Warnes looks at the country’s fast-growing industrial might.

PICTURES: ALAN WARNES

Arguably, the biggest programme is the manufacture of F-35A centre fuselages as an international partner to Northrop Grumman. The first was delivered to Northrop Grumman and Lockheed Martin during a ceremony at TAI’s Ankara facility on December 11, 2013.

Muharrem Dortkasli, president and chief executive officer, TAI said at the time: “Delivery of the first F-35 centre fuselage is a major step by TAI to demonstrate its commitment to adding value to the programme.”

He added: “TAI has invested in brand new, state-of-the-art facilities, machinery, equipment and tooling to manufacture the most advanced and complex assembly of the F-35 fifth-generation fighter aircraft. It is now time to begin delivering world-class TAI centre fuselages to the final production line at an increasing rate every year.”

Follow-on centre fuselages have been rolling off the TAI production line ever since and, once the programme reaches full rate production, the company will support final assembly lines in the United States and Italy by shipping one centre fuselage every 10 days. They will be integrated into Turkish F-35s as well as other participating nations’ aircraft.

TAI is also the single source for

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centre fuselage metallic assemblies for the F-35A, selected composite components for all F-35 variants, and is one of two sources for composite air inlet ducts for the F-35A, as well as air-to-ground alternate mission pylons for all F-35 variants.

On June 6, Pratt and Whitney inaugurated its Turkish partnership with local aviation company Kale to produce critical engine parts for the F-35. Kale Pratt & Whitney, the joint venture, will manufacture parts of the F-135, the engine for the F-35, at Izmir.

Roketsan is working on the Som-J stand-off weapon with its armour-piercing warhead for the F-35. Born from the Som-A/B carried by F-16 Block 50s, Som-J has folding fins and is slightly smaller. The weapon has a terrain-based navigation (TBN) system as well as INS/GPS. It has a range of around 160 miles (250km), and one big advantage, according to Roketsan, is that it only weighs 1,322lbs (600kgs) with explosives.

Looking further ahead, Turkey is aiming to augment the F-35 in service with its own Turkish Fighter-X (TF-X) aircraft. Prime Minister Recep Tayyip Erdogan is widely expected to give an official go-ahead for the first phase of the development stage this year.

First indigenous fighter

TAI has already concluded pre-concept work and produced three design models that will lead to Turkey's first indigenous fighter. TAI signed a two-year design contract with Saab in 2012 to develop a lightweight single-engine multirole fighter.

SSM has sent requests for proposals to Rolls-Royce, General Electric and Pratt and Whitney for a suitable engine for TF-X. A decision on the selection is expected by the end of 2014.

There are hopes the new fighter will make its first flight in time for the 100th anniversary of the Turkish nation in October 2023. Known as 'Vision 2023', TAI will be a lead partner in fulfilling this dream, which is also set to star a new light utility helicopter and regional passenger aircraft.

Turkey also has a requirement for 100 F-35As.

On June 15, 2012, a \$489.5 million advanced acquisition contract was awarded by the US DoD to Lockheed Martin for long lead-time parts, materials and components required for low rate initial production (LRIP) Lot VII of the F-35.

This package included funding for the first two F-35A aircraft being acquired on behalf of Turkey, which were originally due to be delivered for pilot training duties in the USA, during 2015.

However, in a statement issued by SSM on January 12, 2013, it was announced this timeline was being delayed due to increases in unit costs and delays in the operational development of the type. Subsequently, on February 27 2014, the Turkish SSM revealed the first two aircraft are now likely to be ordered in 2015, with deliveries anticipated to take place in 2017/2018.



Three T129s were handed over to the Turkish land forces in early June 2014.

PICTURE: TAI

A HELICOPTER FOR THE FUTURE

SSM signed a \$1.2 billion contract in September 2007 with AgustaWestland, Aselsan and TAI for the purchase of 51 T129s for the Turkish land forces.

A second purchase of nine T129As, known as early development helicopters (EDHs), was signed with AgustaWestland on November 8, 2010.

The first 30 T129Bs, known as Phase 1 variants, will not initially house any radar warning or laser warning receivers but the remaining 20 Phase 2 variants will, as well as boasting the full range of locally produced equipment. This will include the Aselsan AVCI helmet-mounted cueing system and an advanced targeting system turret, just above the 20mm Gatling-style gun.

The targeting system houses a thermal camera, laser range finder/designator, laser spot tracker, colour TV camera, and colour spotter camera with a multiple target tracking capability.

TAI is working with other Turkish companies on the indigenisation of the T129Bs.

Roketsan is developing the long-range Mizrak U (formerly known as UMTAS) anti-tank missile, which has a range of five miles (8kms), as well as the Cirit laser-guided 2.75 inch rockets. The latter will be integrated on Turkish Army AH-1 Cobras and Iraqi Air

Force EC 635s. The UAE's AT 802 air tractors are known to be using them too.

Aselsan concentrates on software and avionics issues, while Havelsan will manufacture the T129 simulator and subsequent training. LHTEC/Rolls-Royce are manufacturing the 1,380shp LHTEC CTS800-4A engine.



The nine EDHs were ordered because the Turkish Army could not wait for the integration of the Mizrak or Cirit weapons. "Instead they will come armed with a 20mm gun and unguided rockets," explained Gorkem Bilgi of TAI's integrated helicopter systems.

The first three were handed over at the Turkish land forces base at Guvercinlik on June 10, 2014. They are believed to comprise prototype P4 (29804), the first EDH (EDH-1); P5 (29805)/EDH-2/ATAK-1 and EDH-3 (29808)/ATAK-2.

One more will follow shortly and the last five EDHs will be delivered by the end of the year, according to TAI.

Some 28 TKK pilots and 85 technicians have already been trained on the T-129 at TAI's flight school with all of the flying training being carried out by P6.

RISING OF THE PHOENIX A KEY PART

An agreement signed between Turkey's SSM and TAI in late December 2004 led to the development and production of the country's first medium-altitude, long-endurance (MALE) unmanned aerial vehicle.

The Anka (Phoenix) UAV was developed primarily to get around procurement problems and, when certified, will provide Turkey with a 24-hour surveillance platform operating up to 30,000 feet.

The initial Anka-A variant, configured for surveillance missions, made its first flight on December 30, 2010. Under the development programme, five prototypes were built with SSM officially accepting the UAV in February 2013.

The sensor payload of the Anka-A includes optical and infrared cameras, through the Aselsan ASEFLIR 300T, a laser range-finder and a laser target designator, which will also be found on the T129 ATK.

During September 2013, SSM signed a contract for 10 Anka UAVs for the Turkish Air Force, with changes to the original specification.

"We were expecting to produce and deliver the February 2013 qualified configuration; instead the Turkish Air Force asked for many more additional requirements," explained Serdar Olez, vice president unmanned aerial systems. "Among those the most important was the wide band satellite communication requirement."

Deliveries are expected to start by mid-2016 and continue until late 2017. TAI is also hoping to turn its two-year support contract into a performance-based logistical deal.

TAI started work on a new version with Aselsan in late 2012 to deploy a synthetic aperture radar (SAR)/moving target indicator (MTI) and inverse SAR

The Turkish Meltem II CN235 features the AMASCOS 200.



SO MUCH MORE IN THE TAI PIPELINE

While the F-35, TF-X, T129 and Anka are taking up an increasing amount of time, plenty of other work is going on and it is not surprising that TAI's Ankara site is now burgeoning into the biggest aerospace facility in Europe.

F-16 work continues, although the last of 41 Pakistan Air Force F-16A/Bs to go through a mid-life update will be completed in late 2014.

Work continues on integrating government furnished equipment (GFE) kits into 165 F-16 Block 40/50s under Peace Onyx III, through a modernisation and serial assembly upgrade at TAI. Only 36 jets are left, with all but two under modification by late June and the programme looking to be completed by the end of 2014 too.

While the Turkish Air Force has been widely tipped to upgrade the Block 30s, no decision has been made. However, a decision on a structural upgrade is expected within the next six months.

After making its first flight in September 2013, Hurkus A is now moving closer to civilian EASA certification and will eventually be followed by the Hurkus-B trainer (the Turkish Air Force has 15 on order) and Hurkus C light attack aircraft.

Projects already mature include the Turkish Air Force T-38 fleet, which is going through a TAI avionics modern programme (AMP) to overcome the fighter's

obsolescence. The project incorporates a new digital-state-of-the-art head-up display (HUD), multi-function colour display (MFCD), DVDR/DTS, hands on throttle and stick (HOTAS), new generation intercom, V/UHF radios, cockpit camera, EFIS, VOR/ILS, avionic activation panel (AAP), main control computer and software. It will ensure the 55 T-38Ms under the contract will be relevant up to their 2025 retirement date.

Like many companies, TAI has also developed a Hercules upgrade. Seven C-130Es and six C-130Bs of the Turkish Air Force are being modernised with a new glass cockpit that includes four multi-function displays, two control display units and a pair of multi-mission computers (MMCs).



Link 16 is also an option, as well as a MIDS terminal on board – allowing the transport aircraft to play a part in secure flying operations when required. The upgrade should see the Turkish Air Force Hercules continue in service for another 20 years.

Another important programme is the Meltem (sea breeze) maritime patrol aircraft. The original Meltem I was the purchase of three CN235s for exclusive economic zone (EEZ) surveillance missions by the Turkish Coast Guard and six CN235s in anti-submarine warfare (ASW) and anti-surface warfare for the Navy.

Meltem II was launched in 2002 with Thales as the prime contractor to upgrade six CN 235s. The mission system is based on Thales's airborne maritime situation and control system (AMASCOS) 200. This is designed around a tactical command sub-system with a full range of latest-generation Thales sensors (radar, ESM and acoustic) and communication systems. There have been issues, but the systems have now been delivered to the Turkish Navy.

The Meltem III programme covers the acquisition of six ATR72-600 aircraft and their modification into the ASW configuration for the Turkish Navy.

Unlike the Meltem II contract, Alenia, as prime contractor, will carry out all modifications at TAI's facilities. TAI's work share includes design of the system installation and structural integration, kit-A and tools manufacturing, procurement of material and support equipment.

Second helping for Turkey

Turkey looked set to take delivery of its second Airbus Military A400M as *Arabian Aerospace* was going to press, having received its first aircraft earlier in 2014.

The Turkish Air Force was the second air arm to take delivery of an A400M, receiving its first aircraft after the French Armée de l'Air accepted the first two.

This aircraft (c/n 09) was formally handed over on April 4 and was delivered to the 12nci Hava Ulaştırma Ana Us Komutanlığı (Air Transport Base Command) at Kayseri-Erkilet on April 16.

The aircraft had made its maiden flight on August 27 2013 and handover had originally been expected in September 2013 but this was delayed by unspecified contractual difficulties.

The aircraft joined 221 Filo 'Esen', which is currently equipped with the C160D Transall. It was seen visiting Konya in the Central Anatolia Region of Turkey during the recent Anatolia Eagle exercise.

OF UAV STRATEGY

(ISAR) payload on board the Anka, for use as a signals intelligence (SIGINT) platform.

"We hope to fly the Anka in this configuration soon and to deliver the aircraft to SSM within the first quarter of 2015," added Olez

Development of a proposed armed variant, Attack UAV, is also under way. Turkish Savunma Sanayii cıra Komitesi (SSIK - defence industry executive committee) approved TAI on July 17, 2012 to begin feasibility studies into doubling the maximum take-off weight of the existing air vehicle from 1.5tonnes to five or six tonnes.

Issues arose over the supply of the Thielert Centurion 2S turbo-diesel powerplant in mid-2013, when the German company went bust. Having bought the business, China's AVIC abandoned all military use of the 155hp rated engine, leading to TEI being tasked with developing an alternative.



The Airbus Military A400M.



Against all the odds, Turkey's first wholly indigenously designed and built manned aircraft for 60 years is now flying and, as Jon Lake reports, it is making real headway towards service entry.

Hürku trainer continues to defy the odds

The progress of the TAI Hürku is, perhaps, surprising – particularly as Turkey has already fulfilled its requirement for a turboprop-powered basic trainer to replace the Cessna T-37 with an order for 40 Korean KAI KT-1T Woongbi trainers.

Fortunately, the Turkish Air Force had also taken options on 15 more KT-1Ts, and by cancelling these, the Turkish Government has managed to demonstrate a requirement for 15 of the new TAI trainers – although buying more KT-1Ts would, presumably, have made things easier for the air force logistically speaking, and would have represented a significantly cheaper option.

Though the KT-1T and Hürku are of a broadly similar class (and although the Hürku is reportedly derived from the Korean design, or at least uses some technology transferred as part of the KT-1T order), the new Turkish trainer does offer some compelling (if marginal) advantages over the older design.

It also gives TAI a potentially exportable design in a high-demand (if hard fought and crowded) marketplace.

The TAI Hürku is a typical turboprop-powered trainer; a low winged, single turboprop-powered monoplane with stepped tandem cockpits. As such, it follows much the same pattern as was originally set by the Pilatus PC-7, and which is today shared by a wide range of trainer aircraft, including the Beechcraft T-6 Texan II, the Pilatus PC-9, the Embraer EMB-312 Tucano, and the KAI KT-1.

The aircraft's heavily stepped cockpits will provide good forward visibility, with the back-

seat occupant enjoying a 50-degree view downwards over the nose. The cockpits are pressurised (to a nominal 4.16psi), and are equipped with hands-on throttle and stick (HOTAS) controls and Martin-Baker Mk T-16 N zero/zero ejection seats.

The aircraft has an on-board oxygen generation system (OBOGS), a Microtecnica environmental control system (with vapour cycle cooling), and an anti-G system.

Like most of its rivals, it is powered by a Pratt & Whitney Canada PT6A turboprop engine and is designed to have a secondary light ground attack capability. But there is more to the Hürku than that.

Additional power turbine

The PT6A engine has been chosen for many military trainers, but the Hürku is powered by a member of the so-called 'PT6A large' family, which added an additional power turbine stage and produced up to twice the power output of earlier PT6s, ranging between 1,090 and 1,920shp.

The 1,600shp PT6A-68T engine of the Hürku is essentially the same powerplant as that of the fastest kid on the block, the 428mph Pilatus PC-21. It even uses a similar five-bladed aluminium Hartzell HC-B5MA-3 propeller. The same basic aircraft also powered the heavyweight EMB-314, which was optimised as a close air support aircraft.

While not as fast as the PC-21, the Hürku is similarly designed to offer more 'realistic' performance than the older turboprop trainers, with jet-like handling, 'single-lever' power

management, HOTAS controls, and a fighter-like three-screen glass cockpit. It can also carry the same 3,300lb (1,500kg) payload as the EMB-314, while operating from unprepared runways.

These capabilities set the Hürku apart from aircraft like the KT-1T, Beechcraft T-6 and Pilatus PC-9, and place it close to the top of the turboprop trainer league table. It will be fully equipped for day and night flying, and will be suited for basic pilot training, navigation training, instrument flying, formation and weapons training.

The TAI Hürku programme began in March 2006, when the \$150 million development contract was signed by the Turkish Undersecretariat for Defense Industries (Savunma Sanayii Müstezarlığı, or SSM) and TAI.

The eight-month conceptual design concluded in December 2006, when a contract for four prototypes – two flight-test examples and two aircraft for static testing – was finally placed. Under the terms of the agreement it was laid down that the aircraft would be designed, manufactured, and certificated to European Aviation Safety Agency CS 23 standards.

TAI showed a concept model of the Hürku primary and basic trainer aircraft at the 47th Paris Airshow in June 2007, and predicted that the first prototype would fly in late 2009, with first deliveries forecast for 2011, on completion of the certification process. Strangely, in that same month, Ankara ordered 40 KAI KT-1T trainers under a \$400 million contract, seemingly cutting the ground from under the Hürku.



“We did not exceed 150 knots because the flaps were in the landing position. All of the systems worked well. After testing the control, avionic and hydraulic systems, everything was fine.” TEST PILOT MURAT ÖZPALA

The first five KT-1Ts were to be built in Korea, but the remainder were to be jointly manufactured at the TAI plant near Akinci in Turkey.

The Turkish KT-1Ts are extensively upgraded, with an all-glass pressurised cockpit, HOTAS controls, OBOGS, a vapour cycle ECS, and ice protection and anti-G systems.

The Hürkuş development programme was subject to delays, and the critical design review of the aircraft was not completed until April 2009, when the design was finally frozen.

The aircraft was officially named after Vecihi Hürkuş during the eighth International Defence Industry Fair in Ankara, in 2010. Hürkuş had been a Turkish aviation pioneer (Turkey's first civilian pilot, a WWI veteran and the first Turkish aircraft manufacturer).

On June 27 2012 the Hürkuş was ceremonially rolled out at TAI's Kazan facility, by which time the programme had taken one million man-hours, and was employing 140 engineers, about a quarter of whom were female, as were two of the three project heads.

The first flight date was delayed – the 33-minute flight finally undertaken at Ankara Akıncı Air Base on August 29 2013, following the completion of ground and taxi tests.

TAI test pilot Murat Özpala left the landing gear down for the whole flight, climbing to 9,500ft and reaching 140kts. “We did not exceed 150 knots because the flaps were in the landing position,” Özpala said. “All of the systems worked well. After testing the control, avionic and hydraulic systems, everything was fine.”

Muharrem Dortkasli, TAI's general manager, described the Hürkuş as “The first Turkish-designed aircraft since 1952”, and added: “We believe it is a historic day for Turkey's aviation industry.”

A second flight followed on September 12 2013, and further flights were made on September 19 and 20, reaching progressively faster speeds and higher altitudes.

There are planned to be four versions of the new trainer. The Hürkuş-A is the basic version, with an analogue cockpit, certified with EASA according to CS-23 requirements, and intended for the civilian market.

Integrated avionics suite

The Hürkuş-B is an advanced version with a glass cockpit that is laid out like those of the F-16 and F-35. Hürkuş-B has an integrated avionics suite (including HUD, MFDs, and mission computer), with advanced military avionics produced by local company Aselsan. It has been designed to meet Turkish Air Force requirements, which include a 35-year service life.

The Hürkuş-C is an armed version optimised for the close-air support role, with a forward-looking infrared (FLIR) sensor and other role equipment. It will be able to carry a maximum weapons load of 3,300lb (1,500kg) and will be capable of operating from unprepared runways and forward airstrips.

The Turkish Army has expressed interest in the Hürkuş C as a means of providing support for its attack helicopters, and the type could also attract export orders.

TAI plans to offer a fourth version of the Hürkuş for the Turkish Coast Guard to support its maritime patrol operations. The aircraft would carry a dedicated operator for an Aselsan FLIR sensor in the rear cockpit.

