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ACCESSING INTERNATIONAL MARKETS

UK AEROSPACE INTERNATIONAL STRATEGY 2011

CONCLUSIONS

10

The commercial global aerospace industry has seen a remarkable transformation in the past twelve months. This time last year, the majority of metrics (traffic, orders, production) were negative. Today this has been reversed and the majority of metrics are positive.

This strong recovery has being driven by passenger traffic increases in the range of 8-10% year on year but is now settling down at a monthly rate 5-6% per annum. Seat capacity has lagged the recovery in traffic but is now closing the gap, although airlines are still wary of releasing too much capacity into the market.

It is now a global airline market and developing commercial aerospace manufacturers (China, Russia, India and Brazil) are all launching new programmes and Asia Pacific is the largest source of order backlog.

Airbus and Boeing are significantly increasing their production rates, particularly on single aisle. Airbus have increased the A320 rate to 42 per month and are considering an increase to rate 44 per month by the end of 2012. Boeing is ramping up to rate 42 per month on the 737 by 2014 and there has been talk in the press of it going higher to rate 50.

Meanwhile, launch orders for the Airbus A320 NEO (New Engine Option) have been announced from two airlines (Indigo and Virgin America). Boeing has been holding off re-engineering the 737 and a recent airline survey of Boeing customers has shown a resounding preference for a complete replacement of the 737NG with a new narrowbody aircraft.

The one major concern to the recovery stalling is the fuel price. In early February the price reached over $100 per barrel due to the conflict in Egypt. Fuel typically represents 25-30% of an airlines operating costs, and with both Easyjet and Ryanair recently reporting losses, this area is of concern.

The conventional financing market is still recovering and airline deliveries will continue to be supported by country owned guarantee banks. The aftermarket is recovering well although risks still remain. There are now 400-500 aircraft retired per annum and the retirement age is coming down.

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CONTENTS

1

EXECUTIVE SUMMARY

1. This report identifies the major opportunities for UK Aerospace in international markets and provides recommendations on how these opportunities should be approached during the next 12-18 months.
2. Over the next 10 years, the large emerging markets of China and India will drive global civil aerospace growth. The opportunities in these markets for UK aerospace companies will principally focus around the formation of partnerships and technology collaboration and it is key that the UK positions itself as a long-term strategy partner with these markets.
3. The principal opportunities in the next 10-year period are likely to be on new Boeing, Airbus, Bombardier, COMAC and Embraer programmes due to their sheer volume and the fact that there will be options for new supplier entries. There are also significant opportunities for UK suppliers to win international business on new rotorcraft, business aircraft and Unmanned Aircraft Systems (UAS) programmes.
4. The globalisation of the supply chain and current market conditions require that UK aerospace companies and UK Government co-operate even more closely than before to maintain and expand their share of this important part of the advanced engineering sector. A|D|S will continue to work collaboratively with UK Trade & Investment (UKTI) and the Department for Business, Innovation and Skills (BIS) Aerospace Marine & Defence Unit, which has lead responsibility to ensure that the UK has the right strategies and frameworks to increase the competitiveness of the UK civil aerospace sector and maintain its comparative advantage, and to promote and safeguard the UK's long-term growth in civil aerospace e.g. through promoting internationally competitive skills, supporting innovation & technological development, and supporting more effective supply chains.
5. Successive UK Governments have recognised the importance of aerospace as a strategic sector and have been supportive in helping it to develop and grow its international civil and defence aerospace business. Advanced manufacturing sectors such as aerospace and defence also continue to be seen as important to maintaining a balanced economy in the UK.
6. This document is a direct result of UKTI requiring a consolidated UK aerospace industry view of where it can best allocate its resources. A|D|S and the UK Aerospace Industry welcome the support that UKTI and BIS have given to producing this document and look forward to continued collaboration between all parties for the benefit of the UK Aerospace Industry.
7. The information contained in this report was compiled from data provided by major UK-based companies in the aerospace sector during late 2010. It provides a consolidated view of future international opportunities and was signed off as such by the A|D|S Aerospace Export Focus Group in January 2011.
8. The 2011 report was formally launched at the UKTI International Aerospace Exchange event on 22 February 2011. At this event major civil aerospace OEMs, and their Tier 1 partners, gave presentations on their major civil aerospace programmes, including data generated for the current report, and how the UK supply chain can access these opportunities.

2

INTRODUCTION

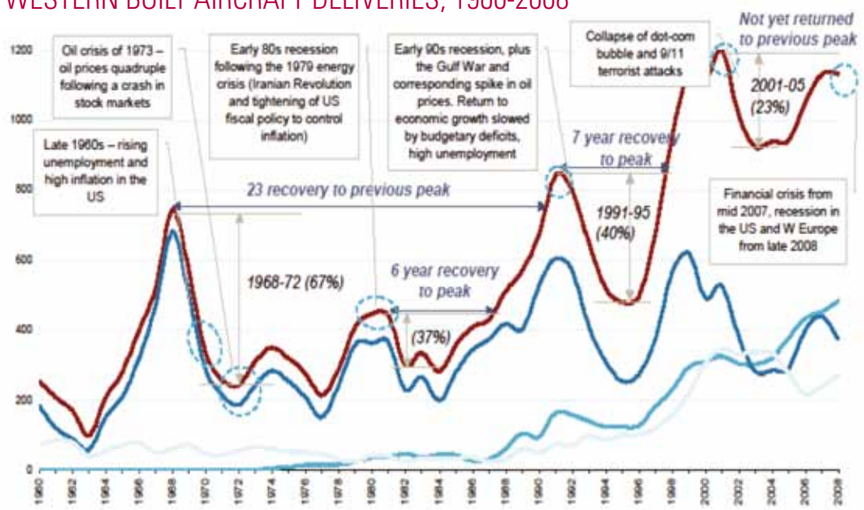
This report is an update of the strategy document that was produced in February 2010 by the A|D|S Market Development Board, which outlined the status of the worldwide marketplace, identified key export markets for the UK aerospace sector and recommended how opportunities in these markets should be approached. This document was submitted to UKTI in support of their annual business planning process.

As a result a targeted programme of activities focusing on key aerospace opportunities has been delivered for UK companies based around the recommendations. During the past 12 months, this has resulted in greater engagement from UK industry than previously seen, which has included inward and outward activity involving the China, India, Brazil, Russia and USA markets and a series of well supported market and programme briefings in the UK, including a major programme of activity at the Farnborough International Airshow in July 2010. All of these activities have received positive feedback and significantly increased UK companies' knowledge and interest in pursuing business in these markets.

The data gathering and consolidation exercise also resulted in a comprehensive set of worldwide programme forecast data that has been made available to the UK Aerospace Industry via the A|D|S website and through regional trade associations. This has been particularly valuable for SME companies that do not have their own in-house research teams to gather and produce this analysis. They have been able to use this data to identify which programmes offer greatest potential for their products/services and thus prioritise their marketing and business development activities. Larger companies have also been able to use this date to calibrate their own in-house market analysis and forecasts and to identify where there are differences, investigate these areas and refocus their strategy if required.

This new edition reflects the cyclical nature of the aerospace industry, which is demonstrated in the diagram below:

WESTERN BUILT AIRCRAFT DELIVERIES, 1960-2008



Source: Ascend Online fleet

The consolidated data analysed to produce this report will be made widely available to UK industry on a request basis, along with a copy of this report summarising the key opportunities. A|D|S proposes to promote the availability of this report via its own website, its regional partners and the UKTI website. It is also proposed that a series of roadshows will be organised in Wales, the North West and the Midlands to present both the consolidated data and the recommended activity to UK industry and to allow them to ask questions about the content.

It is also intended that the UKTI Advanced Engineering Team should circulate this report to their virtual network around the world to inform the aerospace leads in each market where UK industry believes the greatest opportunities are and how they can target their activity to assist UK Industry pursue these opportunities.

OBJECTIVES

The primary objectives of this report are:

- To provide an evidence base to inform UKTI Advanced Engineering 2011/12 activity planning.
- To provide the UK Aerospace Industry in all areas of the supply chain and across all tiers a rich and validated evidence base on which to base future business capture activities and planning.

METHODOLOGY

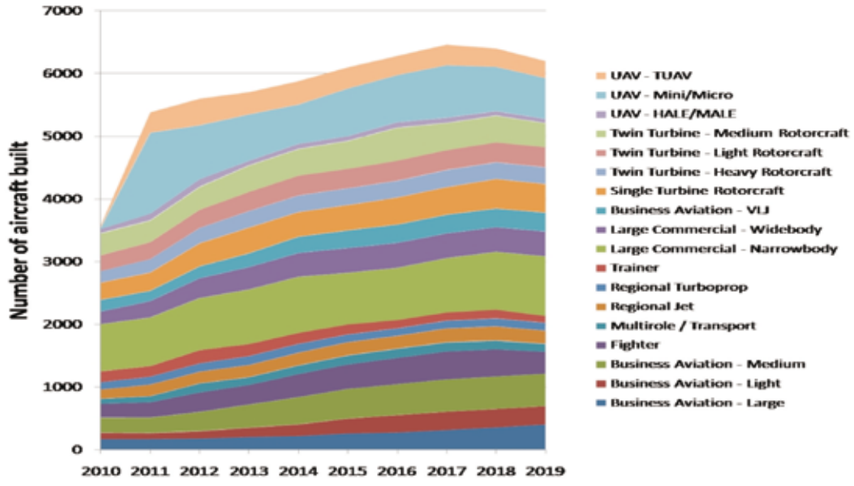
A|D|S contracted a consultant to gather market intelligence and forecast data for key aerospace programmes from A|D|S member companies and consolidate these data to produce an industry view on global opportunities. In a workshop facilitated by the consultant the members of the A|D|S Aerospace Export Focus Group analysed the summary data, generated a list of priority opportunities for the UK aerospace industry, and a list of recommended actions by A|D|S and UKTI in support of winning business in these areas.

