Reach for the skies

A Strategic Vision for UK Aerospace

The Aerospace Growth Partnership

Industry and Government working together to secure the future for UK aerospace

ADS

Aerospace Growth Partnership

BIS | Department for Business Innovation & Skills

Prime Minister's Foreword

BRITAIN HAS A PROUD RECORD OF AEROSPACE ACHIEVEMENTS, from the invention of the jet engine to making the wings on the largest commercial aircraft in service today. Our industry is the largest in Europe; a direct employer of more than 100,000 people; and a powerhouse in the UK economy, with a turnover of more than £20 billion a year.

It is, quite simply, a phenomenal success story. But there must be no complacency. The huge potential in the global market – for trillions of pounds worth of new orders in less than twenty years – means that competitors around the world are investing and preparing the ground today. Britain must show the same foresight.

That's what the Aerospace Growth Partnership is all about. We heard from industry that you wanted long-term commitment from government, without long-term hassle and interference. So the partnership was born; a chance for those in Whitehall to work with those in business to tackle the challenges facing UK aerospace. The group has been looking at what technologies, skills and supply chain changes we need to make – not just to retain our position in the market but to build on it.

This report is just the start. We will return with a fuller strategy at the end of year – and beyond that, we are determined to work hand-in-glove with industry to keep UK aerospace flying high.

Aerospace Growth Partnership

Industry and Government working together to secure the future for UK aerospace

VINCE CABLE
Secretary of State for Business

The UK aerospace industry is a big success story. We have the top aerospace industry in Europe, and we are a lead supplier to the world's aerospace market. We intend to keep it that way, but we can't be complacent. Competition is increasing around the globe and it's important we remain at the forefront of technology, manufacturing capability and skills. The Government has embarked on a strategic partnership with business to deliver growth in aerospace and I look forward to us achieving that.

MARK PRISK
Minister for Business and Enterprise

I welcome this strategic vision for aerospace because this is a sector that offers tremendous opportunities for growth. The Aerospace Growth Partnership represents a new chapter in the way the aerospace industry is prepared to work collectively and with Government to tackle barriers to growth, boost exports and grow the number of high value jobs. This document sets out key areas where we can build on our strengths in aerospace and broaden our customer base. I am confident that this is a sector that will help the UK earn its living in advanced manufacturing for a long time to come.

MARCUS BRYSON
CEO GKN Aerospace and Land Systems, and ADS VP for Civil Aerospace

Close cooperation between industry and Government is vital to securing the future for the UK aerospace sector. That is why the AGP is a timely and welcome initiative. It is a true partnership, with the best talent in industry and Government working closely together to plot the way ahead. There are great opportunities ahead for the civil aerospace sector. But there are also threats. For both of those reasons, now is the right time for us to be devoting our collective efforts to what is one of our greatest industrial assets – the aerospace sector.

Executive summary

By working together across Government and industry, the AGP's vision is to:

- Ensure that the UK remains Europe's largest aerospace manufacturer and globally keeps its position as second only to the US. This is an ambitious and challenging goal, given intensifying international competition and the rapid pace of innovation in the sector.
- Support UK companies at all levels of the supply chain to broaden and diversify their global customer base. This will be critical given the entry into the market of new manufacturers of large civil aircraft.

CONTEXT

The UK has 17% of the global market for aerospace. This makes us the largest aerospace industry in Europe and globally second only to the United States. The sector provides over 100,000 direct jobs and indirectly supports many more across the UK. It generated £24.2bn of UK revenue in 2011 - 75% of which was exported. Much of this current success results from investment made in research and technology over a number of decades, particularly in the 1970s and 1980s.

The UK has particular capabilities in the most complex parts of the aircraft. About half of the world's modern large aircraft fly on wings manufactured in the UK. A Rolls-Royce powered aircraft takes off somewhere in the world every two and a half seconds. UK companies also have world-class strengths in advanced systems (such as landing gear, actuation, avionics, fuel and power supply), and deliver innovative new ways of providing services such as maintenance, repair and overhaul. In addition, the UK is one of only a handful of nations with the range of capabilities needed to design and build advanced helicopters.

Recent investments by industry have created world-class facilities such as the new Airbus A350 wing factory at Broughton in North Wales, GKN's advanced wing component facility near Bristol, Rolls-Royce's new engine-blade casting facility at Rotherham, Bombardier's composite wing facility in Belfast and Spirit AeroSystems's new composite development centre in Prestwick. The Government announced in March 2012 a £60m new investment to create a new UK virtual centre for aerodynamics, in addition to funding for research into new engine manufacturing techniques and low-emissions engine technology.

However, the UK is facing stiff global competition with not only established aerospace nations, but also an increasing number of developing aerospace nations who are investing heavily in technology, skills and supply chains, with strong support from their governments in order to acquire market share.

