



midlands aerospace alliance

MIDLANDS

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MAGAZINE



FOCUS ON INNOVATION

HOT METAL IN THE MIDLANDS

OUR MANUFACTURING KNOW-HOW APPLIED TO LIGHTWEIGHT MAGNESIUM – PAGE 10

Photo courtesy Mettiss Aerospace

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Update

ONLINE: WWW.MIDLANDSAEROSPACE.ORG.UK/NEWS

MINISTER ON FACT-FINDING TOUR

Business minister Anna Soubry visited Leicestershire to see how government investment is helping a high-tech manufacturer win multi-million pound contracts and expand its UK operations.

Coalville-based MAA member Winbro Group Technologies has won contracts worth about £88 million since starting on the government-backed Sharing in Growth (SiG) programme.

The company, which designs and produces high-technology machining systems and manufactures components for high-pressure turbine blades, joined SiG in October 2014 to grow its order book, improve operational efficiencies and develop its skilled workforce.

Since then, SiG engineers and business gurus have used their expertise to train staff and drive productivity improvements. This has

helped Winbro win new contracts, maintain 170 jobs and create a dozen more.

The minister said: "Our long-term economic plan for the Midlands is to make it the engine for growth in the UK.

"Growth in advanced manufacturing and the skilled jobs it provides is a key part of that plan which is why I'm delighted our partnership with Winbro is producing such great results."

Winbro director Andy Lawson said: "SiG has allowed us to break through to the next level... underpinning our growth, upskilling our people and making this growth sustainable."


Andy Page, chief executive of SiG, added:



Anna Soubry listens to Alan Duffield, general manager of Winbro Advanced Machining and MAA director. Looking on are SiG chairman Bryan Jackson (left) and MAA chief executive Andrew Mair.

"SiG is a four-year programme designed by industry for industry. We're still recruiting companies who want to excel."

■ See also View from Westminster, page 13

 www.sig-uk.org



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NEWS

ON THE WEB

CLICK THROUGH TO THE MAA WEBSITE FOR CURRENT NEWS ON MEMBERS' ACTIVITIES:

→ **Meggitt** has bought the advanced composites business of **Cobham**, which has operations in Leicestershire.

→ **Chinn**, part of the **Nasmyth Technologies Group**, has received an IQS Gold Award from AgustaWestland.

→ **Tufnol Composites** of Birmingham has added to its capabilities with new state-of-the-art machinery.

→ Tamworth-based **Amphenol Invotec** has invested in a new copper plating line.

→ **KMF Precision Sheet Metal** has been named Business of the Year in Staffordshire.



www.midlandsaerospace.org.uk/news

'DON'T CHANGE A THING': AIRBUS V-P



The message from aerospace to the new UK government – an echo of legendary Spitfire test pilot Captain Joseph 'Mutt' Summers – must be "Don't change a thing!"

Katherine Bennett OBE, vice-president Public Affairs for Airbus, made the comment during her keynote address to members of the MAA at the alliance's annual general meeting (AGM) on 8 October.

In a wide-ranging presentation that gave the assembled members fascinating insights into the world of the industry lobbyist working closely with government, Bennett praised the national Aerospace Growth Partnership (AGP) programme and the MAA's role in the AGP representing the supply chain perspective.

Her remarks ensured the AGM was a lively affair with members later contributing new ideas on what they wanted from their organisation.

Two new directors were elected and one re-elected to the MAA board. The new directors, who will serve for



Airbus's Katherine Bennett talks to MAA members.

two years, are Stephen Cheetham, managing director of PK Engineering, and MJ Sections sales manager Craig Fullwood. Dr Alan Duffield, general manager of Winbro Advanced Machining, was re-elected.

MAA chairman Clive Snowdon congratulated them on their success and also thanked Gareth Jones, managing director, In-Comm Training & Business Services, for putting himself forward and being willing to contribute his services and expertise.

MAA chief executive Dr Andrew Mair used an extensive review of the services the MAA currently offers its members to open discussion about other possible ways members could benefit from the organisation.

A practical proposal that struck a chord was to organise visits by groups of members to smaller trade shows. Mair commented: "We always remain open to fresh ideas from our members; it was great to receive several new thoughts at the AGM."



New MAA board director Craig Fullwood receives chairman Clive Snowdon's congratulations.



www.midlandsaerospace.org.uk

TNA REINFORCES BENEFITS OF COLLABORATION



The two-year TransNetAero (TNA) programme succeeded in introducing SMEs from six participating European aerospace clusters to new opportunities for international collaboration and development.

The EU-funded programme, which concluded this summer, was designed to show members of smaller aerospace clusters and those hidden behind others like automotive – which included the MAA – the benefits of closer cross-border links with their Belgian, Dutch, French, German and Swiss counterparts.

Diana Nikolova of the Netherlands Aerospace Group (NAG) said TNA gave Dutch companies a "different way to approach other regions".

"We saw a trend of increasing participation once companies saw the scope of TNA activities. The programme also helped NAG set up relationships with regions, clusters and industry representatives we didn't know before."

Benno Speer from LRBW, the aerospace industry association of Baden-Württemberg, said the TNA events offered an "excellent opportunity" to network. German participants

"especially appreciated the training and goal-oriented workshops with OEMs."

The discussions about business development in small international groups during the workshops were a highlight, he added.

MAA chief executive Dr Andrew Mair agreed. "TNA has laid an excellent foundation for the MAA and its members to collaborate with partners across Europe," he said.



www.transnetaero.eu

Cutting-edge engineering under one roof

 Advanced Engineering UK, the UK's largest annual advanced engineering meeting place, brings together multiple industry events under one roof at the NEC in Birmingham from 4-5 November. Whether you attend as an exhibitor or a visitor, each event provides you with a business forum and supply chain showcase within its own sector and those of its co-locating sister events.