The workshop covered the following issues and was broken down into 3 phases:

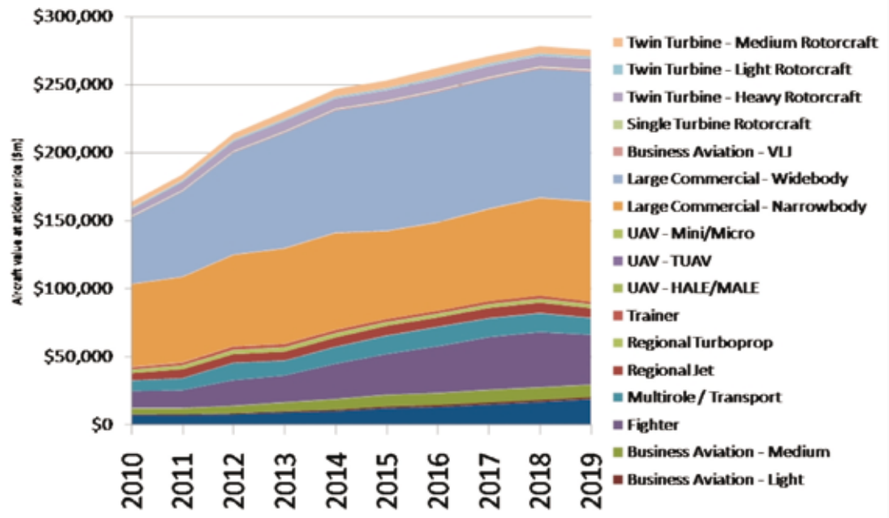
- Presentation and Evaluation of Consolidated data.
- Identification of Priority Programmes, Stage of Development and level of opportunities that remain for the UK supply chain.
- Identification of Priority Markets/Countries.

The consolidated data was presented by sector and the total market volume by sector and market value by sector from the data that was submitted are summarised in the charts below:

MARKET VOLUME



MARKET VALUE



OPPORTUNITIES

The workshop identified a list of priority programmes that it is believed will present the greatest opportunities for UK industry during the period 2011-2019. Each of these programmes was evaluated by benefit to UK companies of securing work on these programmes versus ease of access. The criteria used for each of these categories were as follows:

Ease of Access

- Level of Investment required
- Cost to win
- Cultural skills
- Openness of supply chain – lack of incumbents
- Export/import barriers/costs
- Offsets
- Dual use
- Level of competition
- Win probability
- Product liability
- IP protection
- Access to finance
- Currency
- National support

Benefit

- Volume of Production
- Continuity of Programme
- Scope (range of opps)
- Stability of programme
- New customer access
- Margins
- No IP transfer
- Timescales

In addition, in order to identify the opportunities that remain for the UK aerospace supply chain, each programme was analysed by stage of development, which was classified into four categories identifying where opportunities exist in general:

Concept (C) – a programme that is still at concept stage and therefore presents opportunities for companies of all sizes and levels of the supply chain.

Design and Development (D) – a programme that is already in design and development and where the major systems and structures have already been selected and opportunities remain for sub-system, component and material suppliers.

Manufacture (M) – a programme that is already in production and limited opportunities are likely to remain for UK companies to recomplete for existing business e.g dual sourcing.

Operations and Maintenance (O) – a programme that has already entered into service but may still present opportunities for UK companies providing logistics and operational support.

This resulted in a mapping of priority programmes as shown in the image below:

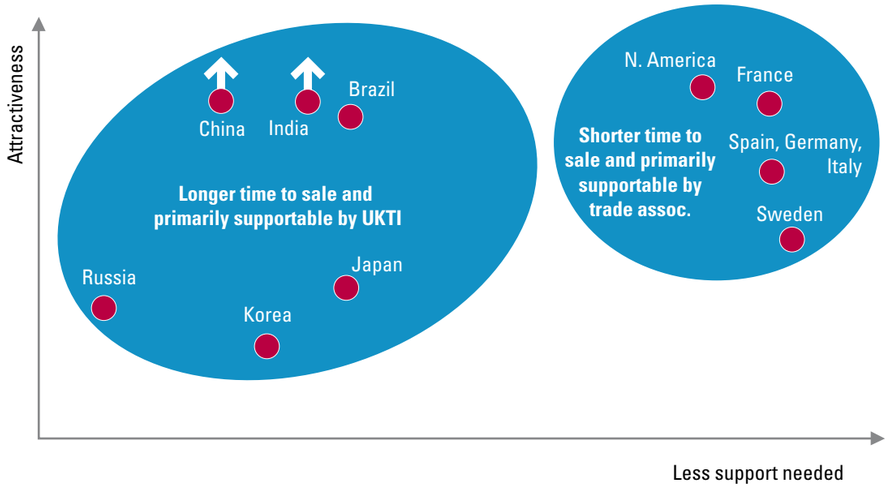
	HARDER ACCESS	EASIER ACCESS
LOWER BENEFIT	C919 (D) F-35 logistics chain (0) KC-135 replacement (D) US AAS (C) MA700 (D) Avicopter (C,D) US T-38 replacement (C) Embraer civil aircraft (M,C) Russian helicopters (C,D) CVLSP (C)	Trent XWB engine (A350) (D) 787-9 (D) Bizjets (C,D) CSeries (D) 737RS* (C) A320NEO LEAP X, PW1000 (D) Military UAS (C) Anglo/French MALE UAV (C) AW169 (D) F-35 OE/2nd sourcing, Sovereign support (M) KC390 (D) 777 Replacement/Upgrade* (C) EC X3/X4 (C) Global 7000/8000 (D)
HIGHER BENEFIT	MRJ (D) MS-21 (D) Civil UAS (C) KAH (C) MCA(C) MTA (C) CH-53K (D) RTA-70 (C) LOH (India) (D) RSH (India) (D) VXX (C) MH60G Recap (C)	AW149 (D) A350-1000XWB (D) New ATR * (C) Bombardier Q400X* (C) Gripen NG (D)

It is important to note that during the workshop a number of programmes that were included in the previous years strategy were taken out as they were considered to no longer present significant enough opportunities for the UK supply chain to remain a priority. The main reasons for this decision were that supply chains for these projects were already fully committed or that the programme was highly unlikely to proceed in the timescales that the report covers. The programmes that were removed from this years priority programme list include:

- Boeing 747 -8
- Kawasaki CX and P1
- Sukhoi Superjet
- AT -5
- Korean Fighter Experimental (KF-X)
- AgustaWestland AW101 International

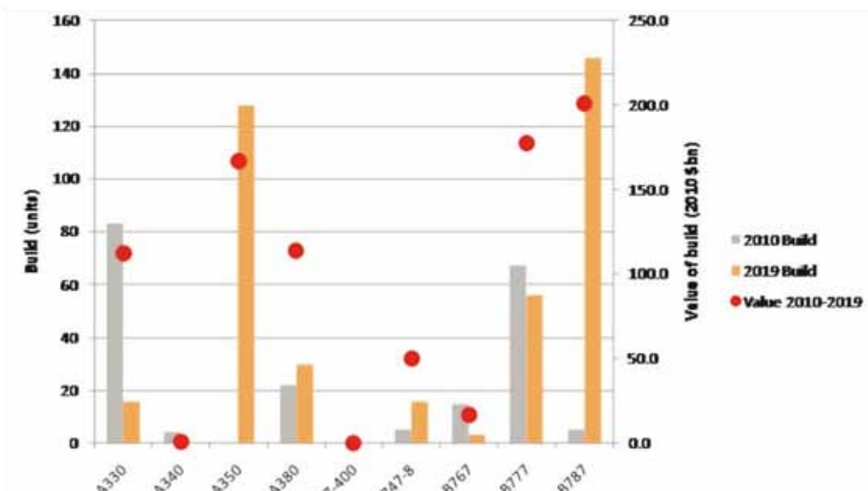
A similar mapping was also produced by market which resulted in two sets of markets – those that have a shorter time to sale and are therefore primarily supportable by a trade association and those that have a longer time to sale and where UKTI support can add the most value to companies business development efforts as shown in the image below:

PRIORITIES
WHERE BEST TO SPEND RESOURCE FOR UK SMES IN 2011



CIVIL PROGRAMMES

FIXED WING WIDEBODY



Airbus A350 - 1000 XWB (D)

The Airbus A350-900XWB design is firmed up. Final assembly of the first aircraft is due to begin before the end of 2011 with first flight scheduled for 2012. The aircraft is proving to be an attractive commercial proposition with over 580 firm orders and commitments at time of writing. Entry into Service (EIS) of the A350-900XWB is scheduled for 2013 followed by the smaller A350-800XWB in 2014 and finally the larger A350-1000XWB in 2015. It will compete for business with Boeing's 787 and some models of the Boeing 777 for the next 20 years. The aircraft has so far only been offered with versions of the Rolls Royce Trent XWB engine. Opportunities still exist at second tier on the engine programme.

Although Tier1 suppliers are now selected, some opportunities still exist in the near term at lower tiers. The landing gear contract for the A350-1000XWB was only awarded in November 2010 and is likely to present Tier 2 opportunities now.

Rolls-Royce Trent XWB (D)

The Trent XWB has been developed and optimised exclusively for the Airbus A350 XWB family and will be the sixth member of the highly successful Trent family. The XWB Engine range consists of 3 engines with differing thrust ranges from 75klb to 93klb. The Trent XWB will use the successful three-shaft architecture of Rolls-Royce engines and the detailed design will reflect 70 million hours of Trent family service experience.

It will also infuse the latest technology from research and demonstrator programmes giving a low risk solution with the best combination of performance, reliability and operating costs at entry into service.

The A350 has currently attracted 573 firm aircraft orders from 36 customers, an order book that already exceeds 1,100 engines before it's entered into service, a record for any Rolls-Royce engine.

On 17 June 2010, the XWB ran for the first time on the test bed in Derby. Flight testing is scheduled to start in mid 2012 on the A350-900 and EIS will follow in 2013. GE has been in regular discussions about providing an alternative engine for the A350-1000 but to date, there is no firm news on a competitor to the Trent XWB.

Boeing 787- 9 (D)

The Boeing 787 has had some well publicised schedule problems. The first flight took place on 15 December 2009 and Boeing has announced that first delivery has slipped to late 2011. Net orders for the programme declined slightly in 2010 due to cancellations. Nevertheless, the programme looks set to be successful with a backlog of nearly 850 to date. The aircraft is offered with both the Rolls Royce Trent 1000 and General Electric GEnx 2B engines.

To recover as much programme slippage as possible Boeing has been pulling work back in-house. It is possible Boeing will look to replace under performing contractors and this may be an opportunity that established and trusted UK suppliers could exploit. Nonetheless it is obvious that Boeing will be risk averse with regards to its supply chain for many years to come.

The base model is 787-8 which is to be followed by the slightly larger 787-9. The configuration for the 787-9 was firmed up in 2010. A further stretch to 787-10 is a possible solution for Boeing 777 replacement (see entry below).