Contract negotiations between TAI and SSIK for the serial production of Hürkuş began on September 26 2013.

The air force requirement was for 15 new-generation Hürkuş-B trainer aircraft. The first Hürkuş-B aircraft is planned for delivery in 2017, while the remaining 14 will be delivered in 2018.

Thus, by 2018, the Turkish trainer fleet will comprise a new primary/elementary trainer, 40 KAI KT-1Ts, 15 Hürkuş-Bs, and 55 upgraded T-38Ms (also known as T-38Ts).

The contract was finally announced on December 26, in place of a long-planned option for 15 more locally-assembled KAI KT-1s. Under the same contract, TAI will also carry out design work on the armed Hürkuş-C variant to meet the Turkish Armed Forces requirement.

TAI expects the Hürkuş to gain certification from the European Aviation Safety Agency by the end of 2015, following an 18-24 month flight-test programme.

The Turkish Government has expressed the hope that the EASA-certified Hürkuş aircraft will attract significant export sales. Middle Eastern countries were a particular sales target, though most of those with basic trainer requirements have already selected the Pilatus PC-21 (including Saudi Arabia, the UAE, and most recently Qatar), while the T-6 has been procured by Israel, Iraq and Morocco.



The airport projects and operations sector in Turkey seems to be looking up. Keith Mwanalushi speaks exclusively to TAV Airports about the massive capacity expansion in the country and the intricacies of international airport management.

TAV TAKES A LOOK AT NEW DEPARTURES

Turkish airport operator and builder, TAV, got off to a good start this year. The company announced a net profit of €20 million (\$27.22) in the first quarter of 2014, up by 28% compared to the previous year.

Overall, passenger growth was 16% for TAV Airports, while flagship airport at Ataturk Istanbul grew 12% in international passengers during the period.

According to figures from aviation researchers and analysts CAPA, last year Ataturk's passenger traffic grew by 13.8% to 51.3 million (34 million of whom were international), making it the fifth busiest European airport, closing in fast on fourth placed Amsterdam Schiphol. It also showed the largest growth of the top 25 European airports.

An issue at Atatürk Airport is that it still faces a capacity dilemma. In early June this year TAV was reportedly in talks with Turkey's state airport authority to build an international terminal at the airport to help address the capacity problem.

Atatürk's formal capacity was around 30 million back in 2010 but has since increased. In 2013, 51 million passengers were processed, making it the 17th busiest airport in the world in terms of total passenger traffic and the 10th busiest in terms of international passenger traffic.

TAV Airports VP for business development

Serkan Kaptan confirmed that the state airports authority (DHMI) has been working on a project to expand the capacity of the airport. "The ongoing expansion works will increase the aircraft parking spaces from 104 to 162. Additional taxiways will be built to facilitate easier traffic on land," said Kaptan.

He continued: "Moreover, the existing cargo terminal and the buildings for ground handling companies will be moved to make space for parking. Furthermore, we are in talks with DHMI for adding new terminal areas."

Flagship airport

The nature of the investment in any new terminal at Istanbul is still only a matter of speculation at this stage. TAV's concession agreement will expire in 2021, but it will keep investing in what is the company's flagship airport.

In order to ease passenger congestion at Atatürk Airport, fingerprint scans will be introduced at passport control with plans to lift the use of full body X-rays. The company is determined to convince sceptics that this will improve, rather than undermine, safety.

"The long queues at the passport control points at Atatürk Airport are one of the most important issues that we are most concerned about," Kaptan pointed out. He said it was necessary to remember that TAV works with

other companies in charge of various other operations and the key was working together.

"We are bringing in the e-gate system to ease this problem," Kaptan confirmed. "Turkish citizens will be able to benefit from the fingerprint scanning facility at the passport control points. As fingerprints are obtained during the process of issuing passports, there is no need to provide them again. We will be starting the trial run shortly. The facility will be available both in departures and arrivals. Currently, there are 402 passport police with another 50 waiting to be appointed. Once they take office, the problem will be solved."

Izmir Adnan Menderes International Airport in Turkey opened a new domestic terminal developed by TAV in April this year. The airport operator and builder reports that it completed the new terminal in 21 months with an investment of €266 million (\$362 million).

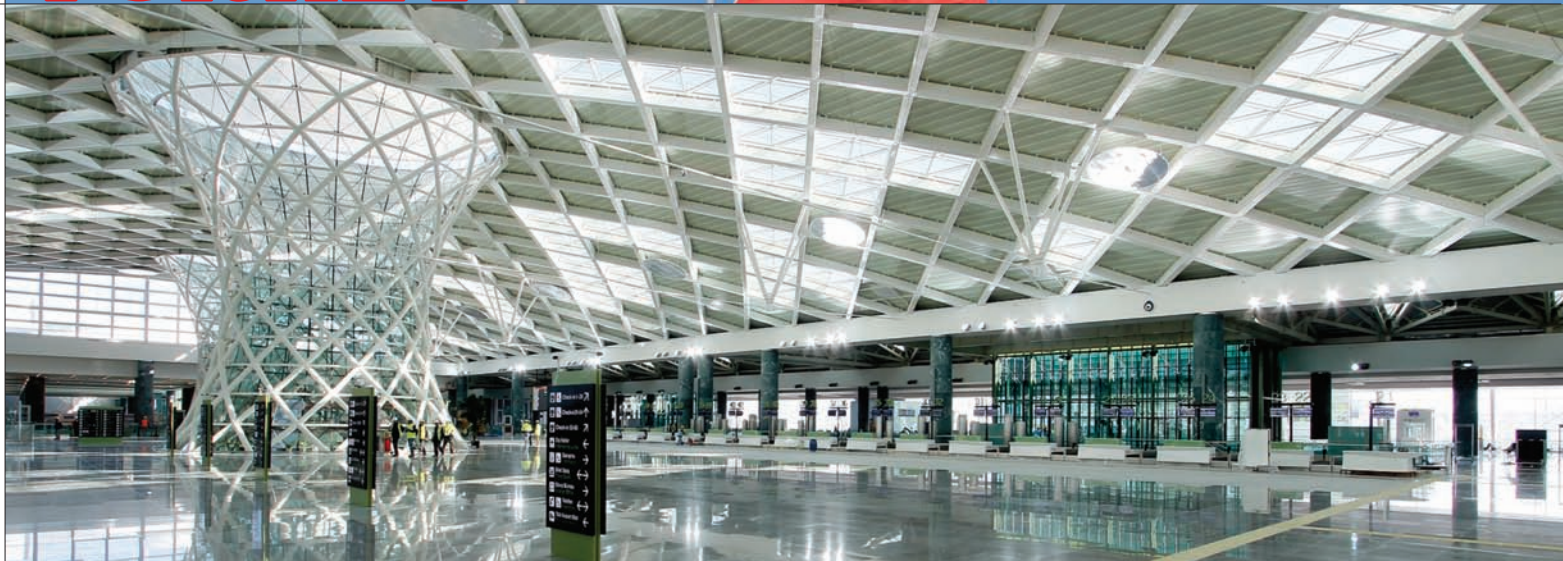
The airport at Izmir is the gateway to the Aegean coast, supporting the overall wider economic development of the region. The international terminal was opened in September 2006 and the new domestic terminal is the largest one in Turkey.

Kaptan explained the ethos behind the design: "The airport offers a unique experience to passengers, both functionally and aesthetically, with sharp and contemporary

Continued
on Page 88



Serkan Kaptan: "The long queues at the passport control points at Atatürk Airport are one of the most important issues that we are most concerned about."



Izmir Adnan Menderes International Airport opened a new domestic terminal in April 2014.

CONTINUED FROM PAGE 86

lines, indoor gardens and pools, large yet plain internal areas. Its design simplifies passenger transfer and provides a single consolidated building for operation.”

Kaptan also stated that the airport is on track with its environmental-friendly ambitions. He said it aimed to be the first airport terminal in Turkey to obtain leadership in energy and environmental design (LEED) gold certificate. LEED is a set of rating systems for the design, construction, operation, and maintenance of ‘green’ buildings.

The new domestic terminal at Izmir is built with up to 67% recycling and 32% re-use amounts from the previous terminal. “The employed technologies, such as heat pumps, rainwater harvesting and grey water re-use systems, solar collectors and tri-generation plant is minimising the energy and water consumption, as well as providing an efficient waste management,” Kaptan said.

He elaborated on the LEED credentials and said carbon emission were decreased 20-25% when compared with similar structures. Concrete from the previous terminal building was crushed and used for landscaping and backfilling. Grey water usage was installed and selecting regional plants for landscaping decreased water usage.

“Tri-generation building was constructed in order to produce electrical energy from natural gas and also this energy is used for cooling and heating of the terminal building,” Kaptan added.

Also 5,000sqm photovoltaic panels were used on the entrance canopy of the terminal building at Izmir and by means of these panels 394KW/h energy was produced. “Building information modelling (BIM) was used for the tri-generation building from start to finish.”

In terms of design, he said there were different types of architectural roofs: vault, origami, pier and terrace.

Kaptan explained that four funnels connected

to the vault roof and that the commercial area was inside the funnels. “Moreover, there is no obstacle between air and land sides. “Passengers who enter the terminal can see the apron and aircraft directly. The transit system ‘Golf Car Way’ was constructed for transit passengers and VIP passengers; and there are inside gardens for fresh air for the passengers waiting for their flight,” he noted.

Air transport IT specialist, SITA, has provided passenger processing and baggage reconciliation technology at the new domestic airport terminal at Izmir. According to SITA, the common-use offering will help the new terminal maximise its real estate, while providing airlines with an efficient and cost-effective solution for passenger processing. SITA will also continue to provide common-use and baggage reconciliation services for the airport’s main terminal.

Cross-border concessions

TAV is, of course, heavily involved in cross-border airport concessions and management, and this is becoming a popular option for airports worldwide. Opportunities to introduce this model further in fast-growing regions, such as southeast Asia and Africa, have not gone unnoticed at TAV.

“There are many opportunities,” Kaptan agreed. “We are closely monitoring the region and possible investment opportunities and, as long as the upcoming projects match our investment criteria, we’ll be interested in taking part in these opportunities.”

Needless to say, there are some challenges when dealing with international airport management and concessions and Kaptan explained what some of these issues were. Firstly, he said, in PPP projects governments set the requirements of the structure they want and the operational needs they like to see in the airport.

“In addition to the technical requirements of the structure, there are operational conditions

that have to be provided, such as waiting time and queuing time requirements. And also, when the deal is project financed, additional requests from lenders come on top of the government’s requirements.”

When all these requirements are added together, Kaptan noted that the result is a tremendous responsibility to satisfy the needs of all the stakeholders involved in an environment such as an airport.

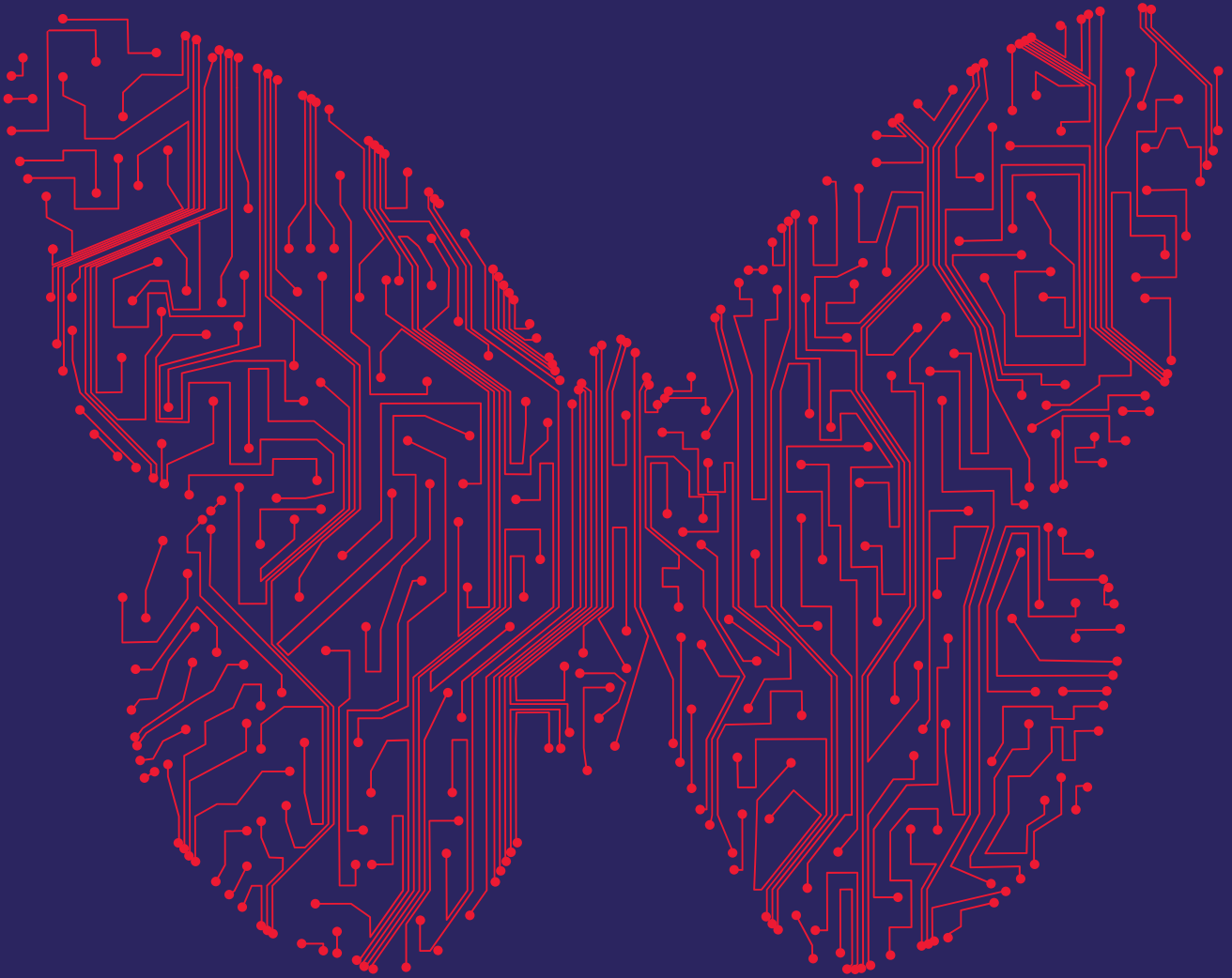
“Many of the steps taken at the airport are contingent on the approval of various parties, such as civil aviation authorities, lenders, shareholders of the concessionaire, customs and so on,” he explained.

“Usually, critical processes such as customs, security, passport, and air traffic control, are handled by the government itself, so you need to manage the relations with these governmental bodies very carefully in order to create a good environment for your passengers and satisfy your obligations to different bodies. Managing these relationships is quite challenging,” he continued.

In addition, Kaptan warned that when stepping into a new country, it’s critical to assess the risk factors, and how business is being managed in that area. “You need to be prepared for the different cultures and passengers’ needs and to prioritise your airport accordingly.

“One culture might be more into luxury shopping, whereas others may be more into food and beverage. Working closely with the different bodies can solve these challenges. You need good planning and good skills of persuasion combined with insightful analysis.”

In the meantime, TAV’s penetration into global markets continues; the organisation has started providing training in China in airport management and operations. The first training and development programme was held recently in Jingdezhen and designed by TAV Aviation Minds, the training and consultancy company established to share the know-how of TAV around the world.



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SITA TECHNOLOGY STANDING PROUD

Izmir's Adnan Menderes Airport is punching above its weight with its latest technology investment with SITA.

Marcella Nethersole takes a look at how one Turkish regional airport is using the latest technology systems to bring lower costs and improved efficiencies.

When Izmir Adnan Menderes Airport was deciding on how to maximise efficiency, while providing airlines with a scalable and cost-effective solution for passenger processing at its newest domestic airport terminal, it looked to air transport IT specialist, SITA.

The company is providing passenger processing and baggage reconciliation technology at the terminal with its AirportConnect Open solution, which enables airports, airlines and their handling agents to access their respective IT applications in real time on shared, common use, equipment.

"AirportConnect Open is an efficient and cost-effective

solution allowing any airline to use any agent desk, gate position or self-service kiosk for passenger check-in and bag registration and bag tag printing, and reconciles passengers boarded," explained Jihad Boueri, vice president, airport solutions, SITA - Middle East, India and Africa.

SITA has been working with Turkish airports company TAV since 1997.

Binnur Guleryuz Onaran, general manager of TAV Information Technologies, a subsidiary of TAV Airports, which built and operates the terminal, said: "We built a new airport terminal not just for today, but for the next 20 years. We need the best and most flexible technology available, which is what SITA has provided. We trust its knowledge and expertise in providing industry-leading and future-proofed technology for airports."

Boueri added: "As Turkey's airports continue to grow, they need the industry's most innovative technology to ensure that passengers enjoy a smooth and seamless journey."

The technology is the most popular airline check-in and boarding system in use today, with more than 400 airports around the world using it, including Abu Dhabi International Airport, Kuwait International Airport, Jordan's Queen Alia International Airport, Rafic Hariri Beirut International Airport, and many airports within Saudi Arabia.

The airport will also use SITA's BagManager, a real-time baggage management solution that helps reduce the number of mishandled bags, and the company's MaestroDCS Local, which automates passenger check-in, boarding and other functions.



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Hamad opens for



Bill Hellmuth: "The client was relentless about setting new benchmarks in design."

*After a series of costly delays, Qatar's new Hamad International Airport finally opened for business in April. As **Keith Mwanalushi** finds from industry design specialists HOK, the region has unleashed yet another world-class facility.*

Hamad International Airport (HIA) was formerly known as the New Doha International Airport (NDIA) project.

Work began in January 2005 on phase one, which finally opened in April this year to handle an initial capacity of 30 million passengers a year, increasing to more than 50 million by the time the airport is fully operational beyond 2015.

Today HIA is located just four kilometres away from the existing Doha International Airport (DIA). The national carrier, Qatar Airways, manages and operates the new airport.

Initially, cargo operations began from December 2013, with an inaugural flight by Qatar Airways Cargo arriving from Europe.

HIA was set to begin passenger operations in January 2014, with a soft opening, but the event was postponed. The original soft launch in April 2013 had been cancelled just a few hours prior, and was postponed indefinitely due to reportedly unsatisfactory safety-related issues that needed further reviewing, taking nine months to address.

Since early 2004, HOK architects, engineers, planners, landscape architects and interior designers from a dozen offices worldwide – with the work led by dedicated teams in San Francisco and in a Doha project office – collaborated in an effort to create the current passenger terminal at HIA.

HOK designed the 600,000sqm main

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passenger terminal and five airport concourses. This includes 41 contact gates, 22 remote-stand gates, 138 check-in desks and a 25,000sqm retail gallery. The four-story terminal is Doha's largest building.