Advanced Engineering UK group of events:

- Aero Engineering Show 2015
- Composites Engineering Show 2015
- Automotive Engineering Show 2015
- Performance Metals Engineering 2015
- AEUK Open Conference – leading experts present intel and latest technology case studies
- Feature Stream: 'Innovate + Enable', including special coverage of graphene, smart and hybrid materials, energy harvesting, printable electronics and more.

Once again this year, the Advanced Engineering UK group of events brings together OEMs, primes and all supply chain tiers, to meet and do business across some of the UK's highest-growth advanced engineering sectors, including automotive, aerospace, composites, motorsport, marine, consumer, energy, electronics and more.


Contact:

- info@uktechevents.com
- www.advancedengineeringuk.com

Visit the MAA team at Aero Engineering 2015 - we're at Stand B33.

NO BUSINESS LIKE TRADE SHOW BUSINESS

AIRSHOWS CAN OFFER UNRIVALED MARKETING OPPORTUNITIES. BUT HOW DO COMPANIES CHOOSE WHERE TO EXHIBIT?

 Realistic expectations, preparation and a well-executed plan of action are the key to success at airshows. That's the opinion of three MAA members.

Redditch-based G&O Springs has been a regular airshow exhibitor with the MAA for many years. As a business with a tight focus on aerospace, G&O's target customer is the original equipment manufacturer (OEM) who holds the relevant design authority.

"These tend to be Tier 2 or 3 suppliers," said general manager Steve Boyd. "Anyone higher normally wouldn't procure individual piece parts."

"We're limited as to where we can find new customers but do feel we need a presence at the 'major' airshows (Farnborough and Paris) as a lot of Tier 2 and 3 suppliers exhibit – plus you always get an engineering element visiting."

For Delcam, another regular exhibitor, the cross-sector application of its manufacturing software means airshows are less important than machine tool and engineering shows. But Delcam still believes it's important to have a presence at airshows.

"You need to have realistic expectations and not look at an exhibition in isolation," said marketing manager Peter Dickin. "For us, most software purchases are related to machine tool purchases, which are substantial investments."

"Sales just don't happen the first time you meet someone. That's the start of the process."

Tony Whittaker, business development manager at Sigma Precision Components, agrees. After a show, it's the follow-up meetings and future RFQs that count, he said.



Individual pods on the MAA stand at Paris 2015 offered maximum exposure to trade visitors in the aisles.

"We select shows to attend based on the people who are going to be there. We look at our list of target companies and try to align ourselves with them. Paris was a perfect opportunity for us – everybody was there."

Sigma used Paris 2015 to raise its own brand awareness. Farnborough – its 'local' show – provides a platform to roll out innovations and technologies developed over the previous year.

G&O also stresses the technical side of its business. "We always have a spring design challenge," said Boyd. "It positions us correctly in the marketplace."

One important function of airshows is raising your business profile, he added, "so when someone does have an issue, G&O is the first place they think of."

Delcam's Dickin said face-to-face contact with clients is "really the value of exhibitions."

"It also makes it easier to use remote communications technology later. If you manage your time well, the number of people you can see bears no comparison with the time it would otherwise take."

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For details, please contact emma.burgess@midlandsaerospace.org.uk



FARNBOROUGH 2016 CALLING:

BOOK SPACE EARLY

It's not too soon to book space on the MAA stand at Farnborough 2016 – in fact, if bookings continue at the current rate, it may soon be too late.

MAA marketing manager Emma Burgess said she had bookings for half the stand space before the MAA's annual meeting in October. "That's unprecedented," she said. "It's the most early bookings we've ever had – and the show is still nine months away."

"It goes to show how important Farnborough is to our members, and the value they see in

being on the MAA stand."

Farnborough 2016 opens next 11 July for seven days, the first five being for trade only.

The MAA returns to the visible location in Hall 1 that it occupied at the 2012 and 2014 shows. The stand within the UK Pavilion will give exhibitors an excellent base for meeting existing and potential clients and the "all-important physical presence".

■ For more information and details on booking your pod, contact Emma at emma.burgess@midlandsaerospace.org.uk



(Left to right) Mark Johnson of Sigma Precision Components speaks to Lord Maude, with Sir Peter Ricketts, British Ambassador to France, and Avingtrans CEO Steve McQuillan looking on.

BUSINESS BRISK AT PARIS 2015

Eight companies exhibited on the MAA stand at the Paris airshow in June.

The exhibitors reported brisk business throughout the show with a continual stream of customer meetings. A highlight was a visit to the stand by Lord Maude, the UK minister for Trade and Investment.

Commenting after the show, most exhibitors agreed it was one of the best, if not the best exhibition they had done. High on the overall list of pluses were the number of meetings they were able to arrange, enquiries from passing visitors, the way the stand enabled them to present their companies and products to advantage, and the professional help from the MAA team.

Exhibitor MJ Sections observed: "Being part of the MAA at an exhibition means that potential customers might happen to arrive at the stand, even though they came to see another company."

JOIN US IN TURIN AND BERLIN

On 18-19 November, the MAA and UK Trade & Investment (UKTI) are taking a select group of UK aerospace suppliers to Italy for Aerospace & Defense Meetings Torino. This event, a cross between a trade show and meet-the-buyers event, builds on the recent successful trade mission for UK suppliers to meet major Italian aerospace customers.

"This is the only big event of its kind targeted at Italy, Europe's fourth-biggest aerospace industry," said MAA marketing manager Emma Burgess. "It is based on a programme of pre-arranged meetings with international and Italian buyers who come to your own booth where you can present your company to best effect."