Boeing 777 replacement/upgrade (C)

To keep its offering attractive and to compete with the A350-1000XWB, Boeing will need to consider upgrading or replacing the 777. Possibilities that have been publicly discussed by Boeing are a 777 upgrade, a 787-10 stretch or a completely new aircraft. Any new Boeing aircraft is likely to be comparatively accessible for UK industry. There is however no announcement and no known timescale despite Boeing announcing that it had established a team to study the future of the type in February 2010.

FIXED WING NARROWBODY

After enjoying a duopoly position in narrowbody aircraft, Airbus and Boeing face competition from new entrants that promise fuel savings using new generation engines.

Boeing 737 RS (C)

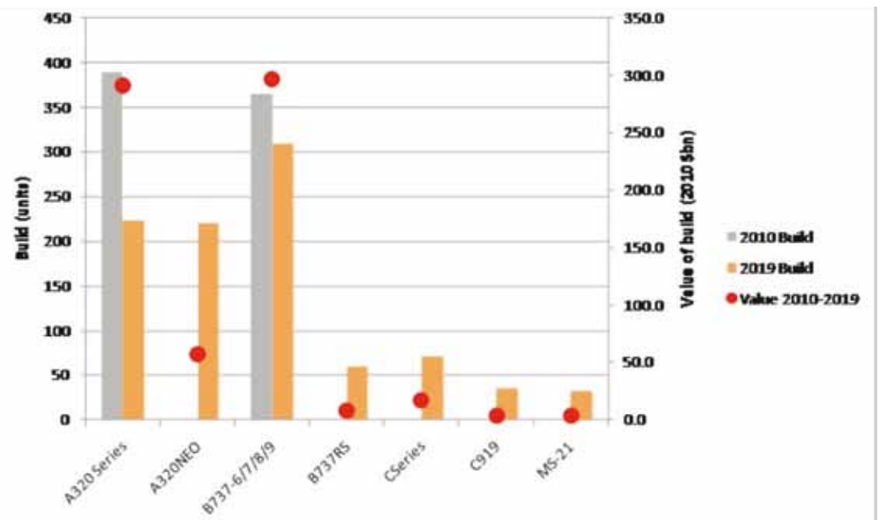
In 2006, Boeing launched a 737 replacement study (RS) for entry into service between 2012 and 2015. A healthy 737 backlog and costly delays on the 787 and 747 programmes have delayed the probable entry into service of a replacement well into the next decade. In February 2010, Boeing announced that a team had been formed to study the 737's future. The decision of how Boeing reacts to new competition is complicated by limited ground clearance of the 737.

Boeing has announced that it will go ahead with an update of the 737 Next Generation but new engines will probably not be introduced to the family until after 2020. It has recently been reported that new features currently under consideration are significant updates to the 737's flight deck, drawing on technology designed for the 787, a host of aerodynamic refinements and an updated CFM56-7BE engine.

The updated 737 Next Generation is likely to involve the re-sourcing of some Tier 1 equipment. This will provide opportunities at lower tiers.

A320 NEO (D)

Airbus has reacted to new competition with the A320 New Engine Option (NEO). The 'option' includes the CFM International Leap-X or Pratt & Whitney PW1100G engine and improved aerodynamic performance. The aircraft is due to enter service in 2016. At the time of writing, IndiGo has shown intent to purchase 150 of the type and Virgin America has placed firm orders for 30. As a derivative of the existing A320, the A320 NEO is likely to offer less scope for new contracts, with exception of the engines, than an all new-aircraft. Opportunities will exist at Tier 1 and lower and new engines will present new opportunities in related systems and aerostructures.



Bombardier CSeries (D)

Bombardier launched this programme in July 2008, and holds firm orders for 90 aircraft, and options for an additional 90, from the Lufthansa Group, Republic Airways and Lease Corporation International. Optimised for the lower end of the 100- to 149-seat commercial market, the CSeries family of aircraft is designed to offer airlines improved economics and performance, with a reduced environmental impact.

CSeries, which is due to enter service in 2013, will include the latest technological advancements, such as increased use of composites and aluminium lithium in structures; a next-generation engine – the Pratt & Whitney PW1000G PurePower Engine; fly-by-wire, and advanced aerodynamics.

The advanced composite wings will be developed and manufactured at Bombardier's Belfast facility, which has almost 40 years' experience in composites technology. Producing the wings will further develop Belfast's capabilities, and ties in with the UK's wider strategic interests in aircraft wing technology. The CSeries programme is benefiting significantly the UK, wider European and US supply chains. Tier1 suppliers are now selected and signed up to the programme. Opportunities however still exist in the near term at lower tiers.

COMAC C919 (D)

The C919 is a Chinese indigenously developed 168-190 seat narrowbody airliner with a scheduled entry into service date of 2016. Contracts have been announced for the major aircraft systems.

China is growing an indigenous civil aero-engine capability but recognising that it is not able to do so in time to meet the Entry into Service date of this programme, COMAC has selected Nexcelle to provide an integrated propulsion system including nacelles and CFM LEAP-X engines.

While all the First Tier supplier positions are notionally allocated, significant capability gaps exist between allocated packages and capability, and opportunities therefore remain for Tier 2 companies to help fill these gaps, particularly where specialist capabilities are required and where experience of certification is needed. Opportunities also remain for Tier 3 and Tier 4 suppliers. Some form of local content will be an important factor in supplier selection as China seeks to develop its aerospace industry.

COMAC has expressed its intent to follow the C919 programme with an indigenously developed widebody aircraft.

Irkut MS21 (D)

System and sub-system suppliers have been selected for UAC's 150- to 212-seat next-generation replacement for the Tupolev Tu-204. These include the PW 1000G PurePower engine, Russian landing gear provider Hydromash, Hamilton Sundstrand for the auxiliary power unit, Intertechnique for the fuel systems and Eaton for the hydraulics.

UK suppliers who can bring significant tier 3 and 4 products with significant intellectual property in technology or processing and for which there is no credible indigenous source have opportunities to gain a position on this programme. Local content will be an important factor in supplier selection as Russia seeks to develop its aerospace capability.

Embraer Civil Aircraft (M, C)

The Embraer E-Jets are a series of narrow-body twin-engine, medium-range jet airliners that entered production in 2002. As of the end of September 2010, there was a backlog of 245 firm orders for the E-Jets and 747 options. The Embraer E-Jets line is composed of two main commercial families and a business jet variant. The smaller E-170 and E-175 make up the base model aircraft, with the E-190 and E-195 being stretched versions, with different engines and larger wing and landing gear structures. The 170 and 175 share 95% commonality, as do the 190 and 195.

Although this series of aircraft is already in production Embraer has stated that it is seeking new competitive suppliers for existing programmes. Embraer also announced in 2010 that it was undertaking studies for a new aircraft in the 100-150 seat segment. Projected entry into service is after 2015 and would be the company's largest civil aircraft.

CFM LEAP-X (D)

Airlines have been pushing engine manufacturers for less fuel consumption and less noise/ Nox. In Nov 2010, GE and Snecma launched the LEAP-X (18-50K thrust), which represents a totally new turbofan engine that will be able to provide a longer life to the B737 and A320 family. It has no common parts with the current CFM56-5/7 engine.

In December 2009, CFM was selected as the sole engine for the C919 programme by the Chinese company COMAC. Entry into service for the C919 is targeted for 2016. Following this, in Nov 2010, Airbus selected the LEAP-X as one of two alternative engines that will power the new A320 NEO (New Engine Option).

The engine is a real "leap" in technology. The Leap-X will have a bypass ratio of around 10, compared with 5-6 for the CFM56 family, and a core pressure ratio double that of the current engine, at 22. The power plant will also feature a two-stage high-pressure turbine driving a 10-stage HP compressor, and the low-pressure turbine blades will be produced using ceramic matrix composite. GE is in charge of the HP core, combustion chamber and the HP turbine, whilst Snecma is responsible for the low pressure turbine and compressor. Nexcelle will provide an integrated light weight nacelle system.

COMAC announced launch orders for up to 100 C919's at the Zhuhai Air Show. Meanwhile, the recent orders on the A320 NEO by Indigo (150 a/c MOU) and Virgin America (30 a/c firm), pits the LEAP-X head-to-head against the PW 1000 (GTF). Decision by Virgin (who operates CFM56 engines on their existing A320's) is due to be taken by mid 2011.

PW1000 (Geared Turbofan) (D)

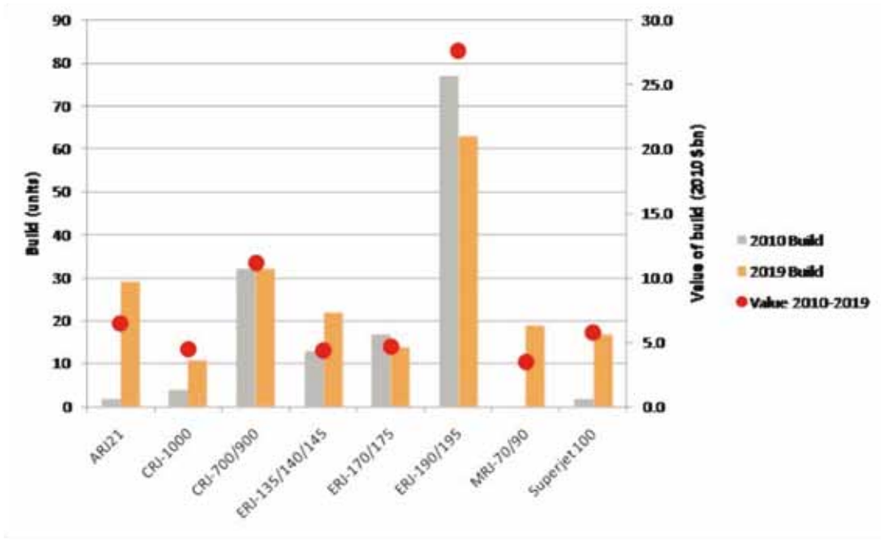
Launched in July 2008, Pratt & Whitney's PW1000G family (formerly GTF) is the company's solution for a next-generation turbofan. The engine has conventional turbofan architecture, but features an additional planetary gearbox between the fan and compressor sections.

Engine compressors and turbines run most efficiently at higher rpm, while fans are most efficient at lower speeds. The reduction gearbox allows both the fan and turbine sections to turn at their optimal speeds. This reduction results in less fan noise as the blade tips are moving at a slower speed, which produces around a 12-15% reduction in fuel consumption when installed on a current airframe, and a 20-25% reduction when installed on an optimized airframe.