In addition to the main passenger terminal, HOK designed two 100-room, five-star transfer hotels and a health spa airside, a 2,100sqm public mosque, a 69,000sqm flight catering facility, five 24-hour operations centres and a car parking garage with 3,431 short-term spaces.

Collaborating with Lea+Elliot, HOK also designed a 700 metre internal automated people mover accessible on the second level of Concourse C. HOK's architects and engineers designed four central utility plants: three serving the passenger terminal and another adjacent to the cargo terminal.

Important investment

"The airport is an important investment by the Government of Qatar in the country's infrastructure and economy," HOK president Bill Hellmuth stated. "Our design responds to Qatar's desire to create an iconic, world-class airport that will be a gateway to the country and the preferred travel hub in the Middle East."

Phase one features a 4,850 metre runway and a 4,250 metre runway capable of taking a fully loaded Airbus A380. There is also an aircraft maintenance centre with a hangar that can accommodate up to 13 aircraft of different types at any one time, according to details from airport operator Qatar Airways. A cargo facility with a capacity of 1.4 million tonnes a year is now fully operational with 11 hardstand aircraft parking bays.

The transition to HIA and commencement of full operations was carried out according to a time

Continued
on Page 94



HIA's 600,000-square-metre main passenger terminal was designed by HOK.

CONTINUED FROM PAGE 93

schedule that was set by the NDIA steering committee.

Hellmuth looked back with enthusiasm at the early stages of the design process. “Our client, the NDIA steering committee, comprised nine senior officials chosen for their skills and experience across various industries and had a vision of creating a world-class facility.

“They were relentless about setting new benchmarks in design and quality, as well as in their quest to have a contemporary airport that is technologically advanced and welcoming,” he recalled.

He said the client’s goal was to provide an exceptional passenger experience, to ease congestion and minimise wait times. “The design team made extensive use of computer simulations that modelled passenger flows and guided the design of circulation and processing points,” he added.

For Qatar Airways, the new airport couldn’t have come soon enough. Doha International Airport (DIA) was very congested and overcrowded. The airline’s CEO, Akbar Al Baker, has publically stated that DIA could not give the standard of service the airline would prefer its passengers to have on the ground.

Ground services

However, the integration of ground services had its own snags. Even at the soft opening of HIA the national carrier was still struggling with issues relating to lounge access at the new airport. At opening time, the first and business class lounges were not ready as a result of delays to the interior fit-out.

Al Baker told reporters that it was such a complicated and high-end operation that the contractor “was having difficulty” keeping up with the kind of finishes the airline requested. These delays, on top of the others, had Al Baker said “cost Qatar Airways in excess of \$650 million in terms of lost opportunity per annum”.

Despite the lounges being unfinished, he could not justify further delays to the opening of the airport because it would disrupt the summer 2014 schedule and delay Qatar Airways’ A380 deliveries – further adding to unwanted costs.

When speaking to Mark Clarkson, the new business development director, Asia Pacific at aviation intelligence firm OAG (formerly UK-based commercial director), he said delays of this nature could be hugely impactful.

“The situation for Doha is naturally different, as there is an existing hub airport – albeit one that is operating beyond the design capacity. There has, arguably, been an impact on the hub carrier Qatar Airways as perhaps, at peak times, they have not been able to add aircraft or routes to the network that they would otherwise have added in an unconstrained environment,” Clarkson observed.

Similarly, Clarkson noted at Abu Dhabi, Etihad has had some issues with airport capacity versus network planning. “Qatar Airways has

HIA’s ATC towers over Doha.



focused on regional (narrow-body) growth in recent times, which has bolstered the network feed, so I would anticipate some long-haul additions to follow.”

HE Abdul Aziz Mohammed Al Noaimi, chairman of Qatar’s civil aviation authority and chairman of the NDIA steering committee, said the 320,000 movements per year capacity at HIA was adequate to allow the national airline to continue with its growth projections.

The upward growth trajectory at Qatar Airways is not surprising. In October last year, the Doha-based airline joined the Oneworld alliance – the first airline in the Gulf region to join one of the big three alliances.

During the 2013 Dubai Airshow the airline placed orders for more than 60 new aircraft – a mixture of Boeing 777X and Airbus A350 freighters. In total, the airline has 300 aircraft on order worth more than US\$50 billion.

During the 2014 northern summer season the carrier has brought a stream of new destinations online. New services include Miami, Tokyo, Dallas/Fort Worth and Djibouti.

Clearly, the majority of passengers flying through Doha will be transferring via HIA. Since the only impression of Qatar for these transferring passengers may be the airport, Hellmuth is confident that HOK’s design of the main passenger terminal emphasises Qatari hospitality and its Gulf-side location.

“The terminal gives visitors a spectacular and lasting impression of the country while providing them with a five-star travel experience,” he commented.

Hellmuth explained that the terminal’s undulating, wave-shaped roof structure reflects Doha’s water-side location, while strategically drawing in natural light in some areas and providing shading in others. “The signature 18 metre (60ft) entry canopy overhang of the terminal’s undulating roof creates a grand entryway and provides significant solar shading to the most exposed portions of the façade,” he said.

Looking closer at the terminal features, it seems there are significant amounts of passenger amenities and circulation space, with natural light from the glazed facades intuitively guiding people through the space. “The dappled light in the interior provides visual cues for passengers as they move through the terminal and adds dimension to the space. The glazed facades provide views of the airfield and to the adjacent Arabian Gulf.

“HOK’s team designed an inlet that brings the Arabian Gulf waters to a beautifully landscaped, 29 hectare lagoon at the mosque plaza. This reinforces the visual and physical connection to the sea for passengers on the ground and provides a stunning approach and departure experience for passengers in the air,” Hellmuth explained.

Many observers have been keen to see how well the new facility will integrate new smart technologies. In December last year Airports Council International (ACI) and IATA signed a MoU to jointly deploy smart security (SmartS) technology at HIA.

Passenger experience

Smart security is supposedly the checkpoint of the future. The aim is to improve the passenger experience and increase operational efficiency at airport checkpoints. It strengthens security by focusing resources based on risk, using advanced screening technologies and process innovations.

“A touch point in the passenger journey that triggers a sense of dread is the security check. Through SmartS, ACI and IATA will drive the needed change. Airports, airlines, control authorities and system suppliers all have a role to play in making the process more effective, efficient and pleasant for the passenger. SmartS brings these stakeholders together with the shared goal of transforming the security checkpoint for the benefit of all the traveling public,” said Angela Gittens, director general, Airports Council International.

Analysts say that Doha, like some of its Gulf neighbours, understands the necessity and significance of aviation to provide a stable long-term industry in the region and sustain its economy. The sheer size of airport capacity coming from Doha. Abu Dhabi and Dubai is, no doubt, impressive but with so much capacity will there be enough tourism and trade to go around? For now, it seems likely but ultimately that remains to be seen.

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*With airports in the Middle East spending upwards of \$100 billion on upgrading and expanding their facilities, **Ference van Ham** (left) of consulting firm Helios – part of the Egis Group – looks at some of the challenges facing these airports as they wait for the new capacity to become available.*

Everyone is familiar with the context by now: the airports in the Middle East are putting a lot of effort – and money – into developing their infrastructure, aiming to exploit the region's general boom and its strategic location.

With two thirds of the world's population reportedly living within eight hours' flying distance, the Middle East is perfectly placed to be the air transport hub for Asia, Europe, Africa and beyond.

And, for the coming years, all this means that passenger numbers are growing faster at Middle East airports than in any other part of the world.

Dealing with such growth is not straightforward. In the air, the need to address airspace constraints is well known. On the ground, new infrastructure – terminals, runways and even complete airports that are planned or already under construction – will give the region the tools it needs to accommodate the expected growth.

But, having the right tools is no guarantee for delivering what the passengers and the airlines are looking for. To do that, many challenges need to be overcome. And those challenges don't start once the new terminal or airport is ready for use; they start today.

There are probably three broad areas that need looking at: identifying what we need, developing what we need, and delivering what we've developed.

Development phase

Each category has its own issues but it is the middle part – the development phase – that is often the overlooked and 'uninteresting cousin' between the more glamorous members of the family that are the presentation of ambitious plans at the start, and the delivery of beautiful new facilities at the end.

However, before talking about development, it is worth at least briefly considering what happens at the start, as this sets the tone for the next steps.

The first challenge is deciding what the future airport should look like. We are not talking here about the physical design, but rather about having a clear strategy for the airport going forwards; identifying what types of traffic it aims to attract and how it aims to support that traffic; as well as the context and constraints we have to work within. This helps to define which parts of the airport need development – including the ultimate case of building a completely new airport.

Why booming airports need to control the forgotten cousin

Moving our focus to our 'overlooked cousin' – the development phase – experience shows that this deserves more attention because of two main challenges: firstly, making sure that the airport has the capacity to provide a good service to airlines and passengers at all times and not just at the end of an expansion programme; and secondly, making sure the building works themselves don't disrupt operations to such an extent that service levels go down.

Having a brand new, efficient airport infrastructure in place in, say, 2020 is of limited use if operations turn to chaos in the intermediate period due to lack of capacity, and passengers and airlines stay away and move to other airports.

In particular, the all-important transfer passengers will generally base their choice of flight (and therefore their choice of airport) on a combination of available destinations, price, and overall trip duration.

Much of this is up to the airlines but the airports do play their role. This is most obvious in supporting short transfer times by efficiently getting passengers off their incoming flight, through airport processes, and on to their outbound flight. If lack of capacity at any stage starts stretching the transfer time (and, as a result, the trip duration), or even worse the number of missed connections starts increasing, people will start looking for alternatives – and with so many airports growing in the region, good alternatives may very well be available.

Ideally, airports should aim to be slightly ahead of the demand curve at all times; have enough capacity to offer passengers and airlines an efficient and comfortable experience, while being able to catch any (planned or unplanned) peaks in

demand without too much hassle.

The reality is different though, because new infrastructure generally leads to a step increase in capacity, not to a continuous increase that keeps pace with demand.

In some areas of airport development some flexibility can be created through development phases, such as a new terminal that allows for extension of piers and gates as time progresses and passenger numbers grow. We have even used temporary terminals as part of the transition process. In other areas this is not an option – you can't build half a runway.

Capacity gaps

A large part of the answer is master planning. Early in the process we need a clear plan that sets out exactly what needs to be available and when, in order to provide sustained service levels. From there we can effectively calculate back what needs to be done. Easy to say but, of course, real life is rarely that simple! This is where experience plays a part in helping plug some of the capacity gaps.

An obvious first step is to ensure we are making efficient use of already available resources. This is good practice anyway, but new infrastructure takes years to come online, which puts extra focus on making the most of what we have in the meantime.

Our experience working with airports such as Dubai International and Heathrow shows that, by helping them develop a clever approach to use of resources, they can unlock latent capacity with limited investment. But making efficient use of resources requires a thorough understanding of current operations, identifying and analysing the bottlenecks, and addressing these to release

capacity and improve operations.

So this approach can help buy some time but with two critical provisos: firstly, it requires sufficient reliable information to be available (most likely operational data) to understand where the bottlenecks are. You can't improve something if you don't know how it is performing today.

Secondly, it requires an end-to-end view; removing one bottleneck only to find that the next is just around the corner is not very helpful. The end-to-end view also highlights the need to involve all airport partners – the airport operator, airlines, ATC, ground handlers, etc – because the next bottleneck may be within the area of responsibility of a completely different organisation.

Disruption to operations

Another transition aspect to keep an eye on is making sure that building works don't cause too much disruption to operations. This is a real risk at airports where space is limited or the scope of works is large.

For them, on-going coordination between operations and engineering will be essential to support safety and efficiency of the operation, the airport, the engineering works and staff, in particular if they are out on the airfield. This goes all the way from the planning stage to day-to-day issues.

While everyone will plan intended works for quieter periods to minimise impact on operations, on-the-day safety will be the most important driver for a coordinated approach. Whenever and wherever work takes place, all relevant parties should be aware of the impact – on the people, on the aircraft traffic (are some areas blocked, and if so, what is the contingency?), and on the airfield equipment (eg navigation aids).

Every parent knows that family dynamics can be difficult to manage, especially when family members are suffering through growing pains! It is important for the whole family to get the attention it deserves – including our 'overlooked cousin'.

So it is with the development phase before new airport capacity becomes available. Like any family relationship, it requires time and investment – to avoid family breakdown.

■ Ference van Ham is a principal consultant at Helios, currently based at the Egis Group office in Dubai. His work focuses mainly on airport operations and performance. Helios is a management and technology consultancy focusing on air traffic management, airports and space. In 2013 Helios joined Egis, an international group offering consulting, engineering, project structuring and operations services. Egis operates 14 airports worldwide. Helios and Egis are organising a seminar later in the year to which airport representatives and stakeholders from around the Middle East are invited. For more information contact ference.vanham@askhelios.com or patrice.bouedo@egis.fr.



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Evidence-based training is the order of the day at Emirates.

Liz Moscrop finds out why.

CASE FOR THE EVIDENCE

Practising engine failure on take-off every six months is as essential to commercial flying skills today as the peaked cap and epaulettes that most airlines insist pilots wear to work in the cockpit.

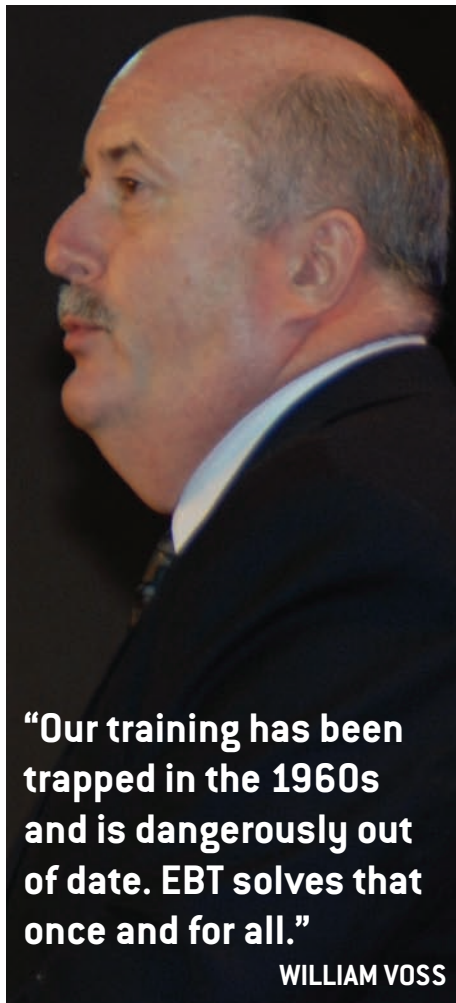
While the uniform contributes nothing to the work required on the flight deck, it does denote a certain authority, which is a comfort to the couple of hundred souls on board. The practice forced landings (PFLs), however, are a throwback to a bygone era when engine failures on take-off were marginally more likely to happen. Yesterday's flying machines were less reliable than today's sophisticated equipment, and what to do should an engine fail on take-off was a vital practice.

Things started to change in 2010 when the International Air Transport Association (IATA) established the training and qualification initiative (ITQI), to try to modernise and harmonise training for pilots and maintenance technicians in today's operating environment.

The following year the International Civil Aviation Organization (ICAO) approved provisions for evidence-based training (EBT) in its standards and recommended practices.

This generally met with approval. William Voss, the then president and CEO of the US-based Flight Safety Foundation said: "Credit goes to some extraordinary work done by a range of people and organisations that came together. The Royal Aeronautical Society led a massive working group that included ICAO, the International Air Transport Association (IATA), airlines, manufacturers, regulators and training providers."

The EBT guide is built on industry-collated baseline data, derived from information from three million flights, 9,000-plus line operations



"Our training has been trapped in the 1960s and is dangerously out of date. EBT solves that once and for all."

WILLIAM VOSS

safety audits, more than 1,000 pilot surveys, and several thousand reports from international advanced qualification programmes. It aims to help operators to build effective training programmes tailored to their own needs. Voss enthused: "This type of approach will keep training relevant now and in the future."

One Middle East provider has been using the approach since 2011. Captain Martin Mahoney, Emirates' SVP flight training, has been promoting EBT for many years and reckons his airline has benefitted substantially from using it.

Relatively reliable

He explained: "Today's requirements are based around aircraft that were relatively reliable when they were created. They no longer reflect the systems redundancy and reliability, which we enjoy. Emirates flies Generation 4 aircraft. And to ask a Generation 4 pilot to demonstrate the skills that a Dakota Twin engine pilot would require is simply not sensible. But that's where the legacy regulations from ICAO were anchored.

"The ITQI is enshrined in regulations that allow us to look at compliance and demonstrate a safety case to the national authority to show that the training programme that we are going to move to is at least safe as the legacy training and checking regime."

Voss is also a big fan of the initiative. "Our training has been trapped in the 1960s and is dangerously out of date. EBT solves that once and for all," he said. "It is a process that will allow operators to restructure their training programmes to target the real risks in the operation, instead of spending all of their time addressing the threats that existed in the 1960s."

**Continued
on Page 100**



Emirates is taking delivery of three more A380s each month this year.

CONTINUED FROM PAGE 99

For example, Emirates has now dropped the legacy training and checking that required it to do engine failure on take-off every six months in a regulatory simulator check. Mahoney elaborated: “This is only possible with two years’ worth of data before the authority allows you to change things. Data we have gathered says we do not need to do engine failure after take-off every six months, or low visibility training checks every six months, so if we took those out; we can put something else in.

“We put in the scenarios that all the data suggests we should be focusing on. If we didn’t take things out and we wanted to embark on additional training, we would be hampered by costs.”

Higher risk elements

The evidence allowed Emirates to introduce today’s higher risk elements into its training and checkrides. The carrier also has a training review committee that analyses fleet safety and flight data. It looks at issues that have been causing some concern, and works out whether to incorporate them.

Mahoney added: “We don’t take a knee-jerk reaction to a single event. That is not evidence or data. We are looking for trends, whether in this airline or others. Our job is to mitigate risk. We wish to present to our customers the lowest risk possible, and we feel we do that by having moved away from a one-size-fits-all approach to a bespoke training programme, which reflects the risks we face.”

The carrier flies its wide-bodies to all six continents; regularly travelling through the International Tropical Convergence Zone, so its training programme is not identical to the IATA one.

Mahoney pointed out that data collation and analysis are two components of the jigsaw that must go hand-in-hand. Many airlines are rich with data but, he said, they have difficulty analysing it, which is an essential part of EBT.