For suppliers it is an excellent chance to develop new business with customers from one of the world's biggest aerospace industries as well as other international buyers – all in a structured format. Confirmed international participants include Airbus, AgustaWestland, Alenia Aermacchi, ATR, Ferrari, MBDA, Rolls-Royce and SuperJet International.

Next June, ILA Berlin Airshow 2016 offers



Amphenol Invotec representatives enjoy a meeting with a potential client in Italy in 2013.

suppliers the opportunity to meet potential customers in the German aerospace industry, Europe's third-largest.

The UK Suppliers Village in the International Suppliers Centre (ISC) hall will showcase the best of UK aerospace in a cluster of individually branded pods, a format which participants at past events have said worked well.

A highlight of the three-day show, which runs 1-3 June 2016 at the Berlin ExpoCenter Airport, is an international meet-the-buyers event exclusively for ISC exhibitors.

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- Composites Engineering Show 2015
- Automotive Engineering Show 2015
- Performance Metals Engineering 2015
- AEUK OPEN CONFERENCE

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Colin Sharples (left) of Kyocera Unimerco, and Kevin Cooke and Sue Field, both of Teer Coatings, study the analysis of the coating thickness on a witness sample.

MIDLANDS PROJECTS PROGRESS AT PACE

COLLABORATIVE RESEARCH EFFORTS BETWEEN SMES, UNIVERSITIES AND END USERS ARE PRODUCING SOLID RESULTS TO HELP UK AEROSPACE MAINTAIN ITS GLOBAL POSITION.

Two years after its launch, the National Aerospace Technology Exploitation Programme (NATEP) now has more than 80 projects up and running. The fifth and final call attracted a record number of proposals which are progressing through the selection process.

The NATEP programme is now projected to deliver 120 projects. So popular has the programme been that demand has exceeded the current available funding, helping build a strong business case for future initiatives.

One of the reasons for the programme's popularity is the requirement for collaboration. This is enabling supply chain companies to begin discussions about working together, approach universities and Catapult centres and involve the customer from the start. That's helping many companies progress their projects faster, safe in the knowledge that they are doing the right thing at the right time for the right reasons.

Here we take a look at two such projects being supported by the MAA. Successful in Call 3, these teams have made a flying start.

TEER COATINGS AND KYOCERA DRILL FOR AEROSPACE ACCLAIM

Kyocera Unimerco Tooling and Teer Coatings are working together with the University of Manchester to explore better tools for in-situ drilling on aircraft structures.

Kyocera Unimerco's Colin Sharples, who is based in Staffordshire, had observed that dry, in-situ drilling of aluminium alloys, with no significant loss of drill tool performance, would simplify and reduce the cost of aircraft manufacture while also improving the workplace environment.

He had shared his idea for a new process that would eliminate the need for conventional liquid lubricants with Peter Knight, NATEP technology manager at the MAA, at the Farnborough airshow in 2014. Peter quickly initiated a meeting with Worcestershire-based advanced coating specialists Teer Coatings, part of the Miba Coating Group.

Sharples explained: "I had an idea for a new process that would eradicate the need

for lubricants to be used when drilling in-situ on aircraft, which I was keen to progress, but I needed support and other skills and expertise to make it happen.

"A meeting with the MAA at Farnborough 2014 led to an introduction to Teer Coatings, whose appetite for innovation matched our own.

"It's more than a collaboration, it's a new relationship, which is important as we see a great deal of potential for this technology, not just in aerospace.

"I had already worked with the University of Manchester, and their tool design and monitoring expertise provides the perfect link."

Working closely with the NATEP team on the bid from the very start, a project plan was developed to explore the feasibility of dry-drilling with newly designed tools that exploit the latest high-performance solid lubricant coatings. The 12-month project proposal was submitted, and approved in early 2015.

Dr Kevin Cooke, R&D technology centre manager for Teer Coatings, added: "The project is progressing at pace and once we have

completed the testing of the demonstrator, we feel it can be commercialised very quickly.

“Every NATEP project needs to work alongside an end customer, and Airbus was keen to be involved. This new process will be an important step forward for the aerospace sector, but there’s potential for it in other industries too.”

TESTING THE TEST PROGRAMME

Technology expert Rapita Systems is working with the University of York to develop next-generation software verification tools for aircraft, improving safety and enhancing efficiency.

Safety remains a top priority for aerospace companies and investment continues in enhanced software as well as additional sensors and devices, to offer improved control, monitoring and diagnostics – all of which place a high demand on the aircraft’s sophisticated computer processors. It is vital that all software is checked to ensure it works as planned, without error, and that everything happens exactly when it should. But testing software needs processor capacity to run, thereby slowing down the system and affecting the results.

For safety-critical control systems where split-second timing is paramount, there is a real industry need for testing software that will perform its function without affecting the end result. A theoretical solution to this conundrum was put forward in a PhD thesis five years ago, but implementing it required hardware support.

The owners of the idea, York-based Rapita Systems, approached NATEP for advice and MAA’s technology managers were keen to help this project succeed. A collaborative team with

the University of York was established, an 18-month project defined, and the proposal received approval from the NATEP National Steering Board.


Dr Philippa Ryan Conmy, the research and development co-ordinator and software quality assurance for Rapita Systems, commented: “The NATEP specialists have been extremely helpful and provided us with very useful feedback and information. We liked the informal approach, which helps us be more innovative and creative with our research.

“NATEP also gave our project a platform which brought it to the attention of two end users, Rolls-Royce Controls and Data Services in Birmingham, and Airbus Defence and Space in Madrid. Both companies are involved in our research and their input is invaluable to ensure we develop a demonstrator that meets their exact needs.”