To date, the GTF is being developed for the Bombardier CSeries (21K thrust), Mitsubishi Regional Jet (17K thrust) and the Irkut MS-21 (25K thrust). The engine is targeted to enter service on the CSeries in 2013.

P&W's strategy all along was to get back into the single aisle market, which they have recently achieved with the Airbus A320 NEO (New Engine Option). The engine (PW1100G) is now competing with the LEAP-X for the recent NEO orders with Indigo and Virgin America.

FIXED WING REGIONAL JETS



Mitsubishi Regional Jet (D)

Officially launched at the end of Q1, 2008, this aircraft is initially aimed at the 70-90 seat segment, i.e. below the Bombardier CSeries, where it will face competition from the established large Embraer and Bombardier regional jets and, in some markets, the Chinese and Russian offerings in the segment. Again the key to market success will be a highly efficient engine, and Mitsubishi has selected a version of the Pratt & Whitney PW1217G Geared Turbo Fan. Through this linkage the success of this programme may also be tied to the success of the CSeries.

This programme is intended to develop Japan's capability in civil aerospace. Since system and sub-system contracts are in place, opportunities exist at tier 3 and 4.

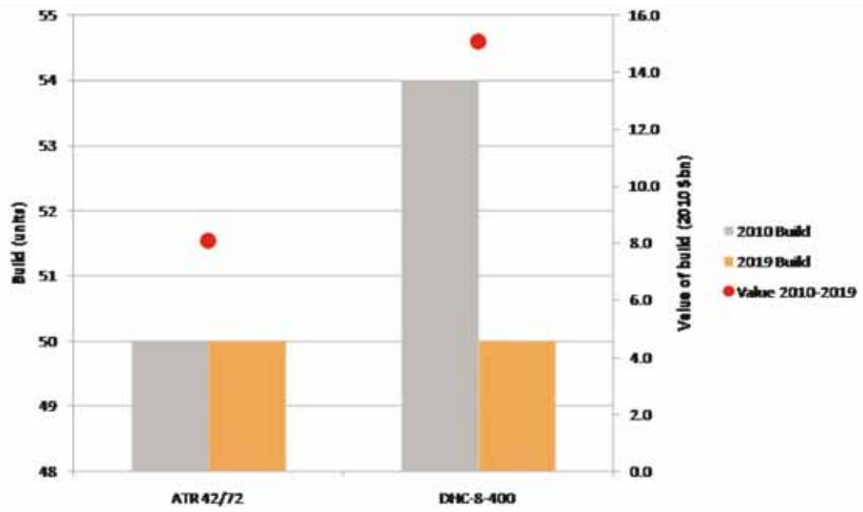
It is reported that Mitsubishi is offering in-country component manufacturing deals in its sales campaigns e.g. in Vietnam.

Indian RTA-70 (C)

India's first indigenous regional aircraft programme is seen as a stepping stone to larger aircraft. Both turboprop and turbofan versions of the 70-90 seater are under consideration by the National Aerospace Laboratories (NAL). This programme is at a very early stage with no announced schedule and no suppliers selected yet. If all goes well, NAL hopes to have the go-ahead to create the aircraft by the end of 2011. NAL is in talks with the major engine suppliers.

Involvement of local supply chain is likely to be an extremely important factor in selecting suppliers.

FIXED WING REGIONAL TURBOPROPS



New ATR and Bombardier Q400X (C)

Bombardier and ATR are talking about new or stretched derivative regional turbo-props to meet expected demand in the 90 seat segment. At this stage no firm plans have been announced by either company and the timing of any decision is still to be determined. Embraer have also recently expressed interest in a new turbo-prop product in this segment.

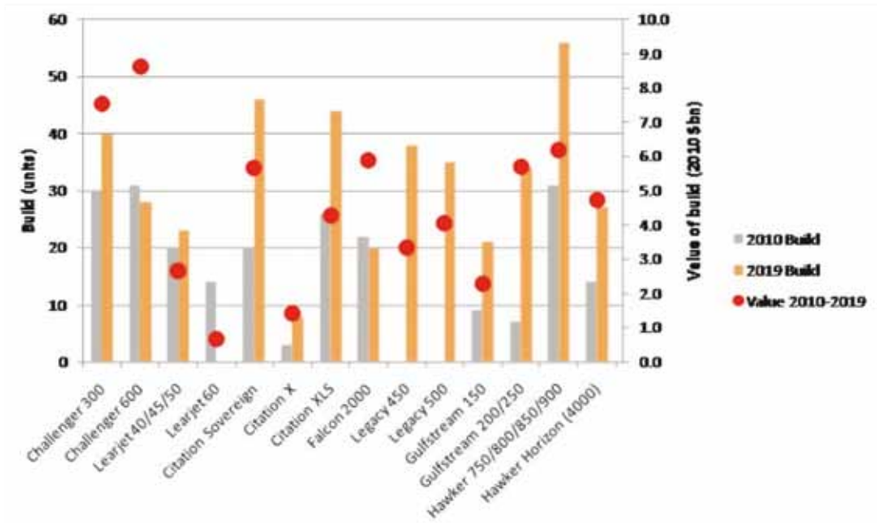
MA 700 (D)

The CAAC & Chinese Government realise the need for a medium size Turbo prop aircraft to transport people for short to medium distances in the middle and Eastern regions of China. The X'ian Aircraft Company (XAC) has been selected to develop the MA700 which has a 2 cabin configuration carrying 76 passengers in standard class or 64 standard with 4 Business class seats. XAC is an AVIC company that has already developed the MA60 & MA600 regional turbo prop aircraft for the Chinese market.

The aircraft structure will be 20% composite with fly by wire control and an integrated avionics & electrical power. It will have Electrical actuation drive flap & stipulator, windscreen & propeller blades with electrical de-icing and Electrical-Hydraulic servo actuator drive, rudder & elevator. It will be powered by two Pratt & Witney PW-127 engines.

The programme will be launched in April 2011 with PDR in July 2011 and CDR in October 2012. First hardware will be required in March 2013, first flight in December 2013 and certification/ EIS in June 2015. The XAC MA700 platform will compete with Bombardier & ATR in the Chinese & export (Mainly African) markets.

Business Jets



Business Jets represent a very diverse and highly segmented part of the overall market and UK industry plays a significant role. All segments were enjoying strong growth until the global financial crisis took hold. The airframers in this segment have been hit very hard and most were forced to make swingeing cuts in their workforce during 2009. During 2010 the industry showed some signs of recovery with sales of pre owned aircraft rising to normal levels and business jet utilisation as measured by number of aircraft movements increased considerably year on year. Positive net orders for business jets resumed albeit at a low rate.

The stage is set for a full industry recovery. This segment remains attractive to UK industry due to the high rate of new model introduction and the reduced barriers to change allowing incumbent suppliers to be replaced. Bombardier forecast a requirement for 10,500 business aircraft over the next 10 years 2010 to 2019, worth US$254bn with Business Aviation continuing to grow outside North America in countries / regions such as Russia and CIS, Latin America, China and India.

While the segment is currently recovering, it looks likely to generate a number of new programme opportunities in the near future which will be accessible to UK suppliers. The most attractive area for new engine developments is also in the 10,000 lb thrust Super Mid Size segment. To date, the Rolls-Royce RB282 and the Pratt & Whitney Canada PW810 have captured the new programme launches and represent key programmes for targeting. Other engine programmes still awaiting their first win are the Snecma Silvercrest and the Honeywell HTF 10,000.

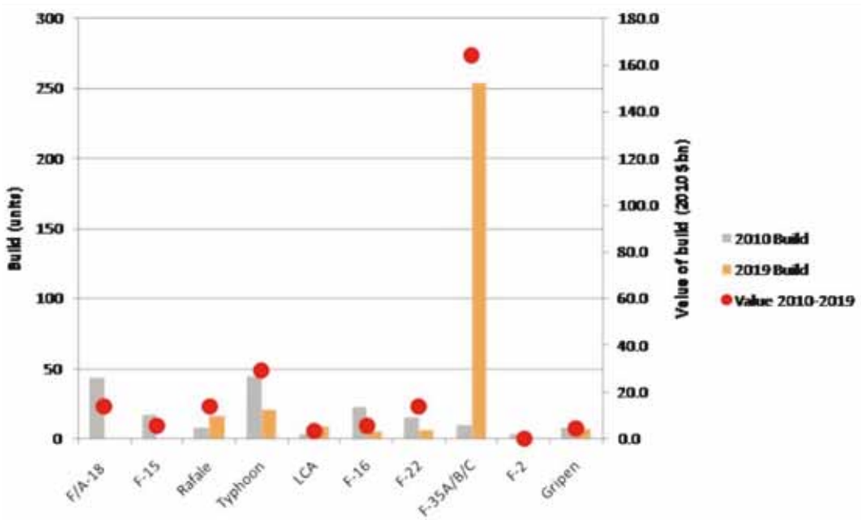
Bombardier Global 7000/8000 (D)

In October 2010, Bombardier launched two new additions to the Global family of business aircraft - the Global 7000 and 8000. With EIS dates of 2016 and 2017 respectively, these aircraft will be powered by the next generation GE engine, and will have a new high speed transonic wing.

Tier1 suppliers are currently being selected and signed up to the programme. Opportunities exist in the near term at lower tiers.

DEFENCE PROGRAMMES

FIXED WING FIGHTERS



Lockheed Martin F-35 Lightning II (O, M)

The Joint Strike Fighter (JSF), also known as the F-35 Lightning II continues to progress in its development phase for all three variants of the aircraft in conjunction with supplier rate readiness. The US Department of Defense continues to pressurise the individual aircraft cost and ultimately the overall budget for the aircraft programme. In turn this drives a number of key operational decisions such as second sourcing including continued inclusion of an alternative engine variant.

The procurement approach of second sourcing for extensive elements of the aircraft remains an ongoing exercise within the Joint Programme Office (JPO) and the primary partners and is likely to continue to present opportunities for participation in airframe and engine supply programs. This however is not seen as evident for prime equipment or systems supply.

It is anticipated that there will be a large number of opportunities in local logistics supply chain requirements. The global concept of the F-35 will dictate cohesive requirements to support aircraft operations, training and simulation facilities and maintenance and field support requirements. This activity is likely to be performance based logistics contracting, which will demand providers to meet performance requirements with greater levels of reliability and guaranteed operational availability rates. In addition decisions are yet to be made for local support facilities and equipment that are likely to present opportunity for a wide range of suppliers in support of the programme.