For example, several airlines are now taking delivery of the Airbus A380. The aircraft is so



“We don’t take a knee-jerk reaction to a single event. That is not evidence or data. We are looking for trends, whether in this airline or others.”
CAPTAIN MARTIN MAHONEY

large that it is listed under US Federal Aviation Agency Group VI and ICAO Code F categories, which deal with the footprint an aircraft makes during normal operations in terms of wingspan, length and landing speeds etc. Mahoney said: “It would be culpably negligent for any airline not to look at the evidence-based data available. Etihad and Qatar are about to pick up A380s. They should be looking at Qantas, Singapore, Air France and us with our A380 experience, to ensure that their operations are at least as safe as ours. This is not about competition, it is about safety.”

Emirates is taking delivery of three more A380s and a Boeing 777 each month this year. Mahoney continued: “Not many airlines could cope with that rapid expansion – and with rapid expansion comes control of standards in training. It is really important we get the right person in the first place. It makes it easier to get into the right-hand seat. We have a low failure rate.”

At Emirates, the two-day recurrency test goes like this. Pilots are given line check rides in standardised controlled simulator environments to see how they react on day one. They then get training tailored to their needs on day two. If there is any problem they are taken off-line and given a bespoke package. Mahoney stressed that this is extremely rare.

Level of expertise

The pilot’s uniform might seem outdated but it does send a signal to the world that the person wearing it has a certain level of expertise. Voss would like to see a similar uniformity with regulators. He warned they must adopt EBT wholeheartedly. “It doesn’t do any good to develop new training strategies if you are not allowed to let go of the old ones. Regulators across the world have to buy in to the approach, and will have to develop new ways to oversee training. Evaluating an operator’s training programme against a 50-year-old checklist was a pretty simple regulatory task. Evaluating how well an operator builds its programme based on operational data will require a regulator that is insightful and sophisticated, and able to devote a lot of time to the task.”

Mahoney agreed: “There is little point in Emirates forging a track of setting standards if other airlines don’t follow suit. Because they fly in the same piece of airspace as we do, we need them to be just safe as us so they need to raise their standards. Evidence-based training is a mechanism of doing that.

“Some authorities in the world, such as our own, are hugely supportive of our push for EBT. However, there are other authorities, which are reluctant to go down that route. They are mired in the last century. That is not doing their airlines or their passengers, or the industry any favours.”



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SAFA progresses with first students qualified

As Saudi Aviation Flight Academy (SAFA) celebrates its second anniversary, the training company reports that its first students are now in airline roles.

Since its 2012 launch, SAFA has enrolled more than 130 students to its various training programmes.

More than 60 have completed the different courses and/or passed the desired examinations. Some, who passed the General Authority of Civil Aviation (GACA) check-rides at SAFA, are already working with leading airlines and in the corporate sector as pilots.

Though SAFA is operating from a temporary facility in Thumamah, near Riyadh, the new building and hangar construction is in progress. The multi-million dollar project will include a state-of-the-art facility with advanced aircraft and simulators to take

students from zero experience to professional pilot.

The first phase of the project includes the admin and training buildings, hangar and simulator buildings; projected to be completed by the first quarter of 2015. The later phases will include housing units for staff and students, commercial complexes and other service facilities.

SAFA managing director Captain William Roe, said: "When we look back at those days when we initially launched the project plan in early 2009, I can see clear growth and progress in our efforts to establish this flight school in Saudi. We are approaching the reality of having a fully equipped flight school for the kingdom.

"At SAFA, our primary efforts are to support Saudi youth and we are committed to Saudisation. The

vision for SAFA is to provide exciting careers for Saudi nationals."

SAFA's experienced flight instructor core is comprised of experts from across the globe including the USA, UK, Italy, Norway, Jordan, Morocco and Saudi Arabia. Roe said the company is committed to helping the Saudi community to obtain pilot certificates, meeting international standards to help them become aviation professionals.

An example of that success is Abdulrahman Alraddadi, who is a ground instructor at SAFA, completed his GACA commercial certificate at the facility and is now pursuing his certificated flight instructor - instrument (CFII) course while working at the academy.



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Jeppesen teams with Peters for materials

Jeppesen has teamed with Peters Software to deliver airline transport pilot training materials for flight schools and universities in the Europe, Middle East and Africa (EMEA) region.

The materials are used on various platforms, including e-books, PC and Macintosh computers and printed versions.

The Peters Software solution allows for Jeppesen training materials to be continuously updated, using state-of-the-art database technology.

This process allows for updates to be delivered more efficiently and training programmes to remain current with regulatory guidance, including the recent transition to EASA flight crew licensing guidelines from previous Joint Aviation Authorities (JAA) requirements.

Future plans for extending the Jeppesen relationship with Peters Software include an airline transport pilot licence training programme for the helicopter market later this year and additional programmes for private and commercial pilot training.



Saudi National Guard air traffic controllers graduate in New Zealand

Saudi National Guard students graduate in New Zealand.

A group of air traffic control students from the Saudi Arabia National Guard has graduated at New Zealand-based Airways' Academy, marking the completion of a successful two-year investment by the Saudi Arabian Ministry of Higher Education.

The students graduated at a ceremony held at Airways' purpose-built ATC training academy in Palmerston North.

Airways' head of training, Sharon Cooke, said the National Guard recruits were the third group from Saudi Arabia to successfully complete this programme.

"This partnership brings students to New Zealand each year on scholarships fully funded by the Saudi Arabian Government," she explained.

"The students spend one year in Auckland studying English, and one year living in Palmerston North and studying at our ATC training college.

"Following their graduation, the students have now returned to Saudi Arabia ready to begin on-the-job training at the National Guard military airfields.

"They have excelled in their studies and passed every course," Cooke added.



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Horizon academy to focus on helicopters

Horizon International Flight Academy in Al Ain, Abu Dhabi is to focus its attention on helicopter training following the sale of its fixed wing division to Etihad.

Owners Mubadala made the decision to sell to the national carrier after seven years of operating the training school which catered for all of the Abu Dhabi airline's cadet pilots.

While Horizon will be focusing on growing its rotary activities, the transferred academy becomes the backbone of a new Etihad Flight College, which is setting out to become a world-class flight training for Emirati and international cadet pilots.

James Hogan, Etihad Airways' president and chief executive officer, said: "The establishment of the Etihad Flight College is a natural part of our strategy to produce the best pilots to support our rapidly expanding fleet.

"It also helps underpin the growth and development of the aviation sector in Abu Dhabi.

Etihad currently employs over 1,600 pilots and places great emphasis on recruiting the best pilots from around the world, including Emirati pilots.

"We are committed to developing a world-class facility which combines new and best practice training programs with high calibre instructors. The training facility will enhance the career opportunities in aviation, especially for UAE nationals," Hogan said.



Horizon's fixed-wing fleet now part of Etihad.

Horizon chief executive officer, Hareb Al Dhaheer said: "We are proud to have grown the UAE's pilot training initiative into a successful company. This transaction benefits both Abu Dhabi companies, and allows Horizon to focus on developing its future core business of delivering world class helicopter pilots for all of our Rotary Wing customers."

The assets to be acquired include 13 Cessna 172SP Skyhawk aircraft, three Diamond DA42NG aircraft, two flight training simulators and Horizon's hangar facilities at Al Ain International Airport.

Etihad Flight College will become the first

organisation in the world to use multi-engine aircraft in the core phase of its Multi-Crew Pilot Licence (MPL) training programme. Cadet pilots will benefit from the utilisation of advanced aircraft and simulation training throughout the program in a multi-crew setting - where two pilots conduct operations that are focused on the safe and efficient operation of an aircraft, as opposed to the traditional single-pilot model that is prevalent in the industry today.

To-date around 250 graduates have already registered for the MPL course, with the first course scheduled to commence later this year.

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Saudi PC-21 deliveries begin

The first three (of an eventual 55) Pilatus PC-21 basic trainers for the Royal Saudi Air Force left Stans-Buochs on June 2, flying to Saudi Arabia via Bari in Italy.

The aircraft were actually the fifth, sixth and seventh RSAF aircraft off the line, the first four having been retained in Switzerland for testing and RSAF instructor pilot training.

Painted in a striking overall blue colour scheme, with a flowing, curved green and white cheatline down the fuselage sides, the aircraft had their Saudi national insignia covered up. However, their serial numbers were visible, indicating that they will join the Ninth Squadron at Riyadh's King Khaled Air Base, where they will form part of the First Wing's King Faisal Air Academy, replacing aging PC-9s.

Three more aircraft left Stans the following week. Eventually, the new type will also equip the co-located 22nd Squadron (and the first aircraft for this unit have already been reported at Stans), while the Cessna 172s and Super Mushshaks of the Eighth Squadron, which are used for elementary training and screening, will be replaced by Cirrus trainers.

Under the contract signed with BAE Systems on May 22 2012, the UK company is supplying a whole training package, including simulators and ground-based training aids, 22 BAE Hawk Mk 165s, and an



unknown number of Cirrus SR-22s, as well as the Pilatus PC-21s, just as the RSAF's existing PC-9s were supplied via BAE Systems.

Once deliveries are complete, Saudi Arabia will be the world's largest operator of the PC-21, with 55 aircraft. The UAE will have 25 and Qatar has signed for 23, while Singapore ordered 19 aircraft, and Switzerland eight.

With its 'slippery' aerodynamic design, short span wings, 1,600shp PT6A-68T engine and five-bladed aluminium Hartzell HC-B5MA-3 propeller, as well as an advanced glass cockpit, 'single-lever' power

management, and HOTAS controls, the PC-21 comes closer than any other turboprop trainer to emulating a fast jet cockpit.

This allows more of the training that would once have been carried out on advanced jet trainers to be 'downloaded' to the PC-21, while Switzerland takes pilots directly to frontline types from the PC-21, having dispensed with an advanced trainer altogether.

Many believe that the PC-21 offers the same advantages as basic jet trainers like the M-345 (previously M-311), but with the cost and fuel efficiency advantages of a turboprop.

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There's nothing quite like...

PLANE COOKING

Barbara Cockburn
discovers that Arabian airlines are working with top chefs to create a taste sensation for passengers.

Airline food is often criticised for being bland but it is widely known that our taste buds have to work harder at 35,000 feet because the pressurised environment in the aircraft affects them.

As a result, some dishes may be highly flavoured with increased amounts of salt, spices or sugar.

While one might scoff at this, the result should be an out-of-this-world taste sensation.

Many airlines have jumped on the bandwagon of investing in the expertise of award-winning chefs to create an in-flight fine dining experience similar to that on the ground.

Qatar Airlines is one such that uses famous chefs to promote dishes. It has chosen four to create a diverse menu. Each has been awarded a Michelin star.

A spokesperson for the airline explained that each chef is a master of his or her local cuisine.

Working together, Nobu Matsuhisa, Tom Aikens (of Tom's Kitchen Restaurants fame) Ramzi Choueiri and Mumbai-based Vineet Bhatia spent months adapting and testing their specialities for passengers, taking into account flavours and spices, and how the taste buds are altered in flight, as well as what types of food are most suited to long-haul journeys.

Matsuhisa, a Japanese celebrity chef with an international reputation, has restaurants in Las Vegas and London.

In first class, passengers can expect such choices as a classic Arabic mezze typically with hummus, tabouleh, muhammara and lahim bil agine, served with Arabic bread, a seasonal salad, sundried tomatoes and sautéed mushrooms, a Mediterranean three bean soup and a puff pastry twist.

And in business, it's a classic Arabic mezze and a similar salad

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on Page 108

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but with sautéed mushrooms.

Of course, the food is complemented by wine choices from consummate international sommeliers. The spokesperson said: "Selection panels pick vintages from the world's best producers for our customers. The committee meets twice a year in Frankfurt for blind tasting, spending three days tasting at least 300 wines, taking into account differing taste profiles and how the palate is affected at higher altitudes. Their mandate is to find the very best wines that can be enjoyed in the sky. The wine programme represents 12 countries and covers different grape varieties and styles."

Similarly, Abu-Dhabi flag-carrier Etihad Airways takes pride in the wine it serves. Corporate executive chef, Thomas Ulherr believes in adding flavour to the journey and the list changes every three months.

He said: "Etihad offers different selections going east and west out of Doha in first and business class. This means customers get to enjoy a new wine list during their onward flight."

Abu Dhabi's national carrier employs an in-house team of professional chefs to develop dishes.

Balance of seasoning

Ulherr explained: "We work with caterers and crew to ensure food is created to taste great in the air, or indeed on the ground in our VIP airport lounges around the world. We believe the correct balance of seasoning is important in all our dishes. In our experience, increased levels of salt and sugar do not improve dishes served at 35,000 feet; rather it is our perception of acidity and the aromatic flavours that can be affected by altitude."

The airline's culinary approach is innovative and focuses on modern cooking and catering techniques.

Ulherr said: "We keep the food simple by using good ingredients and clear flavour structures. Uniquely, there are well-trained professional chefs on board in first class and we have fully trained food and beverage managers in business class. Together, their role is to ensure our guests' experience is the best it can be."

The airline works with 33 different caterers across its network. Each supplier is selected through detailed analysis of its culinary capability. Ulherr said that the carrier's meal concept was similar in all classes, offering a vegetarian dish, a dish typical of the destination and an Arabic choice.

"Menus are developed appropriately for the time of day of departure and arrival and for the flight duration. Meals are produced with Halal-certified ingredients.

"Our first class guests can choose off menu and the chef will happily create a special dish for them from the larder on board."

He added that Etihad doesn't serve raw meat, fish, fresh oysters or clams. Steaks, however, "are our strength".



"In-flight chefs have the right tools to prepare a passenger's tenderloin fillet to their liking, even if it is ordered rare."

Etihad also works alongside in-flight chefs with experience from five-star hotels and from Michelin star restaurants. They work in close partnership with the menu designers to create what he described as "award-winning dishes and menus".

Culinary ambassadors

Ulherr added: "We have a number of culinary ambassadors, like Luke Nguyen from Master Chef Vietnam and Australia, and Brent Savage from the Bentley Restaurant and Bar Sydney. We always look out for others to join us and have some interesting new celebrity chefs in the pipeline."

The food is prepared in kitchens as close to departure as possible for freshness and flavour and the airline works with caterers to make use of any techniques that ensure the food steers clear of man-made preservatives and "other noxious chemicals like MSG", he explained.

Like Qatar, Etihad also takes its wine choices seriously working with "top" sommeliers that select wide-ranging wines during regular blind tastings. Last year the airline received a silver and bronze medal at the Business Traveller Cellar in the Sky awards.

Food waste is a costly issue for many airlines. Ulherr said: "Food waste is not only a cost for us, it is an impact on world resources and, due to the limited space available on board, it affects our ability to carry what our guests truly need. We constantly monitor our offload and feed back on ratios to get the balance of items on board our flights correct."

While Arabian dishes are dressed to impress, one industry insider is decidedly unimpressed, slamming them as "all a bit nice, but all a bit too much bling".

Jeremy Clark, founder of JC Consulting and project coordinator at Addis Ababa-based in-flight kitchen Addis International Catering, suggested that passengers "just don't care".

He said: "This use of celebrity chefs drives me mad. I don't know anyone who actually cares about it. I ask fellow passengers around the cabin sometimes when I'm on board, 'Do you ever pick a meal on the basis that it was instigated by Gordon Ramsey or Marco Pierre White?' No! They choose the food they like."

On a recent flight with Etihad he said that he was served a Japanese amuse-bouche to have with champagne before the meal and it was "absolutely revolting".

The experience has left him wondering: "Do we fly because we want fine dining or do we fly because we want to get from A to B? They're



trying too hard to be clever, but they should just stick to a bit of prawn or smoked salmon or a bit of caviar on rye bread.”

He conceded that the likes of Emirates, Etihad and Qatar have taken over the mantle of setting the standard and taking over from airlines known for their style of on board hospitality such as Singapore Airlines and Cathay Pacific. The Arabian airlines have become very high profile because, he observed, they can afford it due to the unlimited cash at their disposal.

Arabian-themed dish

He noted that the Middle Eastern airlines always have an Arabian-themed dish and usually in first class a passenger could choose from six items, which clearly is designed to cater to most tastes.

In business, passengers have three or four choices; something Middle Eastern, something Indian with a bit of spice, a purely western dish and a vegetarian option.

He said that the Arabian airlines try to differentiate themselves from the airlines from the Far East by ensuring the in-flight food quality is outstanding.

“And it is outstanding,” he said. “But there’s still a problem with the service, largely because they’ve not matured. It’s all about the cutlery and the table cloths, which isn’t necessary. The problem is that it’s not what you want when

you’re a frequent flyer in business or first class on an airline. I don’t want a sea of china, I just want my meal, well presented, hot, well constructed, well cooked and without too much fuss.”

Despairingly, he said: “No one is doing anything differently. They all fly on the same aircraft, the same routes, the same times, they have the same kind of crew. How does a passenger differentiate one from the other?”

He suggested that the Arabian airlines could learn a thing or two from British Airways’ first class service.

“You’d be amazed about what they don’t load. They load practically nothing, but what they do load is beautifully served because they understand that most people don’t eat much on board. They are likely to have eaten before the flight or want to work, sleep or snack.

“They certainly don’t want a two-and-a-half hour long dinner session with table cloths, silverware, and cutlery. It’s about understanding passengers. The Middle Eastern carriers are still in ‘impress’ mode.”

Keeping things simple, he suggested, was key. “I have a criteria of what food needs to be – something that you recognise; easy for the crew to serve; easy to eat in a confined space and something appropriate for the time of day you’ll be travelling.”

Corporate jets in a world of their own

The corporate jet market is very different to airlines because you can employ caterers to prepare whatever food you want, according to Dietmar Duller, founder and course leader of training solutions for corporate flight attendants.

“Cultural differences are an important feature of business aviation catering,” he said. “Private jets are flying offices and most of the time there are business people, high ranking government officials, entrepreneurs, heads of state, foreign dignitaries, invited guests and families with children and friends on board. Protocol and etiquette in serving food is very important.

“In corporate flight attendant training people learn to always use the right hand to serve and never the left. They serve Arabic coffee and dates – a welcome ritual designed to make the guest feel welcome and relaxed. Attendants have to be familiar with Middle East cuisine.”

There are many large private jets in the Middle East, often with more than four corporate flight attendants working together.

“Passengers ask for the type of service they are used to getting at home,” said

Duller. “Attendants need to know that in the Arab culture young people are often pampered, adored and treasured. Respect and honour are very important.”

All food has to be prepared according to the Muslim law and, therefore, it has to be Halal. No pork or alcohol is allowed to be used in cooking, and portion sizes are normally bigger.

Popular appetisers include Arabic cold mezze with hummus, labneh, moutabel, tabouleh, fatoush salad, pickled vegetables and fresh Arabic bread.