"Aerospace is a key sector for GE in the UK and we are pleased to be delivering cutting edge UK technologies to our customers worldwide. We believe aerospace plays a crucial role in the growth story and will be pivotal in turning the economy around. We are delighted to be working actively in the AGP, which is clearly doing valuable work to ensure conditions are right for growth."

Mark Elborne - President & CEO, GE UK and Ireland

In order to achieve the necessary improvements in environmental impact and operating costs, the next generation of aircraft will be based on radically different technologies, requiring new manufacturing processes and placing new challenges on the UK supply chain if it is to remain globally competitive.

POTENTIAL FOR GROWTH

Since the 1970s, growth in air travel has proved remarkably resilient against economic shocks. The global market outlook for aerospace presents some early major opportunities for UK companies. This ranges from work to refresh, upgrade and stretch variants of existing aircraft programmes, through to exceptionally promising opportunities on all-new next generation platforms likely to enter service in the middle of the next decade.

It is forecast that nearly 27,000 new large civil airliners (with a market value of $3.2 trillion) will be needed by 2030 and by 2020 there will be a global market for around 9,500 civil helicopters (worth around $50bn).

KEY STRATEGIC FINDINGS

Government and industry will continue to work together to develop the AGP's vision into a detailed strategy. This will draw on the following key findings from the initial stages of the AGP's work:

- The UK can retain its position as the largest aerospace manufacturer in Europe (and number two globally), if industry and Government work together to address barriers to growth.

- The UK aerospace industry can differentiate itself from competing nations by developing product and process technologies now that secure market share in the short and medium term, while focussing on the high-technology innovation and skills required to deliver competitive, next generation products for future platforms.

- With an expanding range of aircraft and equipment manufacturers, the UK aerospace industry needs to identify upcoming opportunities to broaden its customer base across the global market.

- Companies are more likely to invest in creating jobs and capabilities in the UK if they believe the Government is committed to maintaining the UK as an attractive environment for aerospace.

- Access to finance represents a risk to the industry: the nature of aerospace programmes, with heavy up-front investment costs, and long timescales to make a return, makes it hard for finance providers to understand risk and deters them from lending. It is also clear that there needs to be greater understanding of the types and availability of finance available to support business.

- A strategic long-term partnership with Government providing consistency and certainty of research and technology (R&T) funding is crucial to the future economic growth of the UK aerospace industry and to assist in securing manufacturing work and high value jobs in the UK.

- The UK aerospace industry needs to continue to invest in the competiveness of its supply chain, building on the work of the Supply Chains for the 21st Century (SC21) change programme, which has been led by ADS[1] in recent years to improve the performance of UK suppliers.

- Upper tier aerospace companies need to have confidence in the quality of UK suppliers if the UK is to feature strongly in future original equipment manufacturer (OEM) sourcing decisions. Collaboration and alignment between suppliers and top tier companies is also needed, including greater risk-sharing. A mix of coordination, collaboration, clustering and/or consolidation is required across the UK supply chain.

Although the lead times for developing new aircraft are long, decisions about the technology and manufacturing processes that will be applied are taken many years in advance of an aircraft's entry into service. Both Government and industry have recognised the need to start work now to put in place the capabilities needed to ensure that the UK economy benefits from the projected growth in this sector.

The Government's work on industrial strategy is all about working with industry to recognise where the UK has strong capability and backing it. The work of the AGP gives clarity about the long-term direction in which the businesses and the Government want the sector to travel. As this vision is developed into a long-term strategy, the Government will play its part by seeking to maximise the impact it can have on growth through aligning all its levers behind this key sector to encourage investment and exports and by creating a more educated workforce that is the most flexible in Europe. This joint vision for the aerospace sector sets out some of the ways in which Government and industry can work together to realise these ambitions for a key sector of the British economy.

1.ADS: the UK Aerospace, Defence, Security and Space trade body

About the Aerospace Growth Partnership

The AGP is jointly chaired by Mark Prisk, Minister of State at the Department of Business, Innovation & Skills (BIS), and Marcus Bryson, CEO of GKN Aerospace and ADS VP for Civil Aerospace. It has been established as a partnership between industry and Government to create a vision and strategy for the future of the UK aerospace industry for the next 15 years and beyond.

The AGP brings together industry and Government working together in a deep and joint dialogue to secure the future for UK aerospace. This is not about the Government seeking to impose a strategy on the sector; its goal is instead to work closely with business to understand the opportunities, threats and barriers to growth that exist, and to identify where Government has a legitimate role in helping to create long-term sustainable value for the industry and the wider UK economy. The AGP also plays an important role in getting the industry to work better collectively and coherently across its supply chain.

The AGP's scope is civil aerospace: from business jets to the very largest twin aisle passenger aircraft and helicopters to advanced turbo props; it also considers areas where there is dual (civil and military) technology.