The UK has committed to the new Queen Elizabeth class Aircraft Carrier and the Carrier Variant (CV) of the F-35 Joint Strike Fighter (JSF). Training of the UK's first a/c will commence in 2015 in the United States with Initial Operating Capability in the UK of circa 2018/2020.

The UK requires Sovereign support for its F-35 aircraft and a Performance Based Logistics (PBL) approach will be taken to achieve this.

SAAB Gripen New Generation (D)

The JAS 39 Gripen is a lightweight single engine multirole fighter aircraft. SAAB is now promoting the Gripen Next Generation in a number of current high-profile fighter competitions and is positioning it well to benefit in case any nations want to withdraw from JSF and as a replacement for Mirage, Russian fighters, F-5s and F-16s. Current export opportunities include Brazil, Croatia, Denmark and India where they are a contender in the Indian MRCA competition. Sweden awarded SAAB a four year contract in 2010 to improve the radar and other equipment and to lower operating costs. The new variant will enter Swedish service in 2017 Although SAAB has a well established supply chain for Gripen, it is possible that the introduction of new capabilities on the aircraft will provide new opportunities to UK industry, with which the Swedish company already has strong ties. UK content of the platform is already greater than 25%.

Indian Medium Combat Aircraft (C)

The Medium Combat Aircraft (MCA), is a twin-engined 5th generation stealth multirole fighter being developed by India. It will complement the HAL Tejas, the Sukhoi/HAL FGFA, the Sukhoi Su-30MKI and the as yet undecided MRCA in the Indian Air Force. The main purpose of this aircraft is to replace the ageing SEPECAT Jaguar & Dassault Mirage 2000.

India's Aeronautical Development Agency (ADA) will complete a feasibility study on the MCA by the end of 2011. The study will consider several areas: the number of MCA prototypes, prototype timelines, funding, and production schedules for the final aircraft and will be submitted to the Indian government and air force. The MCA will be in flight trials by end of the decade, and it will be inducted by the middle of the next decade.

TRAINERS

US T-38 Replacement - T-X Program (C)

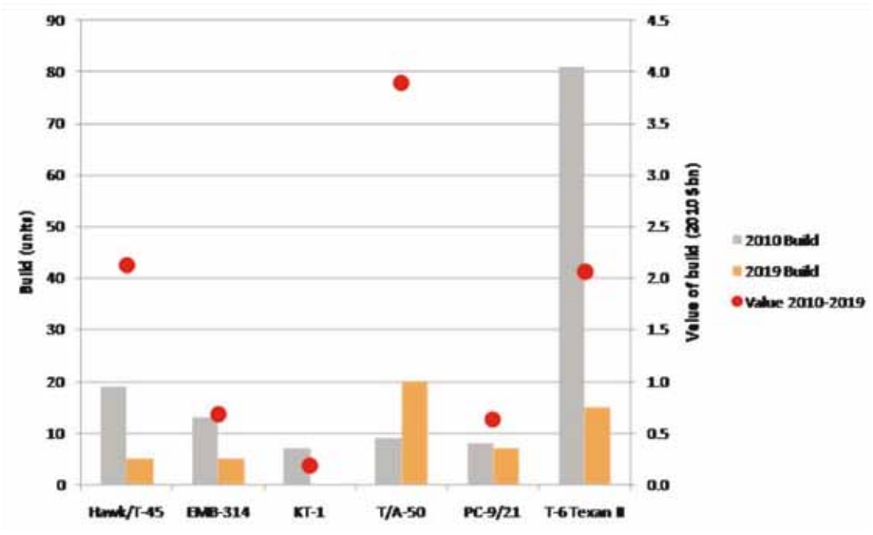
The US Airforce needs to replace their 450 T-38 Talon trainers that were first introduced in 1962. At least three companies are likely to bid derivatives of existing platforms for an initial circa. 350 aircraft, to train crews for F-22 Raptor and F-35 Lightning II.

Known as the T-X program, contract selection is due 2012. Follow-on opportunities e.g. US Navy, could push sales to nearly 1,000 aircraft, making this a "must-win" for the leading contenders:

- Lockheed Martin / Korea Aerospace Industries – T-50 Golden Eagle
- Alenia Aermacchi – M-346 Master (designated T-100 for the US competition)
- BAE Systems – Hawk Mk 128 (RAF standard)

Alenia and BAE Systems will need US partners and in-country manufacture to succeed.

Rolls-Royce has been active in proposing the EJ200 (Typhoon) as a potential engine upgrade path to the contenders.

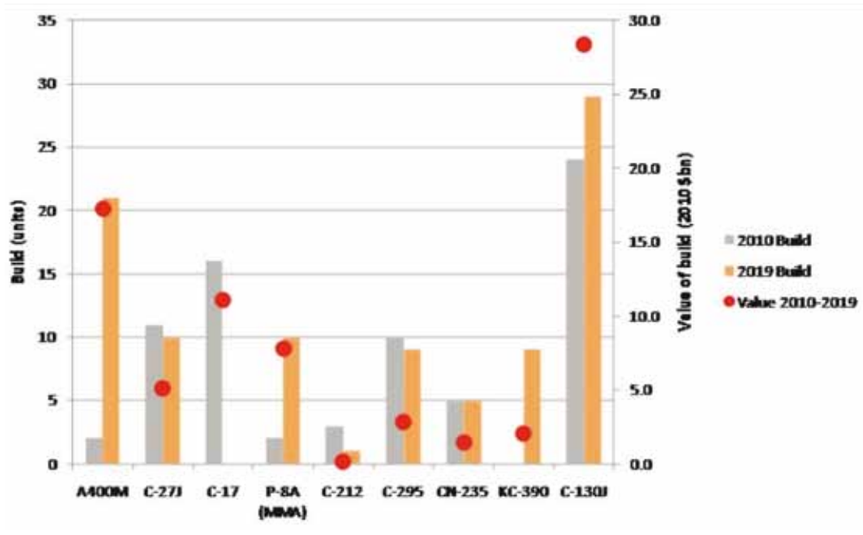


FIXED WING MULTIROLE/TRANSPORT

USAF KC-X Tanker Replacement (D)

EADS North America are competing with Boeing for a multibillion dollar US Air Force (USAF) contract to build a new aerial refuelling tanker to replace the KC-135. Airbus has offered its Airbus A330-based KC-45 tanker design. The tanker would be built at an EADS North America/ Airbus facility to be constructed in Mobile, Alabama. Boeing has offered the KC-767-based tanker that Boeing officials say they plan to draw on the latest technology to update the 767 cockpit and also emphasise that they will be able to use a "low-risk" manufacturing approach that involves relying on existing Boeing facilities in Washington State and Kansas.

Pentagon officials had said that they expect a contract award "sometime" in 2011, with the delivery of the first production aircraft in FY15. Where to go and what work may be available depends on the outcome of that competition and offshore work will in any case be small as a percentage of overall programme value. The programme is expected to be for 179 new tankers - including four test aircraft.



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Embraer KC390 (D)

The KC-390 is a jet-powered military transport aircraft that was formally launched in April 2009 with a $1.3bn contract between Embraer and the Brazilian Air Force. The current KC-390 programme schedule calls for partner and supplier selection during 2011, with the first flight to take place in 2014 and the first of an expected 28 aircraft being delivered to the Brazilian Air Force in 2015.

The KC-390 is aimed at the replacement market for medium transport aircraft in the 5-20 tonne payload. The C-130J, C-27J and A400M are seen as the primary competing platforms. Embraer are forecasting a market for 695 new tactical military transport aircraft in 77 countries, excluding the U.S., Russia and Ukraine between 2015 and 2024 and have the stated intention to capture one third of this market. The company intends to target 24 nations, representing about 500 aircraft.

To date, possible orders stand at 60, including Brazil, Argentina, Chile, Colombia, the Czech Republic, and Portugal. South Africa's cancellation of its A400M order may create another opportunity. Brazil's F-X-2 fighter competition may also lead to European orders: France has reportedly pledged to join the programme and buy KC-390s if its Rafale fighter wins, and Sweden has promised to consider the KC-390 to replace its recently-upgraded C-130s with the KC-390 if the Gripen wins.

Embraer will not necessarily use the same suppliers on the KC-390 programme as for their civil aircraft. The landing gear will be a retractable tricycle type with two four-wheel main bogies and twin nosewheels; main units retract into fuselage side panniers. NVG-compatible avionics are under evaluation, as is the self-protection system and the aircraft will be fly-by-wire. Embraer has specified two 27,000 lb st turbofan engines of unspecified type, pod-mounted on pylons beneath wings.

Multi-Role Transport Aircraft (MTA) (IL-214T)

The UAC/HAL Il-214 Multirole Transport Aircraft (MTA) is a medium-lift military transport aircraft, which will be constructed by a joint-venture formed by the United Aircraft Corporation (UAC) of Russia and Hindustan Aeronautics Ltd (HAL). The aircraft will replace Indian Air Force's aging fleet of An-32 transport aircraft and will be able to perform regular transport duties and also deploy paratroopers. The aircraft is expected to fly by 2014 and inducted by 2015/16.

It is anticipated that 100 aircraft will be produced for the Russian Air Force and 45 aircraft for the India Air Force. Exports will also be a key part of the programme, with the expectation of a market sized at around 350 aircraft.