The demonstrator is due to start tests in early 2016.

NATEP deputy programme director Bridget Day said: “This is a great example of a small company with world-class expertise, that will change the way testing is run in the aerospace industry, improving safety and processes. What may appear to be a small change to a process can, in fact, have an enormous impact on the whole supply chain, making global aerospace safer, faster, cheaper and more sustainable.

“The teams are already making good progress, with work on the demonstrator beginning shortly. Our team of technology specialists is on hand to offer advice, training and mentoring every step of the way.”

 www.natep.org.uk

WE ARE MAKING IDEAS HAPPEN 

BUILDING AN INNOVATIVE, PROFITABLE, SUSTAINABLE SUPPLY CHAIN

 The aim of the £40 million NATEP programme is to fund 100 projects that will develop innovative technologies for new products or manufacturing processes, and to create and safeguard jobs within the UK aerospace supply chain.

Funded by the Department for Business, Innovation & Skills (BIS), managed by ADS and delivered in the Midlands by the Midlands Aerospace Alliance (MAA), it is designed to enhance UK supply chain capabilities and networks and enable them to deliver high added value to future aerospace products and services.

The programme is sponsored by leading UK aerospace primes and Tier 1s including Airbus, Bombardier, Controls and Data Services, GKN Aerospace, Rolls-Royce and Spirit.

The roots of NATEP are in the Midlands, building on the successful regional Aerospace Technology Exploitation Programme (ATEP) run by the MAA from 2006-12.

DON'T MISS:

THE NATEP NATIONAL SHOWCASE 2015

Discover new technology in the aerospace supply chain and meet the minds behind the innovations.


12 November 2015, from 9am-4pm, at the Advanced Manufacturing Training Centre in Coventry.



The Rapita project team, including colleagues from Rapita, University of York, RRDCS and NATEP.

IS 3 MILLION ENOUGH?

THE GOVERNMENT'S TARGET OF STARTING THREE MILLION NEW APPRENTICESHIPS BY 2020 MAY FALL SHORT OF WHAT AEROSPACE NEEDS TO STAY AT THE TOP OF ITS GAME. WHAT CAN BE DONE ABOUT IT?

 The UK government first mentioned the target to create three million new apprenticeships by 2020 in the autumn of 2014, with the Prime Minister stating it was crucial to long-term economic plans for Britain.

Expanding on the plan in August, after the election, he said companies bidding for government contracts worth more than £10 million would have to show they have a "reasonable proportion" of apprentices.

The Association of Colleges said delivering three million apprenticeships by 2020 is "quite a challenge but not impossible".

The government also confirmed plans for an apprenticeship levy, a system it says operates successfully in more than 50 countries. Under this plan, large companies would invest in a fund to train workers. The size of the levy has yet to be determined, but it is expected to be in place by April 2017.

Mark Stewart, general manager and HR director of Airbus UK, told *Midlands Aerospace* magazine: "Aerospace has a proud history of providing excellent apprenticeships and I welcome the opportunity to improve the skills needs of aerospace by growing apprenticeships within the sector.

"Clearly we await the details that sit behind the apprentice levy, but I am hopeful that any concerns of industry should be addressed with a pragmatic approach to how the levy will apply in practice to ensure the focus is on the quality of the offering, not just the quantity to be trained."

EEF, the manufacturers' organisation, was sceptical about the chances of hitting the three million target; to do so would need 600,000 new apprenticeship starts every year.

NEW TRAINING CENTRE OPENS DOORS

A look at a range of current new training initiatives aimed at aerospace in the Midlands reveals that high-quality training is the watchword.

Training providers are moving quickly to fill the gap. Leading the field is the Manufacturing Technology Centre (MTC) in Coventry, offering an apprenticeship service for manufacturing employers at its new Advanced Manufacturing Training Centre (AMTC).

Designed for organisations that need skilled manufacturing technicians and future



The new Advanced Manufacturing Training Centre is designed to address the need for apprentices at all levels of industry.

engineers, the service recruits, employs, trains and develops apprentices in core skills and one of four specialisations – CNC machining, automation, metrology or joining/welding technology – before placing them in an organisation. The MTC says that for a fixed cost, employers gain well-trained, work-ready people with knowledge and skills in advanced manufacturing technology that might not otherwise be available to them.

AMTC managing director Paul Rowlett said: "With a continued shortfall in engineering skills, the sector is crying out for new employees with the specialised skills needed.

"Many SMEs simply cannot afford the four-year investment costs of apprentices, and skilled workers are attracted by the larger players – often at salaries smaller companies cannot match.

"We help SMEs by offering apprenticeships which match the skills and individual with the business's specific requirements, ensuring they are cost-effective and provide tangible value from day one. This saves employers time and resources trying to manage the development of new apprentices in-house."

SKILLS PARTNERSHIP

Rolls-Royce is driving a new initiative, the Manufacturing Skills Partnership (MSP), which is designed to address challenges facing the UK engineering and manufacturing sector, including a widening skills gap, ageing population, and difficulty in attracting and developing engineering talent.

MSP is a two-year government-funded project; Rolls-Royce has been awarded a £15.3 million grant to tackle skills shortages and share its knowledge and methods with supply chain companies. The project will focus on four themes: pre-employment, apprenticeships, staff development and employer development.

Training in two key supply chain clusters at Derby and Coventry will be provided by project partners Derby College and Warwickshire College. Colleges the length of the country will also be involved, with Rolls-Royce providing support for both the education providers and trainees through a 'support hub'.

SMEs can take advantage of the project's free training needs analysis and free support

in recruiting new trainees. Subsidies of 50% will help offset the cost of internships, apprenticeships and staff development.