The AGP's work programme has secured the commitment of over 80 senior business leaders including representatives of the regional trade associations. The work is supported by resources from within BIS together with eight full time business secondees. This is a major investment by industry and Government, reflecting the importance that both partners attach to this initiative.

"Rolls-Royce believes that, in strategically important industries such as aerospace, there is great value in the industry and Government working together to support sustained growth. The Aerospace Growth Partnership is an example of this approach in an industry in which the UK is a world leader. It has the full support of Rolls-Royce."

Mark King, President, Civil Aerospace, Rolls-Royce plc.

The focus of the AGP work is in the following areas, each of which has a joint business and government working group:

Strategy

Technology

Manufacturing Capability

Supply Chain Competitiveness

Engagement and Communications.

In addition, the skills strategy for the sector is being addressed by the Aerospace and Defence Sector Skills Group (ADSSG), which is jointly managed by ADS and SEMTA (the Sector Skills Council for Science, Engineering and Manufacturing Technologies), and is being incorporated into the overall work of the AGP.

Turning the AGP's vision into a winning strategy

Our starting point has been to review the global aerospace market, generating an overall AGP roadmap for the UK to capitalise on upcoming opportunities in the market, and supporting that roadmap will be a compelling economic case for investment, factoring in the overall benefits to the UK.

Fuelled by population rises, increasing urbanisation, greater market access and economic growth (especially in emerging nations), as well as environmentally efficient technologies, the global civil aerospace market is entering a period of unparalleled demand which will see the number of passenger aircraft in service more than double over the next 20 years.

Through to 2030, forecast global demand for civil aerospace stands at 56,700 aircraft, valued at $4.14 trillion, 27,000 of which will be 100-plus seater passenger airliners (themselves worth $3.2 trillion).

Average sector annual growth over this period is forecast at 4.8%, with much of this growth forecast to occur in Asia-Pacific, where 33% of world traffic is expected to take place by 2030.

By volume, business jets and single-aisle aircraft dominate in this new requirement, with a total of 73% of the market between them.

However, with the value from the business jet sector relatively small compared to the combined single-aisle and twin-aisle sectors, (19% total value against 69%), single- and twin-aisle markets will be the key focus for the UK aerospace industry from a revenue and volume perspective.

The UK aerospace industry currently holds 17% of the global market share, earning it number one position in Europe and number two position in the world.

The AGP Strategy working group is therefore conducting an assessment of competition to the UK aerospace industry, at company and country level, as well as the associated risks to the UK current market share in the global civil aerospace market.

"I had never really thought of doing an apprenticeship, but since I've joined Bombardier's apprenticeship scheme, I've never looked back. It's given me the chance to earn while I learn, and I know that the skills I'm developing and the qualifications I'll gain at the end of my training will help me secure a career in aerospace. I'm looking forward to developing new skills as my career progresses in an industry which is constantly evolving and pushing technological boundaries."

Conor Crossey, apprentice, Bombardier Aerospace, Belfast Northern Ireland
Apprentice of the Year 2012 Age 21

To maintain its current leading position, the UK aerospace industry also needs to identify upcoming opportunities to broaden its base across the global market, selling to a wider range of aircraft and equipment manufacturers.

Securing work with these manufacturers will require the UK aerospace industry to present an attractive offering to win internationally mobile pieces of work.

To ensure that the UK industry is well placed to compete for these future work streams, the Strategy working group has conducted an analysis to identify the drivers of growth in the industry and the barriers limiting development.

This broad examination has enabled the top drivers of success to be identified, which include consistency of Government support, availability of skills, technology development, infrastructure and expertise as well as availability of capital.

To help structure its approach, the AGP has identified the opportunities and challenges that need to be addressed to secure short, medium and longer-term growth. This has led to the development of the PEP (PROTECT, EXPLOIT, POSITION) model:

PROTECT (0-5 years): Looking at the capabilities we need to have now – identifying what currently exists in the UK and what actions may be necessary to make these fit for purpose to support the overall strategy.