“For main courses passenger would be served Arabic mixed grill, chicken biryani, prawn biryani, a local fish such as hammour, grilled Mediterranean vegetables, steamed basmati rice and, for dessert, Arabic sweets are very common,” said Duller.

“In dining etiquette in the Middle East the most honoured person is seated in the middle of the table, with the second-most important person, or the honoured guest, sat next to him. The oldest person is served first and it is also common to take food from a plate in the centre of the table. Rather than using forks and spoons, clients may scoop up food with Arabic bread. Business jets in the Middle East frequently have space, as families like to sit together when eating.”

According to Duller, Arabian passengers like western-style food and choose sushi, soups and canapés as well as pasta dishes, seafood and different curries for the main courses and dessert fruit platters. A selection of petit fours and ice cream are also often served.

Flight catering is included in flights from 30 minutes to 14 hours and many Arab families travel away from home in the summer.

“You always need to have enough food on board to conduct as many meal services as requested,” said Duller.



Dietmar Duller:
“Protocol and etiquette in serving food is very important.”



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Competition between airlines for premium customers is always tough – but the UAE’s flagship carriers, Etihad and Emirates, are taking the battle into the bedroom as **Alan Peaford** reports.

NIGHT FIGHT

This is more than a simple pillow fight. With Etihad expecting delivery of its first Airbus A380, the UAE national carrier took the opportunity to challenge some of the world’s greatest interior design minds to change the way aircraft space can be utilised.

The result was a new product that blows away any previous first-class offering called The Residence – a three-room suite with bedroom, bathroom and lounge.

Etihad will also be throwing in a personal butler for those prepared to pay the \$20,000 single ticket between Abu Dhabi and London.

Not to be outdone, Dubai carrier Emirates, which has already been scooping awards and accolades for its first-class suites on its own A380s, confessed it had ideas for making things happen in the bedroom.

“We believe in the concept of privacy,” Emirates executive Hubert Frach told journalists at the ILA show in Berlin.

The Dubai-based carrier introduced private cabins as first-class suites for its A380 fleet several years ago but Frach said the airline wanted to pursue this thinking further with a bedroom-type product. He said it would be launched on the A380 and on the Boeing 777X.

Etihad also has ideas for its new fleet of Dreamliners, as well as adding more bedroom facilities for other first-class passengers, who are unable to get the A380’s Residence. “Demand will be high,” warned Etihad chief executive James Hogan. “The Residence is more like a private jet and that would cost in excess of \$100,000,” he said.

Etihad’s A380 will feature revolutionary First

Etihad is pushing the envelope with its new First apartment. But (inset) the Residence offers its passengers a three-room suite.

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Apartments – fully private suites with a separate reclining lounge seat and full-length bed, as well as a chilled mini-bar, personal vanity unit and wardrobe.

For the B787 there is an enhanced First Suite, adding many new features including a chilled mini-bar.

The third of the ‘Big Three’ to join the battle, Qatar Airways, has gone for a more restrained approach and will include eight first-class suites, where each seat converts to a fully lie-flat bed with the 90-inch pitch, offering plenty of room to stretch out and watch the 26-inch (48cm) personal HD video screen. There’s also a companion dining seat.

Qatar Airways CEO Akbar Al Baker dismissed any suggestion it would re-think its A380 offering after the launch of Etihad’s first class residences, saying it was “not a follower”.

The upgraded thinking by the Gulf carriers sets a new standard for top-level travel but is also filtering through to the other classes.

Improved gaming

Etihad’s new fleet will feature the latest Panasonic eX3 entertainment system across both aircraft types, providing more than 750 hours of on-demand entertainment, improved gaming and high definition screens across all cabins.

Noise cancelling headsets are provided across all cabins, with built-in magnetic audio jacks to ensure the best sound quality.

Hogan said: “These new living spaces will raise in-flight product and service standards to their highest level yet in commercial aviation and alter air travellers’ expectations of comfort and luxury forever.

But it has been a long process.

Believing that no single design agency could deliver its vision for the new cabins, Etihad Airways established, in 2008, the Etihad design consortium (EDC), which brought together three leading British design companies – Acumen, Factorydesign, and Honour Branding – to develop innovative cabin and seat designs for the new fleets.

The EDC collaborated with Promise Communispace, a leading agency, to launch comprehensive consumer research and workshops in London, Abu Dhabi, Sydney, and New York, with the goal of understanding what makes a ‘perfect flight’ and asking consumers to help design the perfect airline.

Around 80% of the new product offering is a direct result of the feedback and information garnered from those workshops.

Etihad said that the design vision was to bring the individuality and exclusivity of a luxury boutique hotel experience to the sky in a way that embraced Arabian modernism, an aesthetic that combines the traditions of the Middle East with contemporary design.

Customers in The Residence will have the services of a personal butler throughout their



A new economy smart seat will offer an ergonomic fixed-wing headrest, to give Etihad customers a place to rest their head for added comfort and relaxation.

flight, who will receive specialist training at the Savoy Butler Academy in London.

Hogan said Etihad Airways would also redefine first-class and set a new industry standard with the launch of the First Apartment on the A380.

Nine First Apartments will be installed on the upper deck in a 1-1 configuration to create the only single-aisle first-class cabin in the industry.

Each First Apartment, which has a 64-inch high sliding door, includes a reclining armchair and a full-length ottoman, both upholstered by the prestigious Italian suppliers of Ferrari’s interiors, Poltrona Frau. The ottoman transforms into a separate 80-inch long full flatbed.

The First Apartment, which also includes features such as a chilled mini-bar, a personal vanity unit and a swivelling TV monitor for viewing from either the seat or the bed, has a 74% larger footprint than the airline’s current award-winning first-class suites.

A fully equipped shower room is available on the A380 for exclusive use by first-class customers.

On the B787, Etihad Airways has designed an enhanced First Suite with many new features. The eight First Suites are situated in a 1-2-1

configuration along a curved aisle, another first in commercial aviation.

Each completely private First Suite has a large seat and ottoman, both upholstered by Poltrona Frau, which converts into an 80.5-inch long full-flat bed.

On the centre seats, the armrests retract and the suites can be joined to create a ‘double’ bed. Other features include a chilled mini-bar and a 24-inch TV monitor.

On both the A380 and the B787, Etihad Airways will launch its new Business Studios, which provide 20% more personal space than the airline’s current business-class seat.

Configured 1-2-1 in a forward and aft ‘dovetail’, the Business Studios all have aisle access and the seats convert into a fully flat bed of up to 80.5 inches.

With its privacy, ample storage and surface space, the Business Studio has been designed with the diverse needs of the premium business or leisure traveller firmly in mind.

On the Airbus A380, first and business-class guests will be able to relax in The Lobby, which is a serviced lounge and bar area located between the first and business cabins.

There are no beds for the economy section, but Etihad has also made a fair effort to improve the lot for the people at the back.

Fixed-wing headrest

A new economy smart seat will offer an ergonomic fixed-wing headrest, to give customers a place to rest their head for added comfort and relaxation.

The seat also has a lumbar support feature, allowing customers to adjust their seat comfort, and an 11-inch personal monitor screen, with all the IFE peripherals conveniently set into the seatback in front.

While Hogan is confident that he will see high occupancy rates in his premium seats, Al Baker is not so sure.

“I am very glad that Etihad has launched its fantastic product – it shows to everybody that the Gulf carriers are really raising the ante, really raising the bar for other carriers to follow,” he said, but added that airlines have to balance up the weight of an aircraft with maximising return on investment.

“Demand for first class travel is low,” he said, admitting Qatar enjoys just a 40% load factor in its first-class cabin.

“At the end of day, we operate the most expensive real estate, so I have to make sure that in any space I have in the aircraft, I pack the maximum number of passengers, keeping the comfort in mind,” he said.

“The space we give you in Qatar Airways first class is the best value for money and at the same time gives you the maximum comfort you require. That is the aim of my mission – to have a product that is world class, five-star and that the passenger pays the correct amount of money for the space they occupy.”



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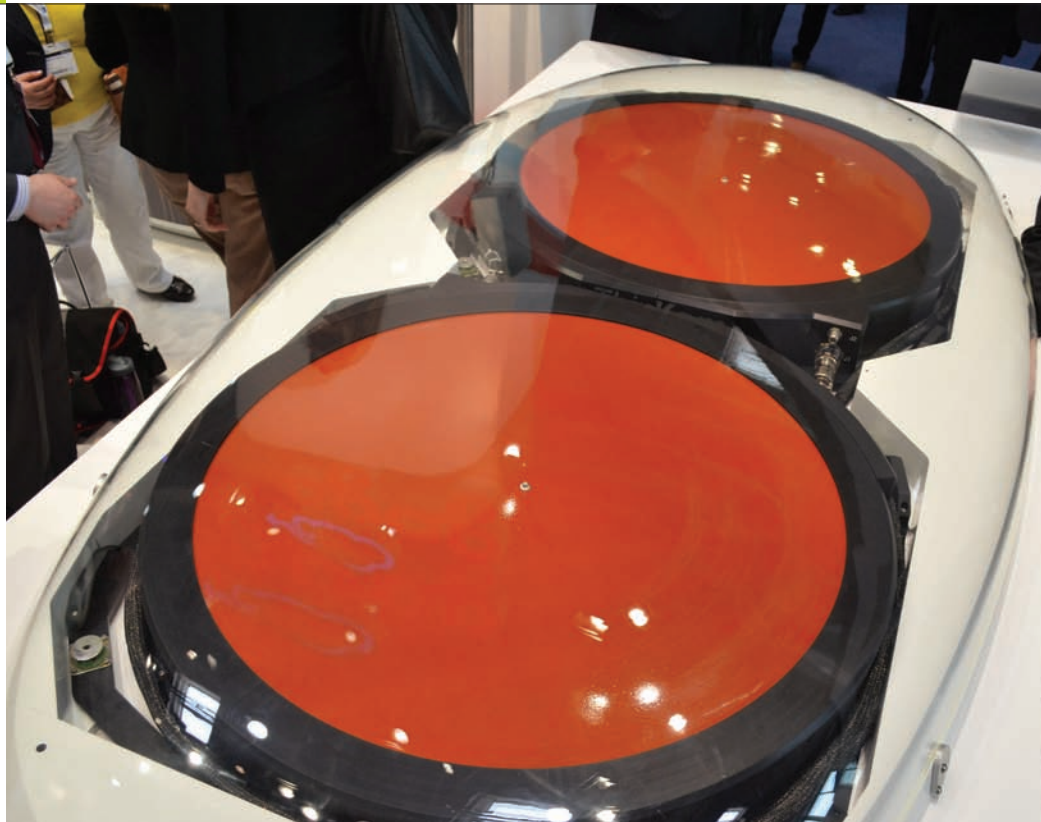


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Michael Small and (right) the 2Ku antenna.



Connectivity provider Gogo is continuing to expand out of its native USA and sees the Middle East as a potential major source of new customers.

Steve Nichols reports.

As witnessed at the recent Aircraft Interiors Middle East (Dubai) and Aircraft Interiors Expo (Hamburg), Gogo means business – setting up sales teams around the globe, starting new global services and launching an initial public offering (IPO) of shares on the NASDAQ Global Select Market in 2013.

It has also underlined its commitment to global Ku-band services with the announcement of a new high-efficiency antenna for commercial wide-body aircraft.

But where has Gogo come from?

The company has forged a good reputation with its air-to-ground (ATG) service over the mainland USA and Canada. This famously started after a barbecue in Texas in 1991, when company founder Jimmy Ray first sketched on a paper napkin his visionary idea for an affordable telephone system for private aircraft.

Analog-based

Gogo began as Aircell, providing analog-based voice communications on private aircraft in North America via a unique partnership with cellular providers.

By the late 1990s, it was also offering a satellite-based system for voice communication on overseas flights.

In 2006 it was awarded the FCC's exclusive air-to-ground (ATG) 3 MHz broadband frequency license. This brought the challenges of designing, patenting, and deploying an uninterrupted network of ATG transmitters across the US.

The company worked hard and fast and, in

It's all go at Gogo...

2008, Gogo made its debut on commercial aircraft, bringing internet access to the skies.

It now has more than 2,000 commercial and 6,500 business aircraft equipped with its services across its ATG and satellite technology platforms, claiming that it is far and away the world leader in in-flight connectivity and a pioneer in in-flight entertainment.

If anyone has ever used Gogo's ATG service in the US they couldn't really fail to be impressed. Any Wi-Fi-enabled device will work and the cost is kept down to \$16 for an all-day pass or \$59.95 for the month.

In November 2012 there was another enhancement, too, when the company announced that it had launched its next-generation connectivity technology ATG-4.

Gogo's ATG-4 technology is capable of delivering a peak speed of 9.8Mbps, triple the peak speed of 3.1Mbps enabled by the previous air-to-ground network.

And the developments haven't stopped there.

At the APEX Expo in Anaheim in September 2013, Gogo unveiled its new ground to orbit (Gogo GTO) system that combines conventional Ku-band satellite connectivity with its ATG network.

The technology uses a satellite for receive only (transmission to the plane) and Gogo's ATG network for the return link (transmission to the ground). This means that the service will only work over mainland US and Canada, where Gogo has its extensive ATG network.

Virgin America will be the launch partner for the new service, which is expected to be available in the second half of this year.

Gogo is also a provider of in-air global satellite connectivity solutions for business aviation through its subsidiary Aircell, with more than 6,000 aircraft in service.

But it was the announcement of its 2Ku system at AIX 2014 in Hamburg that made Middle Eastern carriers sit up and take notice.

This new technology will utilise the same low-



profile antennas as Gogo's GTO technology, which will be deployed for aircraft flying in North America.

However, instead of using Gogo's ATG solution for the return link to the ground, 2Ku has two low-profile, high-efficiency Ku-band satellite antennas. These are flat, phased arrays, manufactured by ThinKom, that can be rotated to move the beams. Both antennas move together and the system can operate down to about 10 degrees, according to Gogo's chief technology officer, Anand Chari.

Gogo says the new technology will deliver peak speeds to the aircraft of more than 70Mbps on the downlink and about a "quarter" of that on the RF link back to the satellite.

More bandwidth

The antenna is said to be approximately twice as spectrally efficient as other antennas in the commercial aviation market, which means it can produce more bandwidth at lower cost.

The antenna, itself, is only 4.5 inches tall (6.5 inches with the radome), which reduces drag compared with other satellite solutions. Michael Small, Gogo's president and CEO, said the radome has a very low-profile leading edge to reduce the risk of bird strike.

Gogo expects this new technology to outperform other global connectivity solutions currently available in the market and Japan Airlines is expected to be among the first to trial it, probably in 2015.

Small added: "2Ku is the next step in our technological evolution and is a ground-breaking

"2Ku is the next step in our technological evolution and is a ground-breaking new technology for the global commercial aviation market."

MICHAEL SMALL

new technology for the global commercial aviation market. When we launched our in-flight internet service five years ago, we were able to deliver peak speeds to the aircraft of 3.1Mbps through our ATG network. About a year ago, we began deployment of our next generation ATG-4 service, which took peak speeds to 9.8Mbps. Our GTO solution takes the peak speed to 70Mbps in the US and 2Ku brings 70Mbps to the rest of the world."

Gogo says 2Ku's performance benefits will be even more dramatic in the tropical [equatorial] regions of the globe, where other satellite solutions degrade significantly due to restrictions associated with operating at high skew angles.

The 2Ku antenna is compatible with today's Ku satellites and future Ku satellites, including future spot beam versions.

Gogo says it expects the new service to be available for the commercial aviation market in mid-2015.

Speaking at AIX in Hamburg, Small said that it is keen to develop its air transport business on all platforms – L, Ku and future Ka band (it is an

Inmarsat GX Aviation partner, with the satellite network and terminal infrastructure being fully rolled out in 2015).

So, with Gogo throwing off its American-only image, what is it doing to cast its connectivity net further?

Niels Steenstrup, Gogo's SVP, international sales, said: "In addition to the Americas, we now have sales teams in the UK (covering Europe, the Middle East and Africa), Singapore, and Hawaii (covering Asia Pacific). Gogo is now a global business and we are going to keep on building those teams."

Gogo has set up a 24/7 global customer care team in the US. It is also rolling out enhancements to its service to offer more than just phone, internet and e-mail.

"Gogo remains technology-neutral and plans to add international technologies to its portfolio as they become available to the aero market," said Small.

"Adding satellite technologies to our suite of in-flight connectivity solutions allows us to deploy a variety of technologies that can service our airline partners' entire fleet, regardless of aircraft size or where that aircraft may be flying."

Small added: "At the end of the day we are going to give airlines the choice between Ku and Ka. While the technologies seem different right now, in the long run the same technology will be applied on both bands."

So, over the next few years we can probably expect to see a lot more of Gogo's distinctive red branding – and if its plans come to fruition, on Middle Eastern airlines too.

More than 300 global space industry leaders, 95% of whom were from outside the GCC, met in Dubai in May for the World Space Risk Forum 2014. Steve Nichols reports.

Capital, threats, markets dominate space risk forum

Three key topics – new capital, new threats and new markets – dominated the bi-annual forum, held at Raffles, Dubai.

Delegates included leading professionals in the fields of on space risk management and space insurance.

The forum was opened by event chairman Chris Kunstadter of XL Insurance, who said there had been 81 launches to orbit in 2013, with only three total failures (3.7%).

“In terms of insurance, 38 of the launches were insured with only one covered-launch failure occurring,” said Kunstadter.

“These launches lofted 209 satellites, of which 88 were tiny cubesats, which is a growing industry.”

Kunstadter added that there were currently 1,167 active satellites in all orbits with 1,396 objects in geostationary (GEO) orbit. The latter figure includes non-functioning spacecraft and those beyond their end of life. In fact, only 322 are active commercial satellites.

“A total of \$775,000,000 net was taken in space insurance premiums in 2013,” he said. “With 80% of premiums going on launch, and the remaining 20% being spent on in-orbit cover.”

The first panel session looked at how capital was now being raised in the industry. Moderated by Jan Schmidt, of Swiss Re Corporate Solutions, the session discussed how industry has to navigate the political, legal and regulatory framework, before selecting and appropriate

manufacturer and securing launch services.

Delegates heard that money is in increasingly limited supply and yet is required in even greater quantities.

Financing satellite projects is still an enormous challenge, especially in times of economic gloom. Investment banks, private equity and venture capital companies look to find safe investments in projects that provide a good return on investment and are solid and safe bets.

This isn't always what the space industry appears to offer.

A session on innovation looked at how new launch vehicles, and technologies such as all-electric propulsion systems, were lowering the cost of market entry and driving down the cost per transponder on communications satellites.

The forum also looked at future developments in the space industry over the next 20 or even 50 years.