For employers, free mentor and assessor training is designed to help support apprentices.

SUPPORTING INDUSTRY

Solihull College is setting up a new Aviation Academy to serve the needs of the growing aerospace community in and around the West Midlands and Birmingham Airport.

The college believes it is well-placed to support industry by providing apprentices or trainees within production and assembly, design and engineering and R&D roles.

The academy will offer full-time vocational training from Level 2 to 5. It plans to validate a BSc top-up with Coventry University and develop apprentice programmes with local employers which align to the new Trailblazer Standards.

By improving the physical connection of employers and students to appropriate training for both the aeronautical and aviation industry, the academy will be helping to enable an expansion in MRO work based in the West Midlands.

WHAT NEXT FOR APPRENTICES?

University of Wolverhampton's "innovative" two-year accelerated degree programme was developed by manufacturers for manufacturers, the university says.

Local manufacturing companies, many from the aerospace sector, were consulted three years ago when the university's BEng in Manufacturing Engineering was set up. Its first graduates are expected in 2016.

The university said the course is designed to benefit existing employees, those wishing to build on completed apprenticeships, or mature candidates with manufacturing experience. Currently about 80% of students on the course at the Telford Innovation Campus are aerospace supply chain employees.

NUMBERS QUESTIONED BY JOBS SPECIALISTS



Recruitment specialists believe the figure of three million is low, and suggest that aerospace alone might need close to a third of that number of apprentices.

"It doesn't go far," said Matthew Heath, managing consultant – Aerospace, Defence and Aviation of recruitment specialist Jonathan Lee. "It depends how this number is apportioned across the UK industrial sectors."

James Charlett of Consilium Group said: "It sounds like a lot of people, but if you break three million down in sectors over the next seven years, it's not such a daunting figure."

Aerospace faces a number of challenges, said Heath. "We've gone through the design phase; now we're into supporting build rates – for components, systems and aircraft. The demand now is for well-trained and aerospace-orientated apprentices."

The growth in opportunity is quite real for apprentices working with companies developing a younger workforce in support of capacity demands as well as a need for staff in the future. "We're getting closer to seeing the impact throughout the supply chain of increased production rates," he added.

The focus of apprenticeships will change to meet the demands of new technologies, for example in composites and electronics.

Heath added that today's apprentices are not just machine operators or manufacturing engineers but people trained with these and other diverse skill sets. "The aerospace industry is not just about making parts. There's so much going on around the aircraft and their operation. All these companies and crafts have

a position in the marketplace."

Charlett said the quality of apprenticeships remained an unknown but important factor. "Are apprentices going to be trained to the same skill level, whether they're apprenticed at specialist facilities like the MTC or within an SME for whom it's a cost-effective way of bringing new people into the business?"

He stressed the important role of the education system in making careers in engineering and manufacturing interesting to students at an early age. Many who are attracted to the aerospace sector don't realise all the affiliated jobs it encompasses, for example in MRO. He said "a significant shortage" of skilled engineers means those who are qualified are in demand around the world.

Charlett said the shortfall in expertise has become more apparent in the last 5-6 years, especially with growth in the Midlands of industries such as automotive which compete for the same skill sets. "Aerospace loses people to automotive, which sees aerospace as an area to find good people," he said. "I think you can see the impact of aerospace experience in the improved quality of today's cars.

"This is going to create a big problem in the aerospace sector in 5-20 years," he said. "We've noticed apprentices moving on after 4-5 years. It's not like the old days. Many people move jobs – it's a lot easier now.

"We need to ensure the apprentices we train in the aerospace sector stay there. We need to come up with a cross-business approach to how we can ensure the best calibre of candidates are attracted to aerospace and stay."

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INNOVATION

NEW IDEAS FROM THE MIDLANDS

Midlands manufacturing often combines innovation and traditional workmanship. NATEP, the National Aerospace Technology Exploitation Programme, is now fuelling an acceleration in new technology. In this feature, we highlight recent achievements of a selection of MAA members.

MAJOR STEP IN MAGNESIUM

Redditch-based Mettis Aerospace has taken a major step forward in the manufacture of forged magnesium components. These forged components, which offer a 20-25% weight saving opportunity, are being pioneered in applications such as cabin and interior fittings.

In a NATEP new technology project (partly funded by AMSCI), Mettis Aerospace has been the lead company in developing the forged parameters for this material. Recent forging trials have proved successful in achieving the wrought properties and standard specification requirements. Product trials at a leading

cabin interior manufacturer have also proved "immensely successful", said Mettis.

Technical sales executive Peter Bishop said: "Initial market research indicates a huge opportunity for forged components in this new alloy, and Mettis Aerospace, as the world leader in the forging and machining of this alloy, is well placed to support market growth and demand.

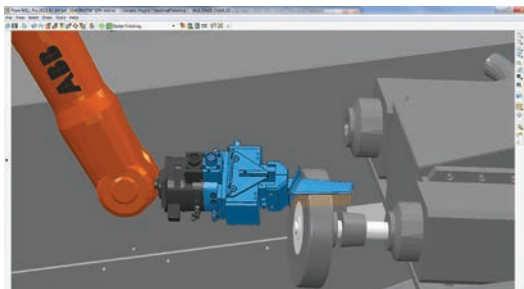
"As interest increases, we are working towards building an integrated supply chain for forged and machined products utilising this magnesium alloy."

■ www.mettis-aerospace.com

Cover photo: Manufacture of precision forgings.



A dedicated laboratory supports metallurgical investigations at Mettis.