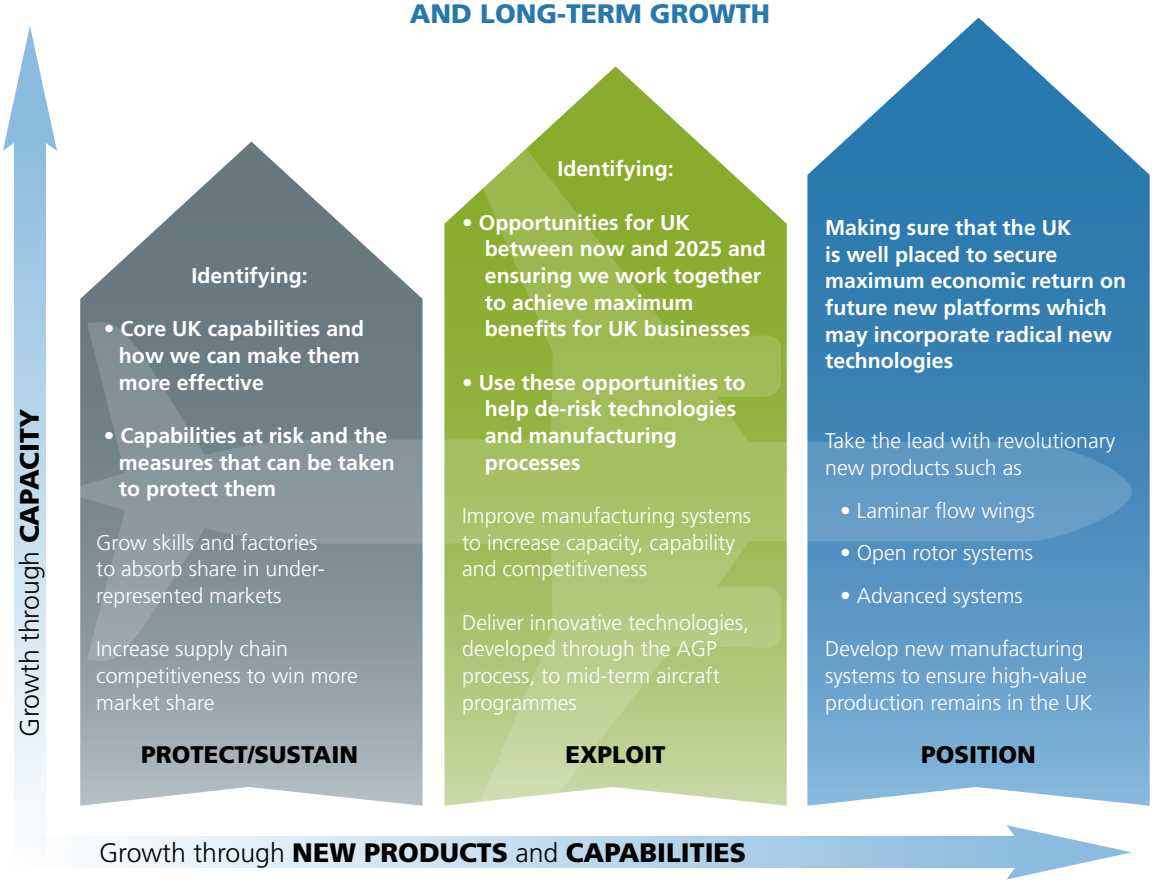
EXPLOIT (up to 2025): Working together to identify programmes for UK industry, primarily on upgrades to existing aircraft and systems.

POSITION (2025 and beyond): Taking action now to position the UK to be as competitive as possible for the all new aircraft that will enter service in the mid 2020s.

"Spirit AeroSystems continues to develop and grow operations in the UK across a wide range of OEM aircraft programmes. The excellent skills and capabilities of the UK aerospace industry combined with a strong partnership with Government continue to make the UK an attractive investment proposition."

Neil McManus - Vice President and Managing Director – Spirit AeroSystems (Europe) Ltd.

AGP STRATEGIC VIEW – OPPORTUNITIES FOR SHORT, MEDIUM AND LONG-TERM GROWTH



The AGP's assessment is that the greatest opportunities lie in the all new programmes that will come on stream 15 or more years from now. In order to assess the UK's ability to compete for these opportunities, the AGP has undertaken an assessment of the various capabilities of the UK aerospace industry, from a technology, supply chain and manufacturing perspective. These assessments form the core of this report and a starting point for our programme of action.

The product groups in which we are in a strong position include:

- advanced wing design, integration and manufacture
- advanced aero-engines
- helicopters
- advanced power trains
- landing gear systems
- aircraft and engine control systems
- electrical power systems
- wheels and brakes
- advanced propeller systems
- advanced rotor blade design
- avionics

Aerospace services, including maintenance, repair and overhaul (MRO) and data management are another key capability, along with the UK's particular strength in high-tech research and development.

The AGP is conducting detailed capability assessments of these product groups and taking forward work to cross-examine these capabilities against the identified future market opportunities. This will be essential in ensuring that the UK deploys and invests in the right capabilities to maximise potential in the global market.

Industry and Government working together to secure the future for UK aerospace

TECHNOLOGY
Developing the aerospace technologies of tomorrow

The AGP Technology working group has been working to identify external drivers and technology trends.

The continued drive for reduced aircraft emissions and noise will shape the next generation of commercial aircraft. Step-change improvements in aerospace environmental performance can only be delivered through future wing and power plant design and application, supported by integrated systems such as advanced electronics and software.