Hot subject

Liability insurance was also a hot subject. With space tourism becoming a reality in the next few years, “liability in space”, moderated by Tanja Masson-Zwaan, president of the International Institute of Space Law (IISL), was a popular session.

Commercial companies, such as Virgin Galactic and Xcor, will soon start operating suborbital flights for passengers and even launching small satellites.

Other companies are exploring the prospect of servicing or removing non-functional satellites and discarded launchers for commercial gain. But these all highlight legal and regulatory issues that need addressing.

A whole host of other issues were also looked at, including emerging security threats, such as criminal interference, cyber risks, extortion and political/terrorist risks in relation to satellites and satellite operations.

Laurent Lemaire, event organiser and managing director of Elseco, the world's largest space underwriter, said: “Special emphasis was placed this year on cyber risks, new political issues (Middle East/Asia/Russia), and how satellites can solve current problems, for example Malaysian Airways' MH370 and how satellites could help to find the plane and, in future, back-up black boxes.

“The biggest challenge facing the industry is (and this is a paradox) on the one hand a large capital inflow funding mega projects with hundreds of satellites to be launched, and on the other hand the fear that such capital could disappear overnight.

“Our industry is expanding with a number of significant projects. With oil prices averaging more than US\$100 per barrel, a number of Middle-Eastern countries have money to invest.”

Laurent Lemaire: “The biggest challenge facing the industry is (and this is a paradox) on the one hand a large capital inflow funding mega projects with hundreds of satellites to be launched, and on the other hand the fear that such capital could disappear overnight.”





Inmarsat counts cost of Proton launch failure

Successful times: Inmarsat's first (successful) Proton launch.

Inmarsat says that the global roll-out of its Ka-band GX Aviation connectivity service will be delayed after the failure of a Russian-launched Proton rocket.

Steve Nichols
reports.

The International Launch Services (ILS) Proton vehicle, which failed shortly after lift-off, had been attempting to place the Ekspress-AM4R telecommunications satellite into orbit.

Proton suffered an unspecified failure during the third stage of the flight.

While this launcher was not carrying an Inmarsat satellite, the inevitable delay caused the company to rapidly issue a public statement. It said: "On May 15 2014, a Proton launch vehicle failed shortly after lift-off, resulting in the loss of its satellite payload.

"The cause of the failure will be assessed by a process known as the failure review oversight board ("FROB") and a report of its findings is expected to be completed in the next two months.

"While the conclusions of the FROB will be important in determining the impact on our launch schedule, we believe a delay in the planned launch of both the Inmarsat-5 F2 and F3 is now likely, which would delay the launch of GX services on a global basis.

"However, the start of commercial GX services on a regional basis using F1 (and F2 in due course), as well as existing customer commitments to purchase GX services, will not be impacted by any delay in global service availability."

A similar launch in July 2013 also ended in failure after the Proton's angular velocity sensors were installed upside down at the Baikonur facility.

Inmarsat has a contract with ILS for the launch of two further Inmarsat-5 satellites, known as F2 and F3.

The second Boeing-built satellite had been scheduled to be lofted some time in the summer and the third towards the end of this year. Quite when the new launch dates will be announced is not known.

Its first GX FI satellite was successfully launched last year and is in position to serve both Europe and the Middle East.

But it also needs both the F2 and F3 satellites in position over the Atlantic and Pacific Oceans to give a global service

from the Ka-band GX Aviation system. This promises to deliver up to 50Mbps to commercial airliners and up to 33Mbps to business jets via its Honeywell-designed antennas and terminals.

Speaking at Aircraft Interiors 2014, Miranda Mills, president Inmarsat Aviation, said: "We have now completed our GX ground networks in Europe, with the first in Nemea in Greece, and the second in Fucino, Italy.

"The first satellite has been tested and checks out, and we are now tweaking the software for both the ground terminals and the space segment.

"GX will be a game-changer with airlines being able to go to a single provider, such as ARINC or OnAir, for all their services – broadband connectivity for the cabin over GX (Ka), and safety-services certified connectivity over Inmarsat's (L-band) SwiftBroadband network."

Move forward

But the launch failure is a blow to Inmarsat, which desperately needs to move forward with GX. The company has still to announce a launch customer for the service, despite rumours flying around the industry for some months that a large Middle Eastern carrier would be the first to sign. At the time of writing this has still not happened.

However, Air China and Honeywell Aerospace have signed a memorandum of understanding to install and test GX Aviation service on Air China's A330 aircraft, probably in the second quarter of 2015.

But this is not the same as a fee-paying customer. Inmarsat's delay will also give its competitors – notably Panasonic with its Ku-band GCS system, Viasat with its Ku-band Yonder, and Gogo with its Ku-based alternative and innovative new 2Ku antenna – breathing space to woo new customers.

Rest assured that all three companies' marketing people have not let the opportunity pass unnoticed.



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The 2014 SITA air transport IT summit, held in Brussels in June, attracted delegates from 61 countries and showcased how technology is helping to revolutionise the passenger experience, both at airports and in the air. Steve Nichols was there.



The annual SITA air transport IT summit attracted delegates from 61 countries.

Why social media is a threat to the IT evolution

The SITA summit brought together representatives from innovative airlines and airports across the world to talk about what they are doing and why.

It was also an opportunity for the air transport industry's global IT business solutions provider to demonstrate what it is doing to help, often at the "bleeding edge" of technology.

The summit unveiled the findings of the latest airline IT trends survey, conducted in partnership with Airline Business, which has studied responses from airport IT managers for the last 15 years.

The survey showed that airlines are investing more in smart technologies to better manage flight disruptions. By 2017, 90% of airlines plan to use business intelligence solutions to manage disruptions more effectively.

Self-service technologies, such as check-in, baggage drop and even immigration procedures, are also growth areas, with 87% of respondents planning to use these to improve passenger services during periods of disruption.

Currently, just 14% of airlines let passengers use kiosks to manage their flight changes caused by disruption, but this is set to rocket to 63% by 2017. By then, 73% also plan to offer this service on mobile devices, a rise from 11% today.

Investment in mobile technology in general is

also growing. Informing passengers of disruptions in real-time via mobile devices is offered by just over half of the airlines surveyed, and 92% plan to do so by 2017.

Around 95% of airlines are also looking at improving the usability of mobile services to drive up usage and 98% are going to invest in ancillary services via mobile in the next three years.

Paul Behan, head of passenger experience at IATA, said: "I think we are getting better at giving passengers information about disruption. What passengers are telling us is they accept things go wrong. But the most important thing is to tell them what is happening."

Nine different apps

"But I also have nine different airline apps on my smartphone. I think that's quite annoying – the way ahead may be for a single provider, such as SITA, to develop a cross-airline app that would make it easier for the end user to manage."

"Some airlines have now reached and exceeded the targets they set for mobile usage five years ago."

"But more work needs to be done to realise the potential of mobile services."

"It is also about removing hassle. Over the last 10 years it has been about automating the

process. We are looking at a new piece of work called 'no more check in'. This will scare a lot of people, but it can be done."

More than one third of airlines currently use social media to keep passengers informed, and 80% plan to do so by 2017.

But there are potential pitfalls. Shanshank Nigam, CEO of SimpliFlying, said that social media could have a huge influence on travel booking decisions.

"Passengers are sharing every single thing about their flight on Facebook and Twitter," he said. "And you had better be ready to react. Social media is a wave – a wave that has the power to topple governments."

He shared details of how Dwayne Stewart, a disgruntled passenger on an Air Canada flight, filmed a baggage handler dropping luggage 12ft into a cargo bin from the top of the air bridge. Shared on YouTube in minutes, it ended up getting more than 3,000,000 views causing more than a few red faces at the airline.

But an airline's social media experience can be rosier. Nigam pointed to KLM, which now has more than 130 staff dedicated just to monitoring and responding to social media.

"For every Euro that KLM spends on social media, the airline earns €1.20 from direct and €2.80 from indirect sales," Nigam said.

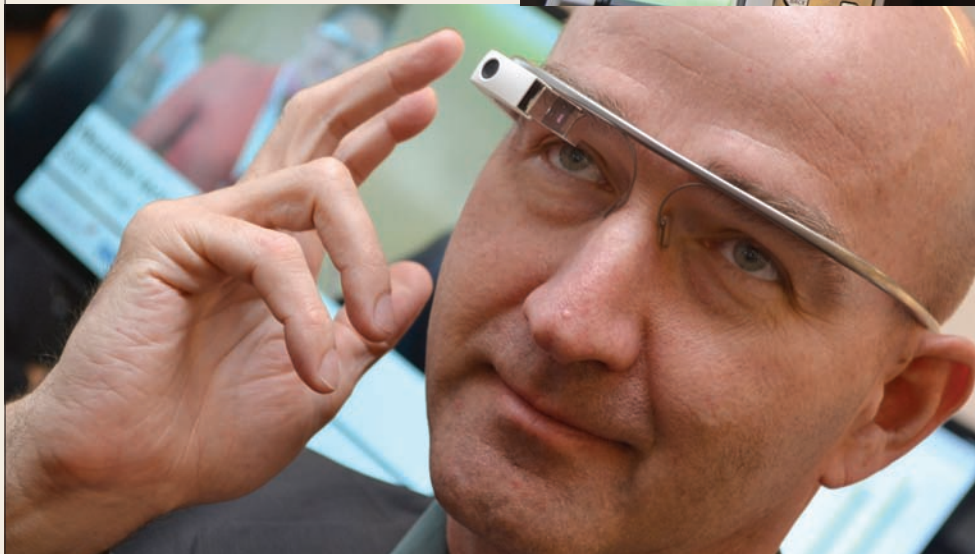
Miami first in the queue to cut waiting time

SITA is helping say good-bye to long queues at US immigration in Miami International Airport, thanks to innovative new self-service kiosks that include fingerprint and facial recognition.

The new automated passport control (APC) kiosks replace the traditional process that occurs after a customs declaration card is filled in when entering the US. The APC features a high-quality digital camera, biometrics and a link to the aircraft's manifest to first qualify a passenger for entry and then issue a receipt for customs use. While the system had originally been used only for US citizens, it is now being tested for passengers entering under the visa waiver programme as well.

Maurice Jenkins, division director, Miami International Airport, said: "This totally eliminates the typical 45-minute wait for a manual check and the feedback from passengers has been excellent.

"The process is 100% secure and we have had a zero error rate. There are currently 30,000 passengers a day coming through the airport and around 5,000 of them use the APC system. As the process develops we expect the numbers to increase."



SITA Lab's Renaud Irminger demonstrates how it is using Google Glass in the Copenhagen Airport trial.

Internet-enabled Google glass looking good

SITA has been using innovative Google Glass wearable technology in two trials at airports.

Copenhagen Airport gave Google Glass the "thumbs up" after a successful trial by its passenger services team, who worked with SITA Lab, the technology research group.

A Google Glass device displays internet information on a tiny screen at the top right of the wearer's vision. It can also understand voice commands and can take photographs or record video.

The team used the technology with duty rosters, desk allocation sheets, peak prognosis, passenger numbers and arrivals. They also noted that having access to services like Google translate, as well as gate, baggage or flight information, could help them improve the dialogue with passengers.

Results from passengers and the airport service team were positive.

In another trial with Virgin Atlantic, Google Glass was used by concierge staff in the airline's upper class wing as passengers got out of their chauffeured limousine at Heathrow's T3.

The technology allowed passengers to be greeted by name, and let Virgin staff update them on their latest flight information, weather and local events at their destination, or translate any foreign language information.

Craig Kreeger, CEO Virgin Atlantic Airways, said: "The media loved it – and we've won awards too. The only way to innovate is to try ideas that might fail. But if it works it just leads to the simple question 'how can we make it better?'"

Other wearable technology is also being looked at, including internet-enabled smart watches from Sony and a biometrics bracelet called a bionym. Typical uses might be for instant check-in at an airport or for passenger recognition on an aircraft.



A gate beacon might trigger when the next flight departs and where it is going.

Beacons offer a ray of hope for passengers

SITA is trialling tiny Bluetooth-enabled beacons in an effort to improve the passenger experience at airports.

The technology is currently being beta tested at Dallas Fort Worth (DFW) and will probably be rolled out to the public in the next quarter.

The low-power beacons emit a wireless pulse with their ID and battery power level. A smartphone app can detect this signal and trigger proximity-related information on your phone.

A gate beacon, for example, might trigger information on where the next flight is going and at what time. Or a beacon in security might trigger a notice showing the current waiting time.

SITA Lab's Kevin O'Sullivan said: "The beacon just emits a signal; the app decides what it needs to do as a result. We decided that common use was the way to go and have set up a central registry of what beacons there are around the world and what they do."

Phillip Easter, director, mobile apps and wearables, at American Airlines said: "It is all about keeping the customer happy. With beacon technology we can help that. For example, we can tell people they are near a kids' zone if they are travelling with children. Or we could trigger a message telling them about a special offer at a nearby restaurant."

Honeywell's century of innovation

You can't go very far in the Middle East without coming across the Honeywell name. Marcelle Nethersole looks at the company that is currently celebrating a century in aerospace technology.

The aerospace industry has seen incredible developments over the past 100 years – and one name at the very heart of that technological innovation is Honeywell Aerospace.

The company is celebrating its centenary this year, having traced its entry into aviation innovation back to June 18, 1914, when Lawrence Sperry did a "wing walk" with no one at the controls of his aircraft to demonstrate the first aircraft stabiliser, which became known as the autopilot.

Today, Honeywell offers thousands of products and services that can be found on virtually every commercial, defence and space aircraft worldwide – and the Middle East is one of the company's fastest growing regional markets.

"I'm proud to be part of a company that has accomplished so much, including the invention of the autopilot 100 years ago.

"We are just getting started, and we will continue to provide innovative aviation solutions that make the possibilities of flight even safer, more efficient, more



Honeywell executives ring the closing bell at the New York Stock Exchange to commemorate the company's century of business.

comfortable, more productive and higher performing," said Tim Mahoney, president and CEO, Honeywell Aerospace.

In addition to the first autopilot, Honeywell Aerospace also helped write aviation history in the 1920s by inventing the first gyro horizon and directional gyro, which proved the practicality of instrument-only flight with advanced navigation.

In the 1940s, technology inventions led to the advent of cabin pressurisation.

Then the first gas turbine auxiliary power unit (APU) was invented in 1948, which revolutionised commercial air travel to remote regions when it was first installed on

the Boeing 727 in the 1960s, providing independent start-up and backup power.

Other Honeywell Aviation inventions include the first ground proximity warning system (GPWS) in the 1970s, and the enhanced GPWS (EGPWS) in the 1990s. The first complete 3-D picture of airborne weather conditions, Honeywell's IntuVue weather radar, was developed in 2008.

Mahoney said: "With the rapid pace of technology evolution, such as our work on wireless connectivity, Honeywell will be at the forefront of incredible aviation innovation in the coming decades that outshines the amazing things we've done this past century."



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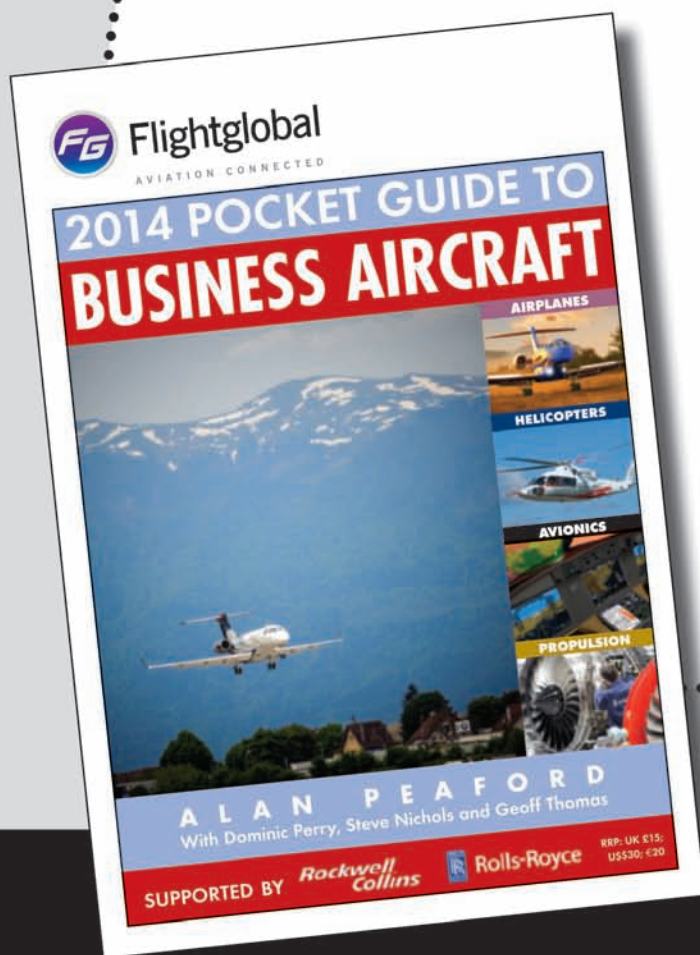
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Jordanian Special Operations Command's new MC-235 gunship made its debut. Bottom left: Special Forces roping down to release "hostages" in a mock attack. Bottom right: A pair of Jordanian SO Black Hawk helicopters flying in for the attack on a "terrorist" hideout.



*Now firmly established as, arguably, the largest focused special operations show in the MENA region, the 10th edition of the Special Operations Forces Exhibition and Conference (SOFEX) in Jordan had much to offer. **Nolene Scott** reports.*

Something special in Amman

Several significant announcements added lustre to SOFEX, which took place in Amman. First was the debut of the MC-235, with Jordan's Special Operations Command taking delivery of two of these gunships.

They were delivered by US firm ATK, which developed the type in partnership with Jordan's King Abdullah II Design and Development Bureau (KADDB).

While one of the aircraft was on static display, the other formed part of the special operations (SO) assault demonstration as a curtain raiser before HM King Abdullah II officially opened the show.

Jordan had supplied the CN235 airlifter for conversion to the MC-235 configuration. Its primary weapon is the proven ATK 30mm chain gun firing through a side door. Besides significant defensive countermeasures, the aircraft carries Hellfire missiles and rocket pods on stub wings.

BAE Systems also announced that its advanced precision kill weapon system (APKWS) would be a weapon option on the gunship. Jordan is acquiring this laser-guided rocket system (LGR), which is due for delivery in 2016. It converts free-flight 2.75inch rockets to precision munitions.

According to BAE Systems, the innovative weapon has been tested on 12 different platforms including UAVs and fast jets, with some 400 having already been fired in tests and combat operations.