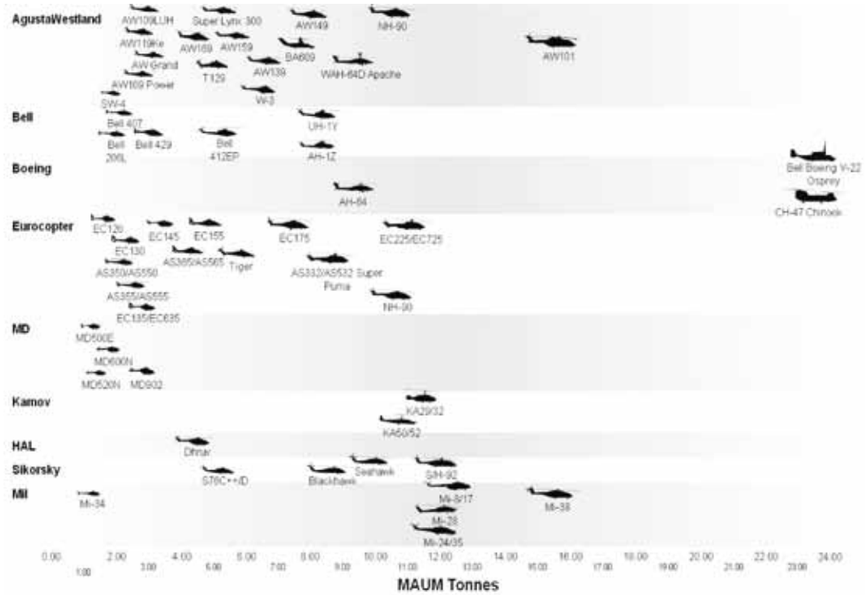
ROTARY WING PROGRAMMES

6

For the purpose of the platform forecasts we have defined rotary wing categories as follows:

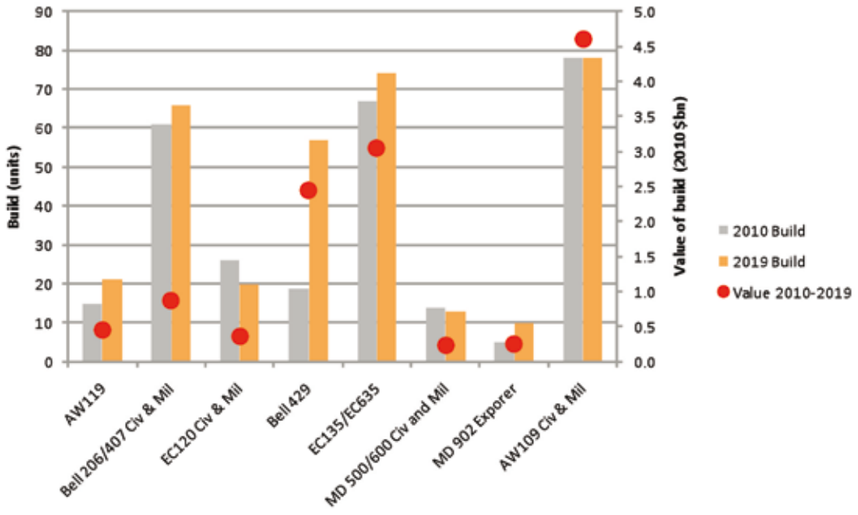
- **Light** – under 5 tonnes
- **Medium** – 5 tonnes to under 10 tonnes
- **Heavy** – 10 tonnes and above

The chart below supplied by AgustaWestland also categorises the major turbine rotary wing programmes by Maximum All Up Mass (MAUM):



CIVIL

Light



AgustaWestland AW169 (D)

The AW169 was unveiled at FIAS 2010, and is a new generation, multi-purpose, twin engine, light transport, utility helicopter, designed in response to the growing market demand for higher mission flexibility and multi-role capability in the 4.5 tonne class. The AW169 design makes extensive use of composites, advanced airframe aerodynamics, next generation navigation avionics and state-of-the-art systems. The programme is in the design phase with an entry into service date in 2014.

Eurocopter EC X3/X4 (C)

Eurocopter are studying two derivatives of current helicopters that use propellers for increased forward thrust. These are at an early stage.

MILITARY

Light

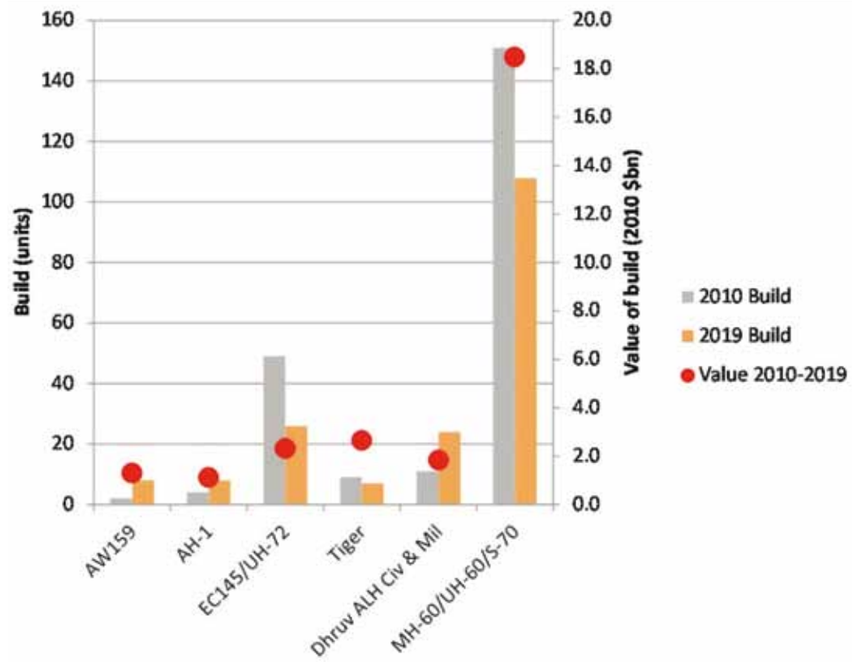
US Armed Aerial Scout Helicopter – AAS (C)

The US Army has embarked upon a study aimed at developing requirements for a new, high-altitude Armed Aerial Scout helicopter, the planned replacement for the OH-58 Kiowa. This program emerged from the now cancelled Armed Reconnaissance Helicopter (ARH). The platform may turn out to be an unmanned helicopter or a modified version of an existing platform. Sikorsky are targeting the AAS as the launch programme for the S-97.

Phase 1 of the study, conducted by the Training and Doctrine Command Research and Analysis Centre (TRAC) at Fort Leavenworth, Kansas, US, was completed in 2010.

Phase 2 of the study, with a final report is due in 2011.

Medium



AgustaWestland AW149 (D)

The AW149 is a 7 to 8-tonne maximum gross weight twin engine helicopter that is designed to meet the most demanding requirements for military and governmental markets. The primary market is for government agencies and the aircraft will be designed to meet military qualification standards. The aircraft has a large cabin and will be capable of transporting 15 passengers within a standard layout with large sliding doors on each side of the cabin.

The AW149 is designed from the outset to cope with the latest operational requirements, including an ability to operate easily in hot and high, harsh conditions and day and night, all-weather, operations.

The aircraft is part way through its development and suppliers for many of the major components, including engines, have been selected. The maiden flight of the AW149 took place on November 13th 2008. The project office is based in Yeovil, UK.

CVLSP (C)

The Common Vertical Lift Suport Program (CVLSP) seeks to replace UH-1N 'Huey' helicopters used for missile defence and VIP transport, (in the Washington DC area). The USAF is considering merging this program with the MH-60G Recap program. Elements of US industry are supporting the case for USAF to buy modified COTS aircraft for the VIP element of CVLSP.

KAH (C)

The Korean Defence Acquisition Programme Administration (DAPA) has a requirement for 270 Attack Helicopters to replace its aging fleet of AH-1 Cobra and Hughes 500MD TOW Attack helicopters. DAPA conducted a Feasibility Study which concluded a budget of circa $5 to 10 Billion was required for the KAH programme and Korean Industry featured in the study to preserve indigenous skill sets in the region.

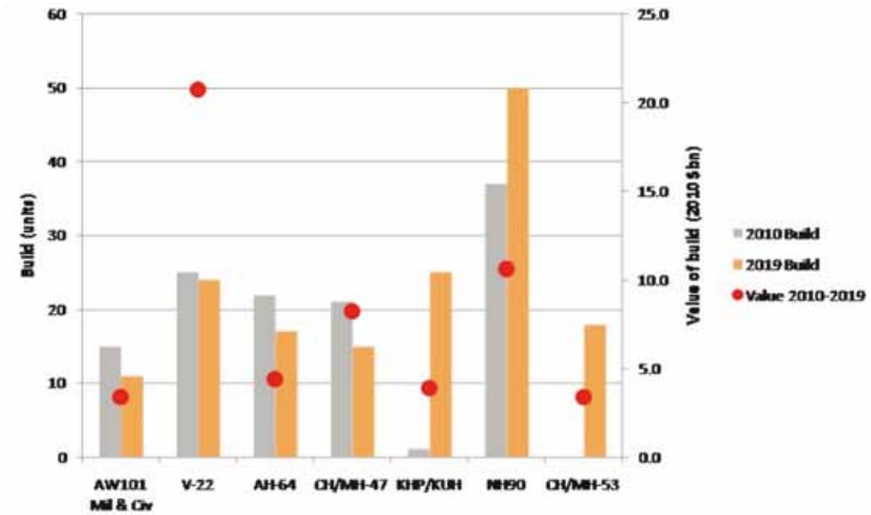
Korean Air or Korea Aerospace Industry (KAI) will prime the programme teamed with a Western Helicopter manufacturer as KAI did with Eurocopter on the Korean Utility Helicopter (KUH) programme.

It is likely DAPA will purchase 40 heavy attack helicopters such as the Apache AH-64D initially, to enter service between 2013 to 2018 and then develop the light attack variant with industry to enter service shortly after. An existing helicopter body such as the A-129 Mangusta,AH-1S Cobra and South Africa's Rooivalk are contenders for the KAH airframe and maximum use will be made of equipment already developed on the KUH by KAI.

MH-60G Recap (C)

Following the intervention of the US Secretary for Defense, the CSAR-X programme was terminated in 2009 and a full 'root and branch' review of CSAR provision has been commissioned. The outcome of which is the MH-60G Personnel Recovery Recaptilization Programme (MH-60G Recap). This seeks to replace 112 MH-60Gs commencing in 2011.USAF preference is MH-60M airframes with upgraded avionics, although a competitive procurement is still a possibility.

Heavy



VXX (C)

The VXX program is intended to provide 23 new presidential helicopters to replace the current fleet of 19 aging presidential helicopters. As part of its proposed FY2010 Department of Defense (DOD) budget, the Administration proposed terminating the VH-71 program in response to substantial cost growth and schedule delays in the program. As a successor to the VH-71 program, the Administration proposed beginning a new presidential helicopter program in FY2010 called the VXX Presidential Helicopter Program. An initial technology Development/ Demonstration phase is planned in 2011/2012.

CH-53K (D)

CH-53K was first announced as a major upgrade program to the existing CH-53E in the US Marine service. This is now a new-build program for a 3-engined 32 tonne heavy helicopter.

Current activity on this program is RDT&E funding from the US DoD and the selection of suppliers for primary pieces of equipment. The US Marine service plans to procure 156 aircraft with first deliveries starting around 2015.

Export markets for this programme are small at best. Japan and Taiwan have announced a potential interest in this programme. France, Germany and Israel have a notional requirement for a helicopter in this class.