The good news is that these are all areas of UK national strength. As a world leader in novel technology, the UK has strong foundations to compete and grow in this area. However, the need for a long-term strategic plan for technology development, backed up with consistent funding from Government, is crucial to ensuring that the sector can continue to outperform increasing international competition.

International competitors are gaining ground at an accelerating pace, as a result of their heavy investment in research and technology and infrastructure, and pose a real threat to the competitiveness of the UK aerospace industry.

A clear strategic direction for the future development of UK technology capabilities would go a long way towards encouraging the exploitation of intellectual property and game-changing concepts in the UK rather than overseas.

"Aerospace is about making long term high stake bets. But the returns for companies and country can be very rewarding, as demonstrated in the UK. It takes a shared long term vision and consistent investment by both industry and Government to deliver the right outcome. This is why Finmeccanica has invested and continues to invest in UK Aerospace."

Alberto de Benedictis – CEO, Finmeccanica UK

The AGP has also been engaged in establishing the strengths and weaknesses of the UK aerospace industry's technical capabilities, in order to determine the key capabilities, which must be 'protected, exploited and positioned' in the UK.

The AGP will be taking a close look at the industry's access to academic resources and high-value manufacturing expertise, and how we might develop these. It will also examine how to access non-UK centres of excellence, such as large-scale testing facilities shared with European partners. Support for skills at all levels will in addition be central to taking this work forward.

KEY OUTCOMES

- The UK needs to consider its levels of future investment, both private and public, in research and technology (R&T) covering both product related and manufacturing process technologies. A strategic, long-term partnership with Government, providing consistency and certainty of R&T funding, is crucial to the future economic growth of UK aerospace industry.

- Strategic research and development (R&D) coordination, a harmonised approach to fundamental aerospace R&D and technology application, together with targeted investment, are required to help the UK aerospace industry protect its leading position in Europe.

- The UK aerospace industry must make bold and strategic decisions, harnessing disruptive design and environmental technology advances, in order to stay ahead of the international competition and ensure continued economic success for UK high-value manufacturing.

- The industry must continue to invest in the "de-risking" and demonstration of innovative new technologies that will lead the way towards all-new and unconventional aircraft concepts.

CASE STUDY

As an early response to business through the AGP process, which identified aerodynamics as a key area of technology to deliver growth, the Government announced in the March 2012 Budget statement, £60m of funding to create a UK Centre for Aerodynamics. This will pull together existing research and modelling capabilities into a coherent centre, supported with a small programme team, that will encourage increased investment to fund a programme of work to ensure the UK is a competitive leader in this field. This is expected to leverage additional private investment within the UK and has potential to assist in securing European research funds.

"The UK is home to a world-leading aerospace sector, with fantastic skills, innovative technologies and high-value manufacturing capabilities. This is why the UK remains at the forefront of EADS' global strategy. The AGP, which of course is an initiative which we whole-heartedly support, has brought the industry together and strengthened its relationship with the Government."

Robin Southwell, CEO of EADS UK

CASE STUDY

In June 2012, following work by the AGP, BIS announced £25m funding to support a series of collaborative research and technology projects, under the programme heading of SAMULET II (Strategic Affordable Manufacturing in the UK through Leading Environmental Technology), to be delivered through the Technology Strategy Board. These projects, in which business will be investing an additional £40m, will be led by Rolls-Royce and will investigate new manufacturing processes aimed at increasing productivity and making best use of resources.

Organisations involved in SAMULET II include Rolls-Royce, GKN, the University of Birmingham and four members of the High Value Manufacturing Catapult (the Advanced Manufacturing Research Centre; the Advanced Forming Research Centre; the National Composites Centre; and the Manufacturing Technology Centre).

NEXT STEPS

Business and Government are working together to:

- Identify the product and manufacturing process technologies that will best position the UK for growth, including large scale technology demonstrators. These will be set out in a business case by September 2012, showing the levels of public and private investment involved, supported with economic analysis showing the cost and benefits of making such investment. The Government will consider the case for making this investment as part of its spending review process.

- Develop a strategic plan for the UK aerospace industry's underpinning and enabling capabilities, within academia, industry supply chains and the High-Value Manufacturing Catapult facilities, in which the Government has already invested heavily.

- Create a strategic roadmap to position the UK aerospace industry's technical capabilities and to exploit future technologies for substantial long-term economic growth.

MANUFACTURING CAPABILITY

A manufacturing base to deliver the edge we seek

Over the last 60 years, the UK has built up a world leading position in the manufacture and design of aircraft wings, propulsion systems, helicopters, landing gears, wheels and brakes, and associated key aircraft systems.

To date, strong innovation in advanced manufacturing processes and underpinning capability in key product areas have helped to sustain UK competitiveness in the global aerospace market.

However, current thinking suggests that the next generation of single-aisle aircraft will feature much greater use of composites or advanced metals not currently available in today's market.