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Competing with the MC-235 is Alenia-Aermacchi's new multi-mission MC-27J, also a conversion in collaboration with ATK. Evolved from the baseline Spartan, it was on static display at SOFEX, but reportedly being readied for battlefield testing in Afghanistan shortly. The company is hoping for marketing success in the Middle East after Jordan and Oman opted for the Airbus Defence and Space C295M aircraft.

Another important announcement was of the formation of Arabian Defence Industries (ADI), a joint venture between the King Abdullah II Design and Development Investment Group (KIG) and South Africa's Paramount Group.

KIG chairman, Shadi Ramzi Al Majali, said: "This strong and unique partnership will deliver world-class technologies and solutions, from the latest in armoured vehicle technologies to sophisticated aerospace technologies, including modernisation and upgrade capabilities of fighter and rotary wing aircraft for the specific requirements of defence forces in the region."

He added that ADI would be the nucleus of an Arabian defence company that will invite other partners to participate towards forming the pre-eminent Arabian defence player.

Armoured vehicles

During SOFEX *The Jordan Times* reported that Paramount had inked a deal with Jordan to supply 50 of its Mbombe 6x6 armoured vehicles.

Paramount, Africa's largest defence and aerospace business, is renowned for its modernisation and upgrade of Super Puma, Mi-17 and Mi-24 helicopters. It had an upgraded Hawk advanced trainer cockpit and a model of its AHRLAC light aircraft on display.

Aircraft and helicopters featured prominently at this year's event, not surprising given the increasing aerial requirements of special forces. With Jordanian forces already operating 'Little Bird' MD 530, as evidenced in the mock assault on opening day, MD Helicopters showcased its latest version MD 540A for the first time outside the US.

It offers improved hot and high performance and mission systems, and accommodates a wide range of weapons, including Hellfire and LGRs.

Parked alongside was the Bell 407GT, a militarised version of the commercially qualified 407GX. According to Bell Helicopter personnel, its spacious interior allows for troop transport/extraction or medevac; command and control, as it



accommodates commander stations behind the flight crew; and tactical air assault.

The range of weapons, from Hellfire missiles and LGRs to light weapons, are carried on the combat-proven universal weapons pylon (UWP). Daylight and IR sensors allow for long-range reconnaissance and laser designation.

Although Jordan has not indicated a specific requirement, the 407GT remained in the country for a week-long demonstration and weapons capability display.

Equally impressive was the heavily armed Huey II from Bell Textron. A veteran of the Vietnam War, according to Bell staff, it boasts updated performance and mission systems. The weapon mount, sporting the Dillon M134 minigun, rocket launchers and light machine gun, is easily

removable and can fold up to be accommodated inside the cabin, showing a clean exterior. Jordan's armed forces used to operate Bell Huey II helicopters.

Very much in evidence at SOFEX were several of the Jordanian Special Operations (SO) Command's UH-60L Black Hawk helicopters. As well as one on static display featuring innovative modifications, especially to its weapon systems, a pair of Black Hawks featured prominently in the SO simulated assault on a group of "terrorists".

This impressive display involving a wide range of SO ground and air assets demonstrated the successful release of hostages, followed by the disposal of suspected explosives and "chemical weapons". Jordan's special forces deployed not only the new MC-235 gunship and helicopters, but also the Schiebel S-100 Camcopter UAS with L-3 Wescam EO-IR payload. It was this system that first spotted the "hostage-takers" and alerted the rescuers.

Miniature UAS

Equally sneaky is the SkyRanger miniature UAS, with an extremely low visual, thermal and audio signature. Already operational with SO forces in various parts of the world, it flies beyond-line-of-sight and at night, according to its Canadian manufacturer Aeryon.

Real-time data from its electro-optical infra-red (EO-IR) payload allows 3D models of the operational theatre, which can be shared anywhere in the world in real time.

As for fixed-wing aircraft, the AT-6 light attack/ISR from Beechcraft was a new entrant.

But, arguably the major draw card, was Bell Boeing's CV-22 Osprey tiltrotor from US Air Force Special Operations Command. With its ability to operate like both fixed-wing and rotary aircraft, it has proven itself well in SO missions since first deployment in 2009.

As a showcase for defence companies from around the world, SOFEX has made a name for itself. It attracted more than 370 companies from 41 countries. Its seventh Middle East special operations commanders' conference (MESOC 2014), that was organised by the Institute for Near East and Gulf Military Analysis (INEGMA) and preceded the main event, brought together an impressive line-up of delegates and speakers.

A common thread of the contributions was that a collective effort is needed to counter the growing phenomenon of extremism and violence around the world, and that a first step is to target the link between terrorism and organised crime.

Top: The MC-27J from Alenia-Aermacchi.

Centre: US Special Forces CV-22 Osprey tiltrotor was a star attraction.

Bottom: Bell Textron's 407GT, sporting an impressive range of weapons and mission equipment, remained in Jordan after the show for a week-long series of demonstrations.



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A normally peaceful corner of Hampshire in southern England was woken by the roar of aircraft engines and the positive ‘ker-ching’ of tills as Farnborough International Airshow opened for the 49th occasion.

The main talking point of the show was the move by Airbus to launch two re-engined versions of its most successful wide-body – the A330-800neo and the A330-900neo.

These two new family members incorporate latest generation Rolls-Royce Trent 7000 engines, aerodynamic enhancements and new cabin features.

Airbus said that A330neo reduces fuel consumption by 14% per seat which, it claims, makes the new family the most cost-efficient, medium-range wide-body aircraft on the market.

The A330neo also sees a range increase of up to 400 nautical miles. Deliveries of the A330neo will start in Q4 2017.

With around \$150 billion of orders for aircraft and engines, the show was a resounding success for business – and the Middle East carriers were at the heart of it.

Qatar Airways led the way when it doubled its requirement from the Dubai Airshow and made the largest aircraft order in its history for a single aircraft type by finalising an order for 50 Boeing 777-9Xs, and adding purchase rights for 50 more.

Airline's ambitions

CEO Akbar Al Baker said the demand was driven by his airline's ambitions to launch a leasing arm later this year.

Al Baker said he had no plans for buying the new A330neo for the Doha airline, but hinted that it could be considered for a subsidiary, the new Saudi domestic carrier Al Maha.

Manufacturer Airbus was not flavour-of-the-month with the Qatar chief following the absence on the static park of the airline's new A380 flagship. Invitations had been issued to tour the new game-changing interior before the aircraft was pulled from the line-up. Al Baker firmly placed the blame with the European manufacturer.

“Quite frankly, we were expecting that they would not deliver the aircraft to us before Farnborough but we still expected Airbus to showcase the aircraft to the public,” he said. “It is their aircraft. It's not my aircraft yet. This was absolutely disappointing to Qatar Airways.”

Al Baker said that the reason Airbus gave was that they were working on the aircraft “but I don't think that that was the case. I think it was a way to pressure Qatar Airways to take delivery of the aircraft.



The Middle East airlines and aerospace industry was out in force in the UK in July for the world's leading air show.

Alan Peaford reports

The Middle East wallet opens again for Farnborough

But Qatar Airways does not get bullied by anybody,” he said.

Qatar's A380 was not the only no-show. The new American-built F-35 fighter – ordered by Britain's RAF – failed to make its international debut.

The aircraft had been grounded after a fire erupted while on a take-off roll at Elgin AFB, Florida. During the show the ban was lifted but included restrictions that prohibited the aircraft from making the transatlantic trip.

That allowed the Eurofighter Typhoon to once again dominate the military displays among news that the aircraft – now the choice in Saudi Arabia and Oman – can be fitted with Storm Shadow missiles.

Of course, the A380 and Qatar-liveried A350XWB, making its Farnborough debut, were impressive – but so, too, was the new Boeing 787-9 Dreamliner, making its first international appearance

and wowing the crowds with incredibly tight turns on a spectacular touch-and-go demo. Sadly, it seems it was too tight for some, and the manufacturers were banned from the manoeuvres – a decision that some US newspapers attributed to interference and influence from Airbus, whose fly-by-wire controlled aircraft could not match the performance turns.

Mubadala was at the show in force with presence in the exhibition halls for its aerostructure and parts companies – and on the static park with Piaggio, the turboprop manufacturer now 98% owned by the Abu Dhabi investment house.

Piaggio was celebrating after securing the first major contract for its new Avanti EVO in a deal that could eventually be worth as much as \$370 million at list prices.

Hong Kong-headquartered investment and advisory firm Bravia Capital Partners plans to acquire up to 50 of the twin-



Akbar Al Baker: Demand for 777-9Xs was driven by his airline's ambitions to launch a leasing arm later this year.



engined turboprops – a commitment comprising 10 firm orders and 40 options – with deliveries scheduled to begin early next year.

The third-generation Avanti will be used for passenger transport in the USA. “The EVO will service the east coast, west coast and numerous other areas that encompass a large percentage of the ‘up to three-hour sector’ of the market,” said Bravia Capital chief executive Bharat Bhise.

The \$7.4 million EVO was launched in May and incorporates a host of improvements and upgrades over its Avanti II predecessor, including a revamped and quieter interior, enhanced safety features and increased performance, thanks to winglets, redesigned engine nacelles, a reshaped front wing and five-blade composite scimitar propellers.

Flight-testing of the EVO began in February and the test aircraft has so far clocked up around 100 hours, says Piaggio. Certification and service entry of the seven-seat, twin-pusher are scheduled for the fourth quarter.

Piaggio Aero also used Farnborough to hand over the first extended-range variant of the Avanti II to Chinese operator SR Jet.

On the MRO front, Emirates airline signed a 12-year OnPoint solution agreement with GE for the maintenance,

repair and overhaul of its new GE9X engines that will power its 150 Boeing 777X aircraft.

The OnPoint solution agreement is valued at more than \$13 billion over the life of the contract.

The agreement for the 300 GE9X engines was announced at the 2013 Dubai Airshow and is worth more than \$15 billion list price. With this agreement, GE Aviation secured its largest-ever commercial jet engine award from an airline.

“The relationship between GE and Emirates continues to grow with the recent GE9X commitments,” said David Joyce, president and CEO of GE Aviation. “The OnPoint solution agreement will allow us to provide comprehensive MRO support along with OEM parts and worksopes to ensure the engines remain in peak operating condition.”

Another company with engines on its mind was Saudi Arabian domestic start-up, SaudiGulf Airlines. It selected the International Aero Engines (IAE) V2500 engine to power four A320neo aircraft and has also signed an eight-year V-services maintenance service agreement with IAE.

“As a new airline, our success is dependent upon establishing a well-developed, quality fleet before we begin our operations,” said Tariq Al-Qahtani, chairman, of the Damman-based operator.

“With the combined technology of Pratt & Whitney, Japanese Aero Engines

On show (clockwise from left): The Dreamliner B787-9 makes its debut; Sadly just a mock-up of the F35 this year after the American fighter was grounded; Turkey's T129 was an impressive player; The Typhoon was the star military performer; Mubadala's Piaggio secures a massive order for the Avanti EVO.



David Joyce: “The relationship between GE and Emirates continues to grow.”

Corporation and MTU Aero Engines, we know that we are powering and maintaining our aircraft with one of the best options on the market.”

Turkey’s TAI was also more involved than ever before displaying T129 ATAK helicopter in the flying display and the UAV, ANKA, at the static area.

In other defence news, Egypt became the largest customer for the tactical airlifter, the Airbus C295. It has ordered eight more of the type, taking its total fleet to 20.

The new batch of aircraft will be delivered to the Egyptian Air Force by Airbus Defence and Space beginning next year and will follow the 12 aircraft previously ordered, of which six are already in service.

The contract also includes a service support package for spares, training, and maintenance of the fleet.

In other news, Abu Dhabi’s Falcon Aviation Services (FAS) signed a memorandum of understanding (MoU) with Boeing subsidiary CDG to provide EASA Part 21J engineering and supplemental technical documentation services for Falcon’s new VIP Completion Center at Dubai World Central.

Completion centre

Falcon will be building the region’s first VVIP aircraft completion centre at the Dubai aerotropolis. The new facility begins construction soon and will be completed by mid 2015.

FAS was also busy building up its fleet with orders for five Bombardier Q400s as well as converting its letter of intent (LOI) announced at the Dubai Airshow – to a firm \$154 million order for two CS300s.

Another in the market for the CSeries was Jordan’s Petra Airlines.

Amman-based Petra has signed an LOI for four CSeries airliners, consisting of two firm CS100s and two CS300 options, the Canadian manufacturer said. The commitment is valued at around \$298 million at list prices.

“CSeries jetliners have built-in operational flexibility which will allow us to tailor them to meet our specific needs,” said Riad Khashman, Petra’s CEO. “They’re quiet, they have an unmatched environmental footprint and their wide-body comfort will be appealing to customers.”

Air Algeria announced an order for two Next-Generation 737-700C (convertible) aircraft, valued at \$152 million at current list prices.

“The 737-700C will provide our fleet with flexibility and enhances our ability to carry cargo on important routes,” said Mohamed Salah Boulouf, chief executive officer of Air Algerie.



Morocco now has five Bombardier CL415 water bombers to fight wildfires. Right: Some of the RMAF's 20 upgraded F-5E Tigers refuel from a Lockheed Hercules C-130; and below, one of nine of the RMAF's 22 AlphaJets that have been upgraded to LIFT standard.



Thoroughly modern

Alan Warnes *visits the Marrakech Airshow and analyses changes for the north African defence market.*

With some 30 military aircraft exhibited at this year's biennial Marrakech Airshow, there was plenty to see.

The event, which took place from April 25-26, provided an opportunity to witness the recent modernisation of the Forces Royales Air Marocaines (RMAF, Royal Moroccan Air Force) and view the areas that still need to be addressed.

Undoubtedly, the RMAF is extremely proud of its new F-16s – proving a third world country can operate the latest generation of fighters.

There were two F-16C Block 52s in the static display, parked next to the RMAF's exhibition hangar. One was fitted with conformal fuel tanks. This appears to be a standard fit given that the three to four F-16s that formed part of the RMAF flypasts were in this configuration.

While none of the aircraft wore unit markings, which is in line with RMAF policy, there was a mix of personnel from all three F-16 units Escadrille de Chasse (EDC - Fighter Squadron) – Falcon, Viper and Spark.

The F-16s serve with the 6 BAFRA at Ben Guerir, which was officially opened

on July 27, 2009 after many years of renovation.

Evidence in one of the hangar displays confirms the RMAF is also acquiring next generation Raytheon AIM-9X Sidewinders, along with the joint helmet-mounted cueing system (JHMCS) for its premier fighter.

Combat training system

Two weeks before the show Cubic Defense Systems announced it had won a contract, worth more than \$5 million, from the US Air Force to supply Morocco (one of the United States' allies) with its P5 combat training system (P5CTS). This will allow high-fidelity 'Top Gun-style' live and post-mission training for the F-16C/D pilots.

Standing next to the F-16Cs was a single upgraded Mirage F1EM-VI – one of 27 Mirage F1s being upgraded with kits made by SABCA of Belgium.

The Moroccan upgrade was designed by the Association Sagem Thales pour la Rénovation d'Avions de Combat (ASTRAC) consortium, a joint venture between Thales and Sagem Défense Sécurité (SAFRAN).

“This modernisation programme has been well thought through and will certainly stretch the Algerian air defences, despite Morocco's lack of financial resources.”

SABCA has been subcontracted to integrate the new systems, which include a new Thales RC400 (RDY-3) multi-mode Doppler radar based on the Mirage 2000-5 RDY radar, albeit with a smaller antennae giving shorter range.

The cockpit has been transformed with two colour multi-function displays, a head-up display (HUD) and hands on throttle and stick (HOTAS). One of the main features of the upgrade is the enhanced electronic warfare capability.

Completing the fighter line-up was an upgraded F-5E Tiger, among 20 F-5Es upgraded with IAI Elta's multi-mode EL/2032M radar, as well as other associated avionics. The solution was a sensitive one and still secret, as much is in Morocco, because it came from Israel Aircraft Industries (IAI).

Israel is also thought to have sold, not only the Litening laser designation pod system, but also a batch of light Israel Military Industries Delilah cruise missiles. Equipped with these, the F-5s can focus primarily on the Algerian air defence radars and missile systems, although they have both air-to-air and air-to-ground capabilities.

All Moroccan combat aircraft are net-centric and highly integrated by datalink, courtesy of the newly acquired Raytheon-Thales ground radars. These capabilities



Left: The turbo Thrush.

Above: Alenia Aermacchi C-27J with missile warning receivers under the cockpit.

Morocco...

did not exist 10 years ago, but today represent a sustained effort very cleverly achieved by Moroccan personnel. "This modernisation programme has been well thought through and will certainly stretch the Algerian air defences, despite Morocco's lack of financial resources," said one insider.

With more than nine million hectares of forests, Morocco, more renowned for its desert conditions, has had some serious issues with wildfires. As a result of trying to increase the confidence of Morocco's farmers as they bid to increase yields, funding was made for five Bombardier 415 water bombers

Fire-fighting skills

The last of the five, CN-ATQ, appeared in the static display, while two other aircraft showed off their fire-fighting skills by dropping retardant dyed red and green (the colours of the national flag) during the flying display.

The first Bombardier 415 arrived in Morocco in March 2011 and was followed by an announcement for a further four, valued at approximately \$162 million. Delivery of the first of the second batch came during May 2011 and the last arrived at Kenitra, 3 BAFRA, where they are based, in early September 2013.

Next to it was another relative newcomer to the Moroccan Air Force, an Alenia Aermacchi C-27J, plastered with missile warning receivers under the cockpit. It is one of four delivered between July 2010 and late September 2011 and based alongside the water bombers at Kenitra, where all the other transport aircraft reside.

Completing the transport line up was a C-130H, CN 235, Beech A100 (used for training transport pilots) and a Beech 200. The latter is part of Morocco's indigenous Al Ghait rainmaking system. It is fitted with mods under the wings to jettison chemicals into clouds, forcing them to drop rain over regions where it is most needed. An Alpha Jet used for this role was parked next to it.

Other new acquisitions on display were three of the 24 Beechcraft T-6Cs delivered in 2011. This aircraft has catapulted the RMAF's flying training into the modern era. With a HUD, capability to manoeuvre at -3.5 to +7g and a Martin Baker Mk 16 ejection seat, the student pilot is groomed for flying fast jets. As a result, the T-6Cs have replaced the obsolete T-34Bs and T-37Cs, which are now stored, in bags, on the main ramp at the Marrakech show site.

To date nine of the 22 Alpha Jets

Modernisation of the helicopters must now be a major priority, with the RMAF's fleets of AB 205 Huey, AB 206 Jet Ranger, SA330J Puma, and SA342M Gazelle all from a bygone generation.

earmarked for upgrade into a more capable lead-in fighter trainer (LIFT), have had the work done. One of them appeared in the static display, although we were not allowed to see the new cockpit architecture.