Delcam demonstrates robotic blade polishing

A system for polishing turbine blades by robot to individual specifications demonstrates the adaptive machining technology capabilities of Birmingham-based Delcam. The system, developed by Delcam Professional Services in association with JOT Automation of Finland, uses an ABB robot driven by Delcam software including PowerMILL Robot and PowerINSPECT. In the process, each blade is picked up from a conveyor by the robot, measured to determine the amount of polishing or

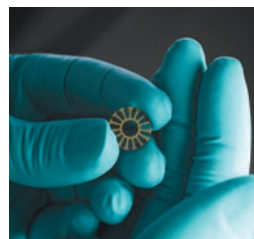
milling it needs, and then worked with appropriate tools. The process is repeated until the blade conforms to standard. "This system could be applied to many manual finishing type operations," said Delcam marketing manager Peter Dickin. "It's typical of broader changes in industry. People can be deployed on jobs that are more rewarding for them and the company."

■ www.delcam.co.uk

Precision etching on micro UAV

Midlands-based Precision Micro has used a novel photo etching technique

to help put a miniature surveillance UAV in the air. The engine of the tiny aircraft operates using miniature motor laminations, etched to tight tolerances. These laminations utilise Precision Micro's 'R bond' technique, which uses the photoresist protecting the material surface during chemical etching as the bonding agent. Precision Micro says this approach offers improved performance over conventional punched, riveted, or welded laminations. A further engine component in the UAV (which requires micro radii) can only be produced by combining Precision



Micro's photo etching and wire EDM technologies. Other components that could not be manufactured by conventional means are the magnetic pole plates used to tilt the rotors and steer the nano UAV. An ambient, non-contact process, photo chemical etching does not induce any material stresses.

■ www.precisionmicro.com

Shaped interconnecting systems

Tekdata Interconnections, the Stoke-on-Trent cabling specialist, has perfected a system of manufacturing wires into precise shapes that fit the devices they connect. The system uses woven ribbon cable inside a jacket or shell and delivers what the company claims is a "huge performance enhancement". A recent application of this new system was providing electrical power for de-icing helicopter rotor



blades, which a spokesman described as "one of the harshest environments an interconnection system can work in." Tekdata produced three-dimensional shaped components accurate to 1mm, with location points and clamp pads built in, completely from 3D CAD models.

■ www.tekdata-interconnect.com

New benchmark in cutting fluid

A new soluble metalworking fluid designed to comply with global environmental and health and safety requirements has been introduced by Fuchs Lubricants UK. Described as a "new benchmark" in cutting fluid, Fuchs Ecocool



Global 10 has been developed to provide excellent levels of lubricity, cooling and corrosion protection while free of boron, traditional biocides and other SVHC registered components. It is aimed at 'difficult to machine' materials such as titanium, Inconel, stainless steels and sensitive aerospace aluminium alloys. Product/technical manager Paul Tierney said customers have reported as much as a 43% reduction in tooling costs when using the latest Ecocool Global 10 technology.
■ www.fuchslubricants.com

Phoenix gains UKAS flexible scope

Black Country-based Phoenix Calibration and Services has combined its expertise in manufacturing and using test machines to gain UKAS accreditation for flexible scope for sub contract mechanical testing

(lab 6202) to add to its existing accreditations. The new scope qualifies Phoenix to test components and materials that do not have a set international standard and still give the customer a UKAS certificate. Managing director Vicki Wilkes said flexible scope is "unusual and not given to many test labs." Short turnaround, in-house testing of bespoke and one-off products is beyond the capabilities of many companies, she said. "We've already tested hydraulic systems for an aerospace customer to issue them the appropriate UKAS certification without needing pre-approval for that component test."

■ www.phoenixcalibration.co.uk



Ted Atkins tests an oxygen mask with a high-altitude jump in the Himalayas.

The ultimate Trust in your supplier

Confidence in your suppliers has particular significance for Ted Atkins, principal of Topout Oxygeneering. Atkins not only designs O₂ systems for pilots, mountaineers and high altitude skydivers, he tests them himself in the Himalayas at altitudes where a flaw could prove fatal.

Atkins, a former RAF chief engineering aerospace officer, has been working with Nottingham-based Trust Precision Engineering for several years and credits the company's technical excellence and can-do attitude with his own success.

Trust Precision's on-time delivery of oxygen mask components machined to very high standards gave him confidence to engage Trust on new developments, and he has just secured a major US contract.

"Without doubt our expansion is largely due to the level of cooperation that we have enjoyed with Trust," he said. "Trust do what they say on the packet: they deliver excellence, on time. I could not imagine working with another company."

The work with Trust Precision grew

from design consultation toward the volume production that Trust is set up for with its four Citizen M32 VIII sliding head machines.

"From producing the specialist tapered thread, engineering our way around reducing the number of components, using state-of-the-art equipment incorporating a new seal design, we helped Ted reach 100% success – no leaks, less weight and a simpler design – within months," said Trust managing director Nick Street.

Trust Precision emphasises quality in everything it does, from its machines, tooling and materials to the ongoing training for its staff of 10. In four years, the company has expanded to a £1 million annual operation.

Added Nick: "We understand that a customer's business needs to be a success for us to survive, or in the case of Ted Atkins, for the customer to survive for us to be a success!

"Reputation is everything."



www.trustprecisionengineering.co.uk



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EMPLOYMENT:
20,000



OUTPUT:
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**320-HECTARE
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BUSINESS
PARK



THE VIEW FROM WESTMINSTER

“I have been hugely impressed by the people I have met and their ambition to succeed.”

Anna Soubry, the new UK industry minister, is encouraged by what she has seen and heard in her first meetings with Midlands aerospace companies.

 Aerospace is a major, national success story – the UK has the leading aerospace industry in Europe and is second only to the United States globally.