Developing improved manufacturing processes for metallic and composite materials and positioning companies with the expertise and capability to meet the rate requirements of future single-aisle programmes – including through automation of processes – will be crucial to securing strong UK positions on these next generation programmes.

The future architecture of civil aircraft is also uncertain and will depend largely on the progress of key enablers such as open rotor engines, laminar flow and integrated all-electric systems.

A major challenge for us will be to establish what manufacturing technology is emerging and how it can be aligned with future aircraft development requirements. Where these are not aligned, we must establish what investment and collaboration is required to accelerate the capability to market.

Sustained investment in skills, technology development in the UK and future manufacturing expertise will be needed if the UK is to continue to react to the global threats from both lower cost economies and developed manufacturing countries.

Advancing manufacturing technology and processes are paramount to ensure the UK remains at the forefront of capability and is the country of choice for manufacturing of future aircraft. The UK must position itself not only to meet future demand for existing aircraft, but also begin to invest in the capability which will enable competitiveness in the future of aircraft architecture.

To help achieve this, it is critical that aerospace companies at all levels within the supply chain take full opportunity to benefit from the recent investment by Government and industry in the new network of High-Value Manufacturing Catapult centres, which includes facilities such as the National Composite Centre and the new Manufacturing Technology Centre. These provide opportunities to advance promising emerging manufacturing processes in the UK, such as Additive Layer Manufacturing.

KEY OUTCOMES

- It is important to ensure that aerospace companies are aware of the opportunities that exist within the new network of Catapult centres and are actively encouraged to make maximum use of these.

- The UK must invest in the technical capability that will enable it to compete on future aircraft programmes; this includes investment in manufacturing process technology to reduce operating costs and maintain competitiveness with lower wage economies. Timing is crucial. Maturing manufacturing technology must align with the needs of the leading companies - too early and advantage is lost, too late and work will go elsewhere.

- The AGP needs to identify where improved manufacturing processes and key enabling technology can be delivered, and where investment and collaboration is needed, to address short, medium and long-term needs for the aerospace industry.

NEXT STEPS

Business and Government are working together to:

- Deliver a detailed assessment of the issues raised in the manufacturing analysis, including access to finance, skills availability, Government support and legislation.
- Develop an understanding of how emerging manufacturing technology can be aligned with future aircraft development, detailing where further investment and collaboration is needed.
- Explore mechanisms to facilitate better collaboration throughout the UK aerospace supply chain.

CASE STUDY

In June, BIS announced an additional £15m investment in capital equipment to support manufacturing process projects being carried out in the High Value Manufacturing (HVM) Catapult facilities. This followed the identification of a need for additional equipment through the AGP.

This builds on the Government's earlier investment in the HVM Catapult, which opened its doors for business in October 2011. Seven partners are working together in the Catapult: Advanced Forming Research Centre (University of Strathclyde), Advanced Manufacturing Research Centre (University of Sheffield), Centre for Process Innovation (Wilton and Sedgefield), Manufacturing Technology Centre (Coventry), National Composites Centre (University of Bristol), Nuclear Advanced Manufacturing Research Centre (University of Manchester and Sheffield), and Warwick Manufacturing Group (University of Warwick).

These bring together their expertise in different and complementary areas of high value manufacturing. The HVM Catapult provides an integrated capability and embraces all forms of manufacture using metals and composites, in addition to process manufacturing technologies and bio-processing.

SUPPLY CHAIN COMPETITIVENESS

A long-term, strategic vision for UK suppliers

Governments across the world are increasingly recognising the value of a thriving and dynamic aerospace sector, and are therefore providing significant financial subsidies to attract both existing manufacturers and develop their own indigenous capabilities.

In addition, some nations are investing heavily in education to develop a sustained competitive advantage in the quality of their human capital, making them attractive destinations for aerospace investment. By comparison, the UK aerospace manufacturing base suffers from a potential shortage of skilled engineers – particularly at senior technician, graduate and post-graduate level.

Given this increasing global competition, the performance of the UK supply chain needs to improve at a faster rate than seen previously, if we are not to be overtaken. This includes suppliers adopting and maintaining continuous improvement plans for productivity, quality and delivery; taking opportunities to develop and incorporate product and manufacturing technology improvements; and having highly capable financial and supply chain management skills.

Access to finance represents a risk to the industry: the nature of aerospace programmes, with heavy, up-front investment costs, and long timescales to make a return, makes it hard for finance providers to understand risk and deters them from lending. In addition, SMEs are likely to struggle, particularly at the start of a period of potential growth, because they lack the cash to invest at that point. It is also clear that there needs to be greater understanding of the types and availability of finance available to support business.

Moreover, the UK aerospace supply chain needs to have the ability to influence product design and functionality of future aircraft and engines. This will require early engagement with R&D networks during design processes.