In addition to the above specific programmes a number of helicopter manufacturers that are planning major new platform developments have been identified that are expected to produce opportunities for UK companies. Specific platforms are still to be defined but a general summary of expected developments is outlined overleaf.

6

Avicopter (C, D)

The Chinese helicopter industry has been consolidated in recent years within the group company China Aviation Industry Corporation (AVIC). Under this, a new company, Avicopter, has been created with joint ownership of 69% by AVIC and 31% by the Tianjin municipal government. Avicopter has assumed overall responsibility for all existing programmes and control of all existing plants. A new civil production plant was completed at Tianjin in 2009.

Avicopter have also assumed control of the Chinese half of the development programme for the EC175/Z-15, in collaboration with Eurocopter. The first, French-built aircraft, performed its maiden flight in December 2009, but the Chinese Z-15 equivalent is unlikely to fly until 2011.

Avicopter is also pursuing indigenous helicopter programmes. The first, the 13-tonne AC313, flew in March 2010. The aircraft is a development of the Harbin Z-8, which was itself a derivative of the Aerospatiale SA321 Super Frelon. Avicopter is aiming for Chinese certification of the type in 2011, after which it has stated that it will apply for certification in Europe and the US.

In November 2010, the company flew its second indigenous programme, the AC311. This is a 2-tonne, single-engine aircraft, which again borrows heavily from the styling of Eurocopter, this time the EC120, but using a conventional tail rotor. Chinese civil certification is expected in 2012. Avicopter has predicted it can sell up to 500 in the next 10 years.

Indian Helicopter Programmes (D)

India has a dynamic defence modernisation programme and the Indian Government intends to purchase or manufacture some 600 700+ helicopters over the next 10 years. As a result a contract for 12 VVIP AW101s was signed in 2010. The focus now is on 22 attack helicopters for the Air Force and a programme for 384 light helicopters, made up of 197 new light reconnaissance and surveillance helicopters (RSH), and a development programme for 187 light observation helicopters (LOH).

Hindustan Aeronautics Limited (HAL) are proposing to develop a helicopter in the 10 to 12 tonne class, the IMRH (Indian Multi Role Helicopter) will replace the Mi-17s and the Sea Kings. The aircraft will be manufactured locally with the assistance of a Western partner.

In-country manufacture is important, a factor demonstrated by AgustaWestland's joint venture with TATA Sons for the manufacture of one of its products.

Russian Helicopter Programmes (C, D)

Russian Helicopters, a wholly owned subsidiary of UIC Oboronprom, is the managing body of the consolidated Russian helicopter industry, bringing together organisations such as Mil, Kamov, Rostvertol and Kazan for the purpose of revamping and modernising the Russian rotorcraft product line.

It is focusing on a number of development programmes across its range of helicopters, including a turbine-engine version of the Mi-34 and a deep modernisation of the Mi-8/17 (the Mi-8M), and a number of new designs, including the 15-tonne Mi-38, 6-tonne Ka-60/62 and 4.5 tonne Mi-54. There are also several designs for high-speed, compound rotorcraft competing for development funding from the Russian Government.

UNMANNED AIRCRAFT SYSTEMS (UAS)

7

Unlike the civil and military aircraft and rotary wing markets the unmanned systems market is still immature and rapidly evolving and there are fewer open government-funded programmes than in the manned sector, with many fielded systems originating from privately-funded R&D or through classified programmes. For this reason, it is difficult to list programmes for which there may be opportunities for SMEs, although most value is likely to be generated from command and control, payload and sensors rather than airframes and propulsion. Therefore, supply chain opportunities are likely to different than those for the manned sectors. That said there is evidence and argument that the market could evolve into one that is substantial, as technological, regulatory and customer utilisation develops over time with some of the greatest opportunities arising from the need to overcome technological, regulatory and cost-effectiveness challenges.

The market is currently divided into military applications, commercial applications and civil/national authority applications; and systems have so far been segmented by altitude, range and physical size. This segmentation is becoming less useful over time, and so it is likely that a new segmentation will evolve over the next few years.

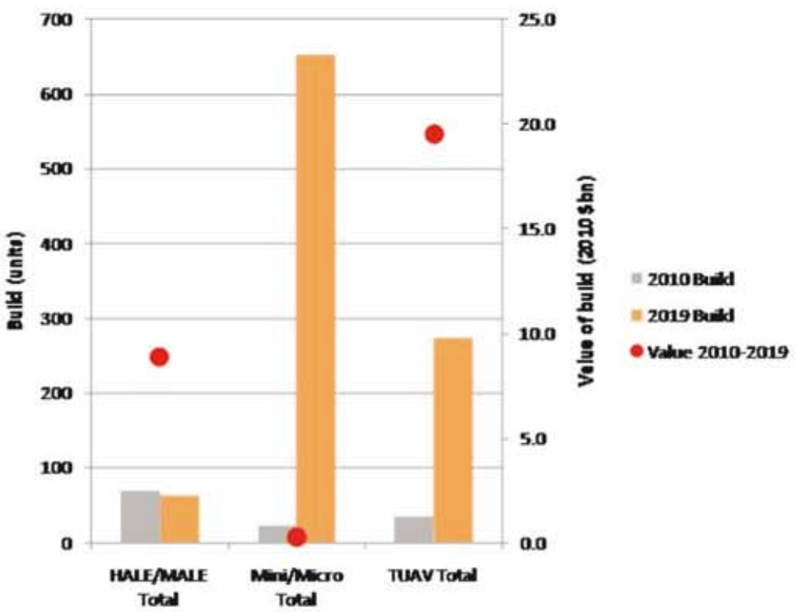
Military market (C)

The unmanned air systems market is the fastest growing segment of the military aerospace market and is the largest segment of the unmanned systems market. At present the United States is responsible for the majority of the spending on the acquisition of military unmanned systems and is the largest investor in the development of new systems by a wide margin.

Within the market, expenditure on strategic ISTAR (Intelligence, Surveillance, Target Acquisition and Reconnaissance) systems is likely to dominate. This segment is currently seen to offer the highest operational pay-off, and the experience gained by the US in deploying Global Hawk and the MQ-9 Predator B in Iraq and Afghanistan has demonstrated the operational effectiveness of this class of system.

The market for tactical systems represents approximately 30 per cent of the total market. According to some analysts this segment is reaching saturation point with the current generation of systems, and most analyses shows very little growth in this segment over the next decade.

Out of all the market segments, the unmanned combat air systems market is expected to be the most significant in terms of its rate of growth and value over the next decade. In the US and, to a lesser extent, in Europe there is considerable investment being made in the development of highly specialised combat systems, but there will also be opportunities for weaponised ISTAR platforms (e.g. Predator) that have so far spearheaded the growth in this segment.



New Anglo-French UAS (C)

The UK & French Governments are to fund a collaborative programme to develop a Medium Altitude Long Endurance (MALE) Unmanned Air System (UAS) for its armed forces.

Expressions of interest will requested in the MoD Defence Contracts bulletin with Initial Gate (IG) envisaged for April 2011.The opportunity is open for Global primes as well as UK and French companies. A 2 year Assessment phase will ensue, which will be followed by a development/ manufacturing contract with an ISD of 2018. The total package will include both platforms & ground stations.

Military Rotary Wing UAS

The development of rotary wing UAS has in the main been driven by maritime and expeditionary warfare requirements. In the USA, the requirement for an autonomous maritime ISTAR platform to complement manned H-60 helicopters has resulted in the development of the light single engine Fire Scout while the US Marine Corps have championed the need for unmanned cargo resupply using rotary wing assets. In contrast, the US Army is pursuing optionally manned platforms based on the currently existing legacy systems such as Black Hawk.

Europe lags the US in the use of military rotary wing UAS by a number of years. However, the UK has recently announced the Tactical Maritime UAS (TMUAS) Capability Concept Demonstrator programme that seeks to identify ways that a maritime UAS can fill the gaps in Situational Awareness, Anti-Surface Unit Warfare, Hydrography and Mine Countermeasures. A successful CCD will lead to a Decision Conference in 2012 that will decide the timing of a follow-on acquisition programme. The opportunity is open to all suitably qualified companies. It is highly likely that the TMUAS platform will be either an off the shelf UAS or a new UAS derivative of an existing manned rotary wing platform. However, significant opportunities are likely to exist in the development of lightweight UAS sensor payloads, data-links and communication systems. The UK programme could form the basis of a European collaborative activity.

It is not clear if Europe will follow the US Marine Corps or US Army with the development of UAS platforms for cargo re-supply or optionally manned rotary wing assets for the battlefield.

7

Civil/national authority & Commercial markets (C)

There is a common belief that the potential for the civil and commercial use of unmanned air systems is substantial and could even rival current forecasts for the military market in the longer term.

The case that is made is justified with the following arguments:

a. For many applications unmanned systems offer operational benefits over and above comparable manned systems (e.g. persistent and covert surveillance).

b. Unmanned systems are able to fulfil some roles hitherto not carried out cost-effectively by other means (e.g. border patrol/illegal immigration control).

c. Unmanned systems are able to fulfil some roles where the risks to human health and safety may prohibit the deployment of a manned system (e.g. where there is a risk of exposure to chemical, biological, radiological or nuclear material).

d. The absence of a pilot in situ allows for smaller, lighter, less costly platforms, which combined with improved operational benefits, could lead to comparably lower life-cycle costs than those of manned systems.

e. The increasing interest being shown in unmanned systems by potential civil and commercial customers is indicative of a gradual acceptance of their utility and an indicator of an underlying pent-up demand.

Whilst there is no complete estimate of the value of the world civil and commercial market, there is an emerging consensus on the way in which the market could evolve. The evidence shows that the early non-military users of unmanned systems have so far been the scientific research community and, more recently, government organisations. For example, in the United States NASA uses a small fleet of Aerosonde unmanned air systems at Wallop Island, Virginia to gather scientific research data, and it also deployed a modified military Predator B UAS from its Dryden Flight Research Centre to help firefighting efforts in California in 2007. As another example, the US department of Homeland Security Customs and Border Protection department is using a Predator B UAS system to patrol the US-Mexican border.

What makes these types of operation possible is they do not require routine access to national airspace. It is commonly agreed that this is the key challenge that will need to be met before the market will be allowed to reach its full potential.