We punch above our weight, with leading design, manufacturing and support capabilities across the spectrum of aerospace products. We excel at some of the most complex parts, including wings, engines and a range of advanced systems.

The sector supports around 225,000 jobs, around half directly, with pay around 50% above the national average and about a third higher than the manufacturing average.

Aerospace is important to my own Broxtowe constituency – which sits within the Midlands aerospace cluster – and many of my constituents work in the sector, spanning large companies such as Rolls-Royce and small and medium-sized enterprises.

Soon after starting my role as Minister for Small Business, Industry and Enterprise, I met with representatives from companies of all sizes involved in the Aerospace Growth Partnership (AGP), the sector council, to hear directly the challenges they face, what they were doing to address these, and to understand where the government has a legitimate role to assist.



“We cannot assume that because we enjoy a 17% global market share today, that will also be the case in the future. International competition is intensifying and the pace of technological change is rapid.”

From that meeting it was clear that the industry is focussed sharply on the need to increase productivity and competitiveness of suppliers; diversifying its customer base and increasing exports; and raising skills levels.

In June, I opened new aerospace research and additive manufacturing facilities at the Manufacturing Technology Centre (MTC). Here I met with engineers from industry and academia, working together to develop groundbreaking manufacturing technologies, to give our companies a competitive edge.

I've also visited ambitious Midlands-based smaller companies in the supply chain – Indestructible Paint, Dunlop Aircraft Tyres (both based in Birmingham), CFS Aeroproducts (Coventry), and Winbro (Coalville in Leicestershire). I have been hugely impressed by the people I have met at these companies, their superb technology and products, and their ambition to succeed.

The prize is large, with a global market requirement for some 29,000 new large passenger aircraft worth a staggering £2.9 trillion by 2032; and a further £1 trillion market, in the same timescale, for business jets, regional jets and helicopters.

However, we cannot assume that because we enjoy a 17% global market share today, that will also be the case in the future.

International competition is intensifying and the pace of technological change is rapid.

The government will therefore continue to work closely with the industry around this agenda, including with the Midlands Aerospace Alliance – we value the contribution played by Andrew Mair and the MAA in representing the interests of companies like the four I have already visited in the region.

Government will continue to focus its efforts on helping to increase productivity and growth, raise skill levels – particularly through more apprenticeships – and get more companies exporting.

I look forward to seeing companies in the Midlands powering the UK aerospace industry to success.



www.gov.uk/government/organisations/department-for-business-innovation-skills

PROFILE

VIEW FROM THE MAA BOARDROOM

“I’m keen that we get closer to our members. I’m very much for making the ‘voice of the customer’ heard.”

Wendy Stopher, purchasing development executive – process & governance at Rolls-Royce, believes a career in aerospace will benefit from time spent away in another industry.

HOW DID YOU GET TO WHERE YOU ARE NOW?

I was originally a physicist. I joined BAE Systems – British Aerospace as it was then – straight from university as a research engineer, had various posts in engineering and manufacturing and ended up – by accident – in procurement. I couldn’t get parts for the programme I was working on and in one of those ‘how hard can it be?’ moments, joined procurement and never left. About 12 years ago I left aerospace to join a smaller engineering and technology company in the industrial printing sector. It was a great experience. I completed my MBA while working there and returned to aerospace two years ago with, I hope, broader experience and fresh ideas.

COULD SOMEONE STARTING TODAY FOLLOW THE SAME PATH?

Absolutely – but it’s not the only route. Everyone needs to carve out their own path based on individual strengths, style, preferences and so on. A background in manufacturing and post-graduate experience is a great route to success in our industry, but it depends where you want to take your career. The MBA gave me opportunities to meet people outside aerospace and to gain a different perspective. That’s important. Sometimes in a big business, good ideas get lost as the corporate machine keeps turning. Aerospace is a fantastic environment with a lot of niche practices, but it does us good to look outside from time to time.

WHAT WAS THE BEST PIECE OF ADVICE FROM YOUR FORMATIVE YEARS?

I remember it vividly. One of my mentors (I’ve had several) told me to listen – really listen, actively listen – don’t prejudge what’s being said or go in with



“One of my mentors (I’ve had several) told me to listen – really listen, actively listen – don’t prejudge what’s being said or go in with preconceived ideas.”

preconceived ideas. My mentors have been consistent about that over the years.

IS IT A BONUS OR HANDICAP BEING A WOMAN IN INDUSTRY?

I don’t give it much thought; I don’t think that way. I’ve never felt I was at a disadvantage or have been given roles because of my gender. From time to time, I’ve been chosen for certain showcase events as the token female, so I got more exposure and visibility because of it. Diversity is important and valued, but looking at the stats there aren’t many females at the top in engineering businesses. People do express concern

about that. They may feel women aren’t given the same opportunities that men get. But in engineering, when the number of females coming through is low, it’s hardly surprising more males make it to the top.

WHAT PART OF YOUR JOB DO YOU MOST ENJOY?

I enjoy the variety in my role. I get the biggest buzz from delivering change programmes with people from various backgrounds, influencing people who don’t report to me, getting consensus across functions. I like being out of my comfort zone, being creative, solving problems that people say can’t be fixed. I like challenging the status quo, making a difference, looking back on the successful completion of what someone said was impossible.

WHAT DO YOU HOPE TO ACHIEVE AS AN MAA BOARD DIRECTOR?

It’s a chance to share my experience with SMEs to help them grow their businesses and capabilities. Being on the MAA board is an opportunity to support SMEs in our sector – and hopefully also to bring new ideas into the alliance.