"After finishing school, I joined the apprenticeship scheme at AgustaWestland, choosing the Electrical Engineering route due to my preference for hands-on work and my interest in electrical systems. I have just started my third year with the company and my knowledge of the aircraft is expanding greatly. I love working in the aerospace industry; it's exciting and when you see the aircraft flying, you really feel you have been part of something very special."

Beth Gibson, Electrical Engineering Apprentice, AgustaWestland

The industry would further benefit from a strategic vision defining technology requirements to manufacture and assemble future product designs, supported with significant investment in new manufacturing and assembly technologies, infrastructure and capability.

The UK Aerospace International Strategy 2012[2] outlines global market opportunities and short and medium term growth platforms for the sector. We need to build further on this through increased collaboration between business and UKTI to determine the special capabilities or innovative solutions that top global manufacturers are struggling to find from their existing supply chains. This includes identifying and showcasing 'market-ready' UK suppliers who are best positioned to succeed in providing solutions to the target customers' needs.

Analysis of the global aerospace industry suggests that in the future, prime manufacturers will largely be integrators, who bring together pre-manufactured components, with 80% to 85% of value of the next all new aerospace programme design bought-in.

The make-versus-buy policy of these companies, and how they develop core competencies in the supply base, is therefore crucial. At present, there is too little coordination between the leading companies and the supply chain, preventing risk sharing and restricting the development of core competency suppliers.

'Supply Chain of the Future' events should be held, facilitating more collaborative working between the players, and giving the supply chain a better understanding of the cost drivers required by prime manufacturers. Such events would also help improve operational performance and competitiveness across suppliers.

There may, in addition, be a requirement for some element of consolidation, clustering or simplification in the future UK aerospace supply chain in order to reduce complexity, enable investment in necessary R&D and encourage risk-sharing collaboration with smaller companies. Delivering a detailed exploration of this proposed requirement will be another key piece of work for the AGP.

2. Developed by the ADS Aerospace Export Focus Group and Market Development Board, in conjunction with UKTI

KEY OUTCOMES

- Access to finance will be of increasing importance to supply chain companies in the future, particularly as top-tier suppliers are increasingly looking for risk and revenue sharing partnerships on new programmes.

- The sector needs to develop a supply chain competitiveness improvement programme, building on the early success of the ADS-led Supply Chains for the 21st Century (SC21) change programme. Similarly, top tier suppliers should consider how they can work with their supply chains to help them increase competitiveness. The BIS Advanced Manufacturing Supply Chain Initiative (AMSCI) and Regional Growth Fund (RGF) both provide opportunities for funding support.

- UK suppliers need to focus their marketing efforts more acutely. Business and Government need to work together to identify new opportunities for export, including those for key, market-ready suppliers.

- The UK aerospace sector suffers from a shortage of skilled engineers, particularly at senior technician, graduate and post-graduate level. A strong focus on attracting new talent, training and 'upskilling', and retaining workforce skills is vital.

- A technology vision is needed to drive future technology investment decisions in the supply chain, identifying where financial support is required and how support could be obtained.

- In order to influence new product design and remain competitive, the UK aerospace supply chain needs to be engaged in R&D technology networks early in the design process.

- 'Supply Chain of the Future' events should be held to facilitate closer collaboration and improve strategic alignment within the UK aerospace supply chain.

"As a key driver of economic growth, some of the world's greatest engineering achievements have stemmed from the UK aerospace industry. It's vital that we continue to build on that. The collaboration fostered by the Aerospace Growth Partnership is focusing on new strategies to advance product and manufacturing technologies, develop a robust UK supply chain, and ensure we have the right training and skills in place to keep the UK at the forefront of the global aerospace industry. By working together we can consolidate the transition to higher-value products and services, thereby growing our export market and cementing the UK's future economic success."

Michael Ryan, Vice-President and General Manager, Bombardier Aerospace, Belfast

NEXT STEPS

Business and Government will work together to:

- Create a banking and finance forum to close the gap between the banks and aerospace businesses. The forum will seek to increase communication, mutual understanding, and improve relationships with a view to increasing the quantity of finance to ensure that growth opportunities can be taken across the supply chain.
- Ensure there is awareness of the opportunities for supply chain improvement activities through BIS funding initiatives such as the Manufacturing Advisory Service, the BIS Advanced Manufacturing Supply Chain Initiative, and the Regional Growth Fund.
- Identify where industry and Government investment is best targeted to increase the competitiveness and capability of UK suppliers.
- Explore whether opportunities exist to coordinate, consolidate and/or cluster future supply chain activities and facilitate risk-sharing collaborations with smaller companies.
- Explore whether consideration needs to be given to the size, structure and effectiveness of a future UK aerospace supply chain.
- Build on the work of the UK Aerospace International Strategy 2012 (developed by the ADS Aerospace Export Focus Group and Market Development Board, in conjunction with UKTI) to assist growth through exports.
- Examine the scope for the creation of a national supply chain training establishment to help embed best practice supply chain management in the UK.