The €27 million (\$36m) contract awarded to Thales in late 2009, saw SABCA carry out the integration of a HOTAS, HUD and other avionics in the front cockpit and a new multi-function display in the rear one. This upgrade has allowed fighter pilots to decrease the gap between the LIFT and fighter without buying a new platform. However, SABCA was keen to market its recently launched Alpha Jet upgrade at the event.

Major priority

Modernisation of the helicopters must now be a major priority, with the RMAF's fleets of AB 205 Huey, AB 206 Jet Ranger, SA330J Puma, and SA342M Gazelle all from a bygone generation. The same applies to the CH-47C Chinooks, which are all grounded, but at least the delivery of three new CH-47Ds will go some way to alleviating that capability shortfall.

With regular fly-pasts that included most aspects of the RMAF inventory, observers at Marrakech 2014 were treated to a fascinating insight into where the country's air arm is heading.

Tunisia to host double the discussion at MEBAC

The Middle East and North Africa Business Aviation Association (MEBAA) is to stage the next edition of the MEBAA Conference (MEBAC) in Tunisia on September 10-11 this year.

MEBAA will once again draw upon its members and other prominent stakeholders across the region's aviation sector to discuss issues surrounding north Africa's business aviation market, including FBO challenges and

regulatory framework. It will also be hosting MEBAC as a two-day event for the first time, due to popular demand.

The north African market is a great focus for MEBAA since its Morocco MEBAC event, where the organisation partnered with WINGX for the first time. It published an info-graphic based on a study of business aviation in north Africa, which showed the industry is growing at 6.3%

compound annual growth rate (CAGR), nearly double the global average of 3.7%.

MEBAA founding chairman, Ali Al Naqbi, said: "It is an exciting time as we continue to grow in membership numbers, products for our members, the launch of our fly-and-feed initiative, and the Middle East Business Aviation (MEBA) show set to take place at the end of the year at its new home – Dubai World Central."

Dubai summit new for ME and Africa

A new summit and exhibition covering the dynamic growth of African aviation and its strong links with Middle East investment, support and competition, is to be held in Dubai next year.

Arabian Aerospace – in conjunction with its sister publication *African Aerospace* – is launching Aviation Africa 2015, which will take place at Le Meridien Airport Hotel from May 10-11 2015.

Conference organisers said the event will help unlock Africa's aviation potential.

Industry and government leaders from Africa and the Middle East will work together to make aviation an even more integral part of Africa's economic development and integration. Safety, regional cooperation and global standards for infrastructure funding, will be addressed as key issues.

Aviation Africa 2015 aims to bring together government and civil aviation authorities; senior airline management; business aviation operators and specialists; financial and industry consultants; airport management and service company management; and leaders from maintenance, training and flight support.

The conference programme will be managed and chaired by Alan Peaford, editor-in-chief, *Arabian Aerospace* & *African Aerospace*.

There will be case studies, workshops and forums to debate and discuss the opportunities and issues facing African aviation today.



Harris management signs the deal with IDEX CEO Marzooqi for the show sponsorship.

ADNEC swoops in to back IDEX

The region's largest defence event – IDEX – has a new sponsor.

The Abu Dhabi-based ADNEC company has announced a sponsorship deal with Harris International for the 2015 show.

"Our partnership with Harris only further enhances our offering to provide a global defence event to all exhibitors and visitors," said IDEX CEO, Saleh Al Marzooqi.

"We're the largest defence exhibition in the

MENA region and, together with Harris, we'll create an optimum business environment for solutions providers across the land, air and naval defence sectors."

IDEX is the MENA region's largest event, attracting more than 1,100 exhibitors from 50 countries and featuring over 35 country pavilions.

More than 90% of available exhibition space has been reserved by exhibitors for IDEX 2015, which will take place from February 22-26.

Bahrain to host first Routes MENA

The first ever Routes MENA is to take place in Bahrain in November 2015 and will be hosted by the Bahrain Airport Company.

The event will see route development professionals from across the MENA region gather to discuss air service development to, from, and within the region.

Mohamed Yousif Al Binfalah, chief executive officer, Bahrain Airport Company said: "We are

delighted to be bringing Routes MENA 2015 to Bahrain.

Securing this prestigious inaugural event is the result of the collective efforts of our partners and stakeholders and we are confident that this world-class forum will reiterate Bahrain's role as an aviation hub in the MENA region and highlight our deep-seated aviation heritage."

Katie Bland, director Routes for UBM Live, added:

"The MENA region represents nearly 11% of global aviation – about double its share from a decade ago – driven by global hub strategies in the Gulf and liberal aviation access policies.

"We're delighted that Bahrain Airport Company is hosting our very first Routes MENA event dedicated to air service development to, from and within the MENA region, and look forward to working with their team."

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Of the 160 pilots flying for Gulf Air, only nine are female. This year saw the first female Bahraini captain – Yasmeen Fraidoon – rise through the ranks from ab initio training to take her left hand seat in an Airbus A321. She told Liz Moscrop that even the sky is not her limit.

Yasmeen reaches for the sky... and beyond!

You never know what seeds you plant in a child's mind. When she was a little girl, Captain Yasmeen Fraidoon loved to hear stories about flying from one of her favourite uncles, who was an airline pilot.

The lure of the skies proved irresistible.

Although she graduated with a bachelor's degree in management information systems from the University of Bahrain and headed for the financial sector, she soon realised that banking was not for her. So, in 2004, she joined Gulf Air's cadet programme.

By 2008 she had graduated from the Qatar Aeronautical College and headed to the carrier, initially as a second officer on all aircraft in the Airbus A320 family, including the A320-ER and A321 types.

"Aviation is a lifestyle," she said. "It's one that inspires people to work in the face of many unique challenges, such as extended working hours, comprehensive safety procedures, and the need to multi-task effectively throughout a journey – from pre-flight to landing."

While she is the first to admit that being female places her under greater passenger scrutiny sometimes, due to common perceptions that this is a male role, she believes attitudes are changing and having female captains is slowly becoming a more mainstream accepted idea.

Although in some cases women may face the additional challenge of battling negative perceptions, she affirmed: "A person's true calibre is evident in their work."



Captain Yasmeen Fraidoon: "We are fortunate to live in an environment that embraces equality and is open to professions being adopted by both sexes."

She added: "We are fortunate to live in an environment that embraces equality and is open to professions being adopted by both sexes."

"Few people are lucky enough to know early on how to channel their passion into a career path, or which career path is best suited for them. Once you identify your ideal career path – unconventional or not – follow that through with commitment and hard work."

She urged anyone opting for a flying career to research the field extensively and stressed: "Beyond the glamour, aviation is a lifestyle, and a challenging

one, with immense responsibilities."

While she enjoys travelling to both regional and far-flung destinations, she says she does not have a particular favourite. "Just being in the sky is something I always look forward to."

She is not resting on her laurels, however. The next step in her career ladder is to earn a prestigious training captaincy, making her Gulf Air's first female Bahraini to adopt the role if she is successful.

She explained that historically, airlines have been hesitant to hire female pilots, so there were fewer women looking to learn to fly. She is pleased that things are changing and that she has received a great deal of acceptance and support from all her colleagues. Indeed, she was following in the highly capable footsteps of the airline's first female pilots, captain Vanessa Umba and senior first officer Maysa Hazeem.

Importantly, she said, she has been "judged on merit" throughout her tenure with Bahrain's national carrier, primarily because she has had the full backing of the Gulf Air team.

However, while the airline was unfazed by her application, closer to home she startled her family, who had no idea she wanted to be a pilot. When Gulf Air accepted her into its cadet programme her family was shocked, but now backs her all the way.

Her father is hugely encouraging and he remains a big part of her support network. She explained, also, that her husband is the main person who pushes her to achieve even greater successes.

Pioneers AGM date set

The Arabian section of the 99s – the organisation for aviatrixes – has set the date for its third annual meeting. The region's pioneering women pilots will be meeting in Bahrain from October 21-23.

The event is being hosted by Bahrain's Ministry of Transportation and the country's civil aviation authority.

"We will also be doing some charity work during the event," said 99s chair Alia Twal. Thanks to the support of Mena Aerospace we will be joining children with cancer and from orphanages on a flight over Bahrain in a private jet and the children will also get to try flying on simulators, sponsored by GAA."

First female pilot in Iran

Another new member of the Arabian section of the 99s is Capt Razieh Shams.

Razieh flies with Aseman and was the first female pilot in Iran, "I think there are about six co-pilots now," she said, although there are no women yet flying with the national carrier.

Shiraz-born Razieh faced significant opposition but with the support of her family she was able to qualify and is now flying in the left-hand seat of an F-100.

"I am not going to talk a lot about the hard times I have gone through because remembering those difficult days bothers me," she said "However, after my first flight I didn't mind what might happen."



Denver-based news anchor
Amelia Rose Earhart.
Below: Amelia Earhart in 1932.



Amelia's real heart

*Two famous
Amelias have
done wonders
for women in
aviation.*

Liz Moscrop
*admires their
pluck.*

**“Amelia believed
that, ‘adventure is
worthwhile in
itself’, and it is
that type of
attitude that
spurs us to seek
the unknown.”**

AMELIA ROSE EARHART

One of my favourite phobias is that girls, especially those whose tastes aren't routine, often don't get a fair break.

Not my words – they are those of Amelia Mary Earhart, the renowned aviatrix, who disappeared over the South Pacific in 1937 during an attempt at flying around the world in a twin engine Lockheed Electra.

Her legacy lives on, epitomised in a young woman who bears her name.

Denver-based news anchor Amelia Rose Earhart set off this summer to chase her own dream. By the time *Arabian Aerospace* goes to press she should have flown approximately 24,300 nautical miles in a Pilatus PC-12 NG, completing the round-the-world flight that her namesake never got to finish.

During her journey, she will have awarded 10 flight scholarships to young women in the US through her other passion, the “Fly With Amelia Foundation,” a charity she set up. Once she has finished her trip, she will be the youngest woman to have circumnavigated the globe in a single-engine aircraft. Sponsors included Pilatus, Honeywell, Inmarsat and Satcom 1, as well as BBA Aviation companies Signature Flight Support and Dallas Airmotive.

She explained: “By recreating and symbolically completing Amelia Mary Earhart's flight around the world, I hope to develop an even deeper connection to my namesake. Amelia believed that, ‘adventure is worthwhile in itself’, and it is that type of attitude that spurs us to seek the unknown.”

Pilatus demonstrator pilot Shane Jordan was her companion en route, and no stop was planned for Howland Island, Amelia Mary's destination when she disappeared. However, Amelia Rose was set to overfly the point from which the last transmission from her namesake was heard, and announce the names of the 10 scholarship winners.

In contrast to the silence for most of the first world trek, Amelia Rose's was set to be cocooned in almost constant connectivity with fans following her progress all the way with flight tracking, plus Facebook and Twitter both during flight and on stop-overs.

However, all the technology in the world does not compensate for the real dangers present with weather patterns in the tropics. Airlines train their professional pilots well on how to navigate the intertropical convergence zone (ITCZ), which Amelia Rose and Shane had to encounter.

One of key threats to aircraft is that, despite today's sophisticated technology, data for this large mass of unstable air is difficult to find. There are only a few weather balloon stations in the ITCZ, and very few surface weather stations transmitting their observations.

Because most of the ITCZ is over the oceans, surface weather information is pretty much limited to periodic reports from passing ships. There is virtually no radar coverage, so pilots have to rely on on-board radar to locate active storm cells. A massive thunderstorm can destroy even a large commercial jet.

Such a trip requires bravery, and passion tempered with courage is evidently the guiding

force behind both women's historic journeys. The first Amelia said: “The most difficult thing is the decision to act. The rest is merely tenacity. The fears are paper tigers. You can do anything you decide to do.”

Amelia Rose echoed her predecessor's spirit, saying: “Whenever we learn something new, we must first give into the fact that we will not be as fearless as we may like. As long as you put yourself in the environment to learn, to be around what it is you want to be and do, you get the benefit of momentum. You will be forced to grow your own wings.”

Judging by the female response to both pilots, each has done wonders for attracting women to aviation.



Turkish appoints new Dubai chief

Turkish Airlines has appointed Rafet Alper Ozen as general manager of the global carrier's operations in Dubai and northern Emirates.

Ozen will be responsible for developing business strategy for the area and further strengthening the airline's growth.

Adem Ceylan, vice president of marketing and sales for Turkish Airlines Middle East & Cyprus, said: "Dubai is one of the strong markets for Turkish Airlines, where we have recorded consistent growth.

"Turkey is one of the popular tourist and business destinations for residents in Dubai and the northern Emirates. Ozen has strong industry experience in the region and will focus on building our presence in this key market."

ATR appoints new top man

The ATR assembly of members has appointed Patrick de Castelbajac as chief executive officer.

He succeeds Filippo

EX CEO RETURNS TO OMAN AIR AS COO



Abdulrahman Al-Busaidy, the former CEO of Oman Air has returned to the Muscat-based airline in the role of chief operation officer.

Since leaving Oman Air in 2006 Al-Busaidy has been in a key management role with Indian carrier Jet Airways where he was chief strategy and planning officer.

The appointment comes at a critical time for Oman Air, as it prepares for its next phase of rapid expansion, which will begin with the arrival later this year of the first of the 20 new aircraft that the airline currently has on order.

Bagnato, whose four-year mandate, according to ATR's statutes, expired at the end of May 2014.

Having started his aeronautical career at MBDA, de Castelbajac spent three years as a lawyer at Baker & McKenzie, in Paris.

In 2002 he joined Airbus and in 2007 he became the company's vice-president legal affairs for purchasing and intellectual property.

At the end of 2010, he became Airbus head of contracts negotiations.

Etihad selects 'Dougie' for Armenia

Etihad Airways has appointed Robert 'Dougie' Douglas as its general manager for Armenia.

Douglas, who takes up the role immediately, will lead the airline's Armenian sales and marketing operations from its new Yerevan office.

Peter Baumgartner, Etihad Airways' chief commercial officer, said: "Dougie is an expert airline manager, knows Armenia

and the region very well, and his knowledge and experience from having previously worked and lived in Yerevan will be invaluable to the success of Etihad Airways' new services to Abu Dhabi."

Saudi switch Tolot

Thales has appointed Jean-Yves Tolot, previously in charge of the Africa region, as new vice president, Saudi Arabia. He will be based in Riyadh and will lead all Thales business activities in this country. Tolot joined

Thales in 2008 and has pursued an international career, leading the group's activities in Saudi Arabia and Turkey.

Universal sales role for Dickey

Universal Avionics has announced that Ross Dickey has been appointed to the newly created position of airline and government sales manager for Europe, Eastern Europe and the Middle East.

Dickey will be responsible for maintaining Universal Avionics' existing programmes and relationships within airline and military market segments, as well as seeking out and developing new programmes in Europe, Eastern Europe and the Middle East.

A Weather eye for Moreton



Universal Weather and Aviation has named Judith Moreton as its new regional vice president, Europe, Middle East, and Africa.

Morton is a familiar face in the region, having had nearly 30 years of business aviation and entrepreneurial experience, including for Shell Aircraft and, most recently, serving as vice president and general manager for Jet Aviation UK.

This followed a series of executive roles where she founded several successful aviation start-ups, including Little Blue Private Jets and Bombardier Skyjet International.

She will be based in the United Kingdom.

SAUDIA GETS A NEW DIRECTOR-GENERAL



Saleh bin Nasser Al-Jasser has been appointed director-general of Saudi Arabian Airlines and will take charge from August 3.

Al-Jasser succeeds Dr Khaled Al-Molhem, who led the airline for eight years and presided over its privatisation program.

Al-Jasser has some 30 years of experience in business management, as well as in the maritime, land and air transport fields. He has worked both in the public and private sectors, acquiring huge experience in managing major companies.

He holds a master's in business management from King Saud University and a bachelor's in industrial engineering from King Abdulaziz University as well as attending advanced management training courses at Harvard University, INSEAD in France and at Oxford in the UK.

He served as CEO of the National Shipping Company of Saudi Arabia from November 2010 and prior to that was executive director-general of the Abdullatif company.

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Chamsou D Andjorin

Marcella Nethersole *speaks to Boeing International's Aviation Safety expert for Africa and the Middle East.*

Given the size of national and regional aviation industries, there is no other option than regional cooperation, but there are very few successes of regional cooperation.

1

■ The Middle East has an impressive safety record; is this due to the fact it has the most modern fleets in the world or something else?

There is a strong correlation between the safety record and the safety oversight capability, as measured by the level of effective implementation of the eight critical elements defined by the International Civil Aviation Authority (ICAO).

It appears that the Middle East has made impressive progress in this area in recent years and is well above the world average. In such an environment, it helps to have a modern fleet, but there is no direct correlation between age and safety. Aging fleets require more resources to operate safely, and inadequate allocation of resources is a safety risk.

2

■ Your role also covers Africa; what do you see as the biggest challenge to the development of the air transport industry there?

In my view, it is the market size. Although the African market has experienced impressive growth for the past few years, it is from a very low base. Africa is credited with a global traffic share of less than 3% but has a population of about 15% of the world and 20.4% is the total landmass. Impediments include strong protectionism, poor safety standards, high taxes and charges, inadequate infrastructure, and poor access to finances.

3

■ What does Boeing do in the Middle East to help maintain the safety performance?

The Boeing safety leadership model, described earlier, guides our actions. We share our data analysis to help focus on the most important safety risks, we share our knowledge and expertise to proactively address those risks, and we encourage industry and governments in working together. We also engage directly with our customers to understand and help address their safety concerns if any.

4

■ What role does the manufacturer have generally in aviation safety?

This is very well represented in the Boeing safety leadership model, which is based on assuring a healthy safety foundation through our products and services, promoting worldwide safety culture through cooperation with all stakeholders, and aligned focus, and promoting a proactive risk management approach through the use of data and knowledge sharing. This is done across the value stream, from design, to production, certification, operation, maintenance, infrastructures and regulation.

5

■ What does a typical day involve for you?

My role is to work with the stakeholders in Africa and the Middle East to establish the regional safety priorities and to mobilise Boeing's available resources to address those priorities. This is achieved through the regional aviation safety groups, where governments and industry partners develop regional safety strategies aligned with the ICAO global aviation safety plan, and develop implementation plans for safety initiatives. We do the same with our customers, to help them address their safety concerns, and share experiences.

6

■ What is the biggest challenge you face in your job?

It is the lack of commitment to aviation safety and the inadequate allocation of resources to train and retain skilled personnel. Given the size of national and regional aviation industries, there is no other option than regional cooperation, but there are very few successes of regional cooperation.



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