I’ve just taken over the chair of the MAA Business Development working group. One of the things we’re working on is how to make the network stronger and the alliance more personal and accessible to more companies. I’m keen that we get closer to our members. I’m very much for making the ‘voice of the customer’ heard. The MAA has done a great job in supporting businesses. I think we have to ask members what they need and make our business plan responsive.



www.rolls-royce.com

FOR YOUR DIARY

ONLINE: WWW.MIDLANDSAEROSPACE.ORG.UK/EVENTS

CALENDAR

NATEP SHOWCASE 2015

Advanced Manufacturing
Training Centre, Coventry,
12 November

A showcase to celebrate the success of companies participating in NATEP, to give them a platform to talk about their projects, and to network.

CZECH AEROSPACE VISITS THE MAA

Venue TBC, 26 November

An excellent opportunity for MAA members to meet and network with representatives of the Czech Republic's aerospace industry.

THE MAA ANNUAL CONFERENCE

Venue TBC,
March 2016

The MAA annual conference is a key event on the UK aerospace calendar with its balance of insights from large and small industry players.

AEROSPACE & DEFENSE MEETINGS TORINO

Turin, Italy
18 November

Join the MAA and UKTI at the only big event for buyers and suppliers which is targeted at Italy, Europe's fourth-largest aerospace industry.

INSIDE MOOG WITH THE MAA

Moog Aircraft Group,
Wolverhampton, 26 January 2016

A chance to learn how to align business strategies and meet the requirements of rapidly evolving global aerospace players like Moog.



For further information and to book your place at an MAA event, please scan the QR code or visit www.midlandsaerospace.org.uk/events



ABOUT THE MAA...

The Midlands Aerospace Alliance (MAA) is the voice of companies in the British Midlands supplying global aerospace. Its 300 member organisations range from global aerospace players to SMEs. The MAA board comprises senior managers from Meggitt, Moog Aircraft Group, Rolls-Royce and UTAS Actuation Systems, elected



supply chain representatives and key regional partner bodies.

For additional copies of *Midlands Aerospace*, or to add your colleagues to the distribution database, please contact the MAA by any of the means below.

If you have a query or suggestion that you would like to make, please contact the MAA.

T: +44 (0) 2476 430250
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NEW MEMBERS

The MAA welcomes the following new members

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Multi-discipline engineering solutions.

APT LEICESTER

Groby, Leicestershire
Precision turned components and precision prismatic parts.

BLUE SKY INDUSTRIES EUROPE

Norton Canes, Staffordshire
Aerospace hardware distributor.

BORWELL

Malvern, Worcestershire
Software creation from conception to installation.

CALTHERM (UK)

Chesterton, Staffordshire
Design and manufacture of industrial ovens, furnaces and dryers.

COMPUTER CONTROLLED SOLUTIONS

Honiley, Warwickshire
LabVIEW-based software, signal conditioning and turnkey solutions, consultancy services and bespoke training.

ELG UTICA ALLOYS

Manvers, South Yorkshire
Processing, sourcing and supplying high-performance alloys and metals globally.

IJS GLOBAL UK

Birmingham
UK and international transport and logistics solutions.

KUEHNE + NAGEL

Sutton Coldfield, West Midlands
Global logistics provider.

MATERIALS ENGINEERING & TESTING

Worcester
Engineering laboratory and consultancy.

OERLIKON BALZERS COATING UK

Tilbrook, Buckinghamshire
Global coating service for tools and components.

PRYOR MARKING TECHNOLOGY

Sheffield
Design and manufacture of permanent marking systems.

THERMOCOAX UK

Solihull, West Midlands
Engineered thermal products and solutions.

THOMAS BROWN ENGINEERING

Huddersfield, West Yorkshire
Provision of aviation grade precision components and assemblies.

WITHERS AND ROGERS

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Become a member of the MAA and join the 300+ other companies and organisations who are already enjoying the benefits of belonging to one of Europe's largest aerospace industry trade groups. It costs your company only £395 per year if you are in the Midlands or £590 if not.

For information about membership in the MAA, go to our website: midlandsaerospace.org.uk or contact the MAA office.



www.midlandsaerospace.org.uk/join



midlands aerospace alliance

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IDEAS
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NATEP

National Aerospace Technology
Exploitation Programme

Showcase 2015: New technology in the aerospace supply chain

Advanced Manufacturing
Training Centre,
Ansty Park,
Coventry CV7 9JU

Thursday
12 November 2015
09.00 – 16.30

More than 200 UK aerospace suppliers are developing new technologies for the global aerospace industry with support from NATEP and companies including AgustaWestland, Airbus, Bombardier, Cobham, GKN, Meggitt and Rolls-Royce. You are warmly invited to attend this national showcase event.

WHO IS THIS SHOWCASE FOR?

AEROSPACE PRIMES OR TIER 1S – BASED IN THE UK OR ANYWHERE IN THE WORLD:

They will find out how their company can benefit from more than 100 new technologies being developed by the UK aerospace supply chain to reduce aircraft weight, improve safety, cut costs and meet their other objectives:

- New manufacturing processes • Finishing • Design and modelling software tools • Big data • Electrical and electronic components • UAVs • Supply chain management software • Ground support/ MRO • Novel composites • Additive layer manufacturing • New materials • Graphene • Interiors and on-board equipment •

COMPANIES PARTICIPATING IN A NATEP PROJECT: They will be introducing their new ideas or showing off their technology by making a presentation or exhibiting!

OTHER STAKEHOLDERS IN THE AEROSPACE COMMUNITY: All are welcome to attend this first NATEP showcase.

HOW TO REGISTER

This event is free to attend, thanks to the support of NATEP by the government's AMSCI fund. Register through the following link: www.natep.org.uk/natep-showcase-event