SKILLS AND EXTERNAL ENGAGEMENT

Making sure we have the right people to succeed

SECTOR SKILLS STRATEGY

The skills requirements of the sector are being addressed by a joint ADS and SEMTA (the Sector Skills Council for Science, Engineering and Manufacturing Technologies) Aerospace and Defence Sector Skills Group (ADSSG).

SEMTA research shows the need - across the strategically vital science, engineering and manufacturing sectors, including aerospace - to recruit and train 96,300 engineers, scientists and technologists by 2016 and to improve the skills of 363,000 of the current technical workforce who are qualified below world class standards.

The main strands of work underway with the ADSSG are:

Securing the sectors current and future skill requirements

- Maintaining flexibility in managing resources by actively retaining skills and competencies
- Ensuring individuals have the right skills utilising the external support available to industry
- Understanding the technology shifts taking place in the sector
- Identifying and quantifying industry's current and future skills needs based on existing and new technologies
- Determining future skills priorities and delivering a strategy to reduce any gaps identified

Securing the workforce of tomorrow by making aerospace and defence the industry of choice

- Attract, develop, promote and retain the necessary skills and competencies by promoting what the sector has to offer in terms of careers and benefits

"Nothing gives me more pride than seeing British engineering and technology at the heart of Airbus. Through the AGP, Airbus is fully aligned with the Government in our goal to ensure the UK aerospace sector delivers sustainable growth and remains one of the largest and most competitive in the world."

Tom Williams - Executive VP Programmes, Airbus

- Develop and deploy a schools engagement strategy that inspires our future apprentices and engineers
- Have a specific focus on promoting and increasing diversity within the sector

Across advanced manufacturing, including aerospace, SEMTA is also leading on work with supply chain companies and SMEs to:

- Improve the productivity and competitiveness of supply chain companies. It will enable training plans to be produced, companies to start on a High Performance Working journey and support employees to attain skills
- Increase the number of SMEs who recruit an apprentice from 11% to 20% by 2016
- Increase the number of SMEs who recruit a science, technology, engineering and mathematics (STEM) graduate by improving employer and university links.

PROMOTING AEROSPACE TO YOUNG PEOPLE

We will use opportunities to enhance the image of the aerospace sector as a future employer for aspiring young engineers. Futures Day at the Farnborough International Airshow 2012 provides an opportunity to involve up to 10,000 young people in a range of activities to excite them about the sector.

In addition, the aerospace industry is actively supporting the See Inside Manufacturing initiative (between BIS and industry), designed to change outdated perceptions of manufacturing in the UK and build awareness of the careers opportunities available in the sector. In June 2012, aerospace sector manufacturers hosted wide-ranging events for schools across the UK, including factory tours, discussions with employees and competitions. This will build on business engagement activities with young people and schools that take place throughout the year.

RETAINING ENGINEERING TALENT

The Talent Retention Solution (TRS), developed by business for business, puts skilled individuals looking for work and companies searching for new employees in direct contact with each other. It is a UK-wide scheme which aims to retain skills in the Advanced Manufacturing and Engineering Sector, including aerospace.

The TRS was launched by Business Secretary, Vince Cable, in July 2011, with a grant secured by SEMTA from the UK Commission for Employment and Skills and is now fully self-financing within industry.

The system is devoted entirely to the needs of recruitment in the advanced engineering sectors. Aerospace has played a leading role in the development of TRS from its origins at Rolls-Royce in 2001, and continues to benefit as skills gaps are identified through the AGP dialogue.

It supports individuals facing redundancy, in particular those exiting the armed services or from the defence sector. To date 345 UK companies have registered on the TRS. The number of vacancies on the system is growing quickly, with over 500 live vacancies by spring 2012, and 690 people registered with the system. Numbers are expected to continue to grow quickly over the next few months.

KEY OUTCOMES

- There is a shortage of UK resident senior technicians, graduate and post-graduate level engineers with appropriate skills. This gap is being partly met by employing skilled individuals from abroad. The demographics of the current workforce mean a significant number will retire in the next 10 years.

- There is also a need for higher skilled apprenticeships leading to higher technological capabilities and the supply chain needs to improve its skills in management and operations.

NEXT STEPS

Business and Government will work together to:

- Examine the cause of skills shortages and consider whether any of these can be addressed quickly.

- Develop, through the Aerospace and Defence Sector Skills Group, a skills strategy for aerospace by Autumn 2012.

- Ensure that aerospace businesses are aware of all available support for skills – for example, funding to assist apprenticeship training, including support available through SEMTA.

- Promote the image of the sector to make it an attractive career choice for young people.

- Encourage and promote the Talent Retention Solution as an effective mechanism to retain and recruit valuable engineering talent.

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