Routine access to national airspace poses a variety of regulatory and technological challenges; the most significant being:

- The need to develop a suitable set of regulatory frameworks for the operation of civil unmanned air system in controlled, uncontrolled and non-segregated airspace across much of the world.
- The need to develop on-board collision avoidance and airspace separation systems that are at least as effective on their own as the those that have the perceived benefit of a human in-the-loop.

- The need for protected access to telecommunications bandwidth for the control of systems and for the downloading of sensor data.
- The need to demonstrate the benefits, and safety of unmanned operations to allay public concerns regarding the overflight of populated areas.
- The need to overcome fears that unmanned aircraft could present a security risk (e.g. the use of unmanned aircraft for terrorist activities).

How these challenges are resolved (recognising that some are interdependent), will determine the eventual scope and size of the market and the rate by which it grows. When these issues will be resolved is subject to a considerable amount of debate, and depends not only on advances in technology but also on the gradual accumulation of experience by industry and the regulatory authorities. Given the progress that is being made in the UK, US and elsewhere, it is thought that certification for routine access for some civil applications will be achieved by 2012, and that this will be extended to a wide range of commercial applications by 2015.

However, whilst overcoming the technological and regulatory challenges will create an environment whereby the civil and commercial use of unmanned systems will not be restricted, the market is unlikely to grow until it can be demonstrated that the unmanned systems are at least, if not more cost-effective than manned alternatives. This will be both a challenge and an opportunity for the UK aerospace and defence industry, as this market will require innovative solutions for lower-cost sub-systems, manufacturing techniques and business models that have hitherto not been a major concern in the military market.

Commercial Rotary Wing UAS

The development of commercial rotary wing UAS will be driven by those requirements where vertical take and landing make a rotary wing solution necessary. An in depth market survey needs to be undertaken to fully identify the market potential for such vehicles.

8 GENERAL RECOMMENDATIONS DURING THE PERIOD JANUARY 2011 – MARCH 2012

1. A|D|S to continue to work with UKTI and BIS to update this document with the latest available information from industry experts on aircraft programme business opportunities across the world.
2. A|D|S to continue to work with UKTI and the regional aerospace alliances to disseminate the contents of this document to the UK Aerospace Industry as widely as possible.
3. UKTI to organise the "International Aerospace Exchange" event on 22 February 2011 focused on global civil aerospace programme opportunities, to include presentations from key OEMs including Airbus, Boeing, Bombardier, Eurocopter and XAC and workshops with their key Tier 1 suppliers.

9 RECOMMENDED UKTI/A|D|S ACTION BY COUNTRY DURING THE PERIOD JANUARY 2011 – MARCH 2012

Asia Pacific

1. A|D|S to organise a TAP supported UK Pavilion incorporating regional aerospace alliances and government departments at the Singapore Airshow in February 2012 to target opportunities across the Asia Pacific region.
2. A|D|S to organise a TAP supported UK Pavilion incorporating regional aerospace alliances and government departments at the Australian Airshow in March 2011 to target opportunities across the Asia Pacific region.

Brazil

1. UKTI Aerospace Sector/UKTI DSO teams in Brazil to maintain regular contact with Embraer and gather intelligence on new programmes, specifically the KC-390 and the proposed new single aisle aircraft, and supply opportunities and feed this back to A|D|S for dissemination to UK Industry.
2. UKTI Ministers, Business Ambassadors and senior officials to present the UK's advanced capabilities in primary structures, engines, avionics and systems to appropriate aerospace primes when on official visits (A|D|S to provide background briefing when required).
3. UKTI to continue to organise a programme of inward and outward missions focused on Embraer to support UK companies to engage with Embraer and win work on new aircraft programmes, working with regional aerospace alliances to set up inward mission roadshows.
4. A|D|S to investigate setting up a representative office for the UK Aerospace Industry in Brazil to help companies develop new business in the market, and make recommendations.

Canada

1. UKTI Aerospace Sector Team in Canada to maintain regular contact with Bombardier to gather intelligence on CSeries and business jet programme progress, confirmed tier 1 suppliers and opportunities and feed this back to A|D|S for dissemination to UK Industry.
2. UKTI Ministers, Business Ambassadors and senior officials to present the UK's advanced capabilities in primary structures, engines, avionics and systems to Bombardier when on official visits (A|D|S to provide background briefing when required).

China

1. UKTI to continue to facilitate the Government to Government UK-China Aviation Working Group (AWG) with representation from A|D|S and UK aerospace industry.
2. UKTI Aerospace Sector Team in China to maintain regular contact with COMAC, XAC, Avicopter and AVIC to gather intelligence on progress with the C919, MA700 and new helicopter programmes and partnering opportunities for UK companies and feed this back to A|D|S for dissemination to UK Industry.
3. UKTI Ministers, Business Ambassadors and senior officials to present the UK's advanced capabilities in primary structures, engines, avionics and systems to appropriate aerospace primes when on official visits (A|D|S to provide background briefing when required).
4. UKTI to continue to organise a programme of inward and outward missions focused on COMAC, XAC, Avicopter and key AVIC Tier 1 companies to support UK companies to engage with Chinese aerospace companies and form new partnerships, working with regional aerospace alliances to set up inward mission roadshows.
5. A|D|S to investigate setting up a representative office for the UK Aerospace Industry in China, and make recommendations.

Europe

1. UKTI Aerospace Sector Teams in France, Germany, Italy and Spain to build links with Original Equipment Manufacturers (OEMs) in the commercial aircraft and business jet sector in order to gather intelligence on new programme development timescales and potential opportunities for UK aerospace industry and feed this back to A|D|S for dissemination to UK industry.
2. UKTI Ministers, Business Ambassadors and senior officials to present the UK's advanced capabilities in primary structures, engines, avionics and systems to appropriate aerospace primes when on official visits (A|D|S to provide background briefing when required).
3. A|D|S to organise a TAP supported UK Pavilion at the Paris Airshow in June 2011.
4. A|D|S and UKTI to work jointly to co-ordinate a programme of networking opportunities for UK Aerospace Industry at the Paris Airshow 2011 with visiting delegations from Japan, China, Russia, India, Brazil, South Korea, Canada and USA.
5. A|D|S to organise a TAP supported UK Pavilion at Aerosolutions in Bordeaux in December 2011.

India

1. UKTI Aerospace Sector/UKTI DSO and Advanced Engineering Representative Office teams in India to maintain regular contact with HAL and NAL and gather intelligence on supply chain opportunities, developments in the proposed MCA, MTA, RTA-70 and new helicopter programmes and feed this back to A|D|S for dissemination to UK Industry.
2. UKTI Ministers, Business Ambassadors and senior officials to present the UK's advanced capabilities in primary structures, engines, avionics and systems to appropriate aerospace primes when on official visits (A|D|S to provide background briefing when required).
3. A|D|S to organise a TAP supported UK Pavilion incorporating regional aerospace alliances and government departments at Aero India in February 2011.
4. UKTI to continue to organise a programme of inward and outward missions focused on HAL, NAL and key Indian private sector aerospace companies to support UK companies to engage with these organisations and form new partnerships, working with regional aerospace alliances to set up inward mission roadshows.

9

Japan

1. UKTI Aerospace Sector Team in Japan to maintain regular contact with Mitsubishi and gather intelligence on the MRJ programme progress and confirmed tier 1 suppliers and feed this back to A|D|S for dissemination to UK Industry.
2. UKTI Ministers, Business Ambassadors and senior officials to present the UK's advanced capabilities in primary structures, engines, avionics and systems to appropriate aerospace primes when on official visits (A|D|S to provide background briefing when required).
3. UKTI DSO team in Japan to maintain up-to-date knowledge of emerging technology demonstrator programmes such as the Advanced Technology Demonstrator (ATD-X) Shinshin and the TRDI Unmanned Aircraft Research System Technology Demonstrator and HALE UAS and provide intelligence to A|D|S for dissemination to UK Industry.
4. A|D|S to maintain strong relationships with SJAC and organise joint activities to encourage networking and partnerships between UK and Japanese companies.

South Korea

1. UKTI Aerospace Sector Team in South Korea to maintain regular contact with KAI and key private sector aerospace companies and gather intelligence on opportunities for UK companies to supply product or form new partnerships and feed this back to A|D|S for dissemination to UK Industry.
2. UKTI Ministers, Business Ambassadors and senior officials to present the UK's advanced capabilities in primary structures, engines, avionics and systems to appropriate aerospace primes when on official visits (A|D|S to provide background briefing when required).
3. UKTI DSO to keep a watching brief on the Korean Fighter Experimental (KF-X) programme and provide intelligence to A|D|S for dissemination to UK Industry.

Middle East

1. A|D|S to organise a TAP supported UK Pavilion incorporating regional aerospace alliances and government departments at the Dubai Airshow in November 2011.
2. A|D|S and UKTI/DSO to organise a joint chalet at the Bahrain Airshow in January 2012 to promote UK Aerospace Industry and provide hospitality facilities for UK companies that are unable to take their own chalet presence.
3. A|D|S to further develop its relationship with the Middle East Aerospace Consortium to assist companies that wish to establish new business in the region.

9

Russia

1. UKTI Aerospace Sector Team in Russia to maintain regular contact with United Aircraft Corporation and Russian helicopter companies and gather intelligence on new programmes such as the MS21 and supply opportunities and feed this back to A|D|S for dissemination to UK Industry.
2. UKTI Ministers, Business Ambassadors and senior officials to present the UK's advanced capabilities in primary structures, engines, avionics and systems to appropriate aerospace primes when on official visits (A|D|S to provide background briefing when required).
3. UKTI to continue to organise a programme of inward and outward missions focused on UAC and Russian helicopter companies to support UK companies to engage with these organisations and form new partnerships, working with regional aerospace alliances to set up inward mission roadshows.
4. A|D|S/UKTI to consider a presence at the MAKS Airshow in August 2011 to promote UK Aerospace Industry.

USA

1. UKTI Aerospace Sector Team in USA to build links with OEMs in the commercial aircraft and business jet sector in order to gather intelligence on new programme development timescales and potential opportunities for UK aerospace industry and feed this back to A|D|S for dissemination to UK Industry.
2. UKTI Ministers, Business Ambassadors and senior officials to present the UK's advanced capabilities in primary structures, engines, avionics and systems to appropriate aerospace primes when on official visits (A|D|S to provided background briefing when required).
3. UKTI to continue to organise a programme of outward missions focused on key US OEMs and Tier 1 suppliers to support UK companies to engage with these organisations and form new partnerships.
4. A|D|S to maintain strong relationships with AIA and organise joint activities to encourage networking and partnerships between UK and US companies.