



midlands aerospace alliance

MIDLANDS AEROSPACE

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MAGAZINE



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RAF 3(F) Squadron Typhoon/Photo by Craig Sumner

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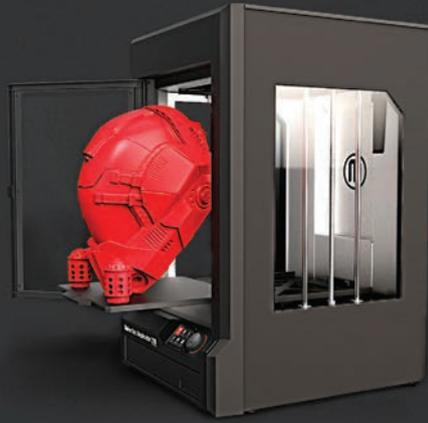
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Update

ONLINE: WWW.MIDLANDSAEROSPACE.ORG.UK/NEWS

3D GADGET CHALLENGE FOR YOUNG ENGINEERS



Contestants will design and manufacture a gadget measuring 305 x 305 x 457mm.

popular contest which last year had students designing, building and racing an electric car.

The contest is designed to help identify the next generation of engineers and designers. Last year's winner and other competitors have already been on work experience with KMF and other industrial sponsors.

The challenge, which ties in with the school curriculum, encompasses useful practical topics such as engineering principles and business management processes.

KMF managing director Gareth Higgins said the company was proud that its initiative, launched in 2012 and praised by Business Secretary Vince Cable, has proven such a success. "We are also encouraged by the support that the project has been given by other local and national businesses across a diverse range of industry groups," he added.

YOUNG ENGINEER COMPETITION CONTESTANTS ACCEPT 2015 CHALLENGE TO WORK WITH THE LATEST 3D TECHNOLOGY.



Staffordshire-based MAA member KMF has launched its 2015 Young Engineer of the Year competition by challenging Year 10 students to design and produce a gadget using a 3D printer.

Organisers expect applications from 25 schools (up from 18 in 2014) to take part in the



www.kmf-young-engineers.co.uk

KMF

KMF's
Young Engineer of the Year
returns with an exciting new
project for local schools to
'Design, Print and Pitch'
a gadget using the latest
3D printing technology.

DESIGN
 3D
 PITCH

SPONSORS:

12 MARCH 2015:
The Gadget Show
meets
Dragons' Den
Britannia Stadium
Waddington Suite
All Day Event

18 JUNE 2015:
THE FINAL
Awards Ceremony
hosted by
Jason Bradbury
from Channel 5's
The Gadget Show

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NEWS

ON THE WEB

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

→ Leading supplier **Nasmyth Group** has continued expansion with the acquisition of California-based Technical Metal Finishing.

→ **Invotec Group** has been approved by the government-backed Sharing in Growth programme.

→ The Chancellor visited **Rolls-Royce** to launch a new scheme to fund graduate teachers.

→ Shropshire-based **Hexagon Metrology** has launched more convenient and productive CMMs for harsh environments.

→ **In-Comm** and **Moog** have joined forces to put Moog employees through a course on Business Improvement Techniques.



www.midlandsaerospace.org.uk/news

2015 CONFERENCE MAKES HEADLINES

↘ The third annual MAA annual conference next March is already making headlines.

The *Wolverhampton Express & Star* trumpeted the event in its pages as a major coup for the city and the Black Country, home of one of the Midlands' major local aerospace clusters. It said the plans to stage the event in Wolverhampton recognised the importance of the city in terms of its aerospace industry, and underlined the strong bonds between the MAA and the city.

The Wolverhampton event follows two successful conferences sponsored by Rolls-Royce and Derby City Council.

The event on 26 March at the GTG Training Centre in Wolverhampton is expected to attract about 150 executives from companies involved in aerospace and allied industries from across region. Gold sponsors for the event are Moog, UTC Aerospace Systems and Wolverhampton City Council.

Councillor Roger Lawrence, leader of Wolverhampton City Council, told the *Express & Star* the MAA conference next March would benefit the whole area. "It is excellent news... for the whole Black Country.

"As a sector expected to grow over the next couple of decades, aerospace has to be seen as one of the best bets."

The first two keynote speakers have been announced for the event. They are Tony Wood, president – Aerospace of Rolls-Royce, and Steve Peery, president for Engine Systems, UTC Aerospace Systems.

MAA chief executive Andrew Mair said one of the



Keynote speakers Tony Wood of Rolls-Royce and Steve Peery of UTC Aerospace Systems headline the 2015 MAA Annual Conference.

conference themes is the interplay between the regional and local aerospace industry and global aircraft. "Our speakers will be offering insights into what our regional and local clusters need to do to be competitive in the global aerospace market.

"Wolverhampton has got its act together in the way it works with aerospace companies such as Moog and UTC. How do we build on links like these to become even more successful?"



www.midlandsaerospace.org.uk

CONFERENCE GOLD SPONSORS:

MOOG



UTC Aerospace Systems



MANUFACTURING 'CAPTURES KNOWLEDGE'

↘ Manufacturing is back in fashion and that's good news for aerospace.

That was the observation of Prof Sir Mike Gregory of Cambridge University when he addressed members of the MAA at a combined members' meeting and AGM on 21 October at the Manufacturing Technology Centre (MTC).

Prof Gregory said policy-makers are learning that manufacturing "is not just about bending metal" but encompasses a range of value-added activities upstream and downstream of production.

"Manufacturing is one of the best ways to capture knowledge," he said.

Aerospace is well placed to benefit from this change in attitude, as represented by the ground-breaking Aerospace Growth Partnership (AGP), but "we don't hear enough from SMEs."

Earlier, MAA chairman Clive Snowdon announced the names of three members returned to the MAA board for further terms of office. They are:

■ David Danger, managing director of UTC Aerospace Systems – Marston Aerospace.

■ Adrian Leatherland, former head of business development at Linea Resourcing.

■ Peter Smith, chairman and chief executive of the Nasmyth Group.

Snowdon also announced that Neil Holmes, managing director of Columbia Precision, had been appointed to the board as a representative of SMEs.

The MAA, he said, was busy and expanding, driven by ongoing work to support members and also by the rollout of NATEP, in which the MAA plays an active role.

MAKE YOUR IDEAS HAPPEN



- Do you have an idea that might **improve a process, a technology, a supply chain?**
- If you had some funding & a little support do you think you could **improve, invent or develop something** that would help your business & the aerospace industry?
- Do you think that if you had some funding that you could **introduce a change or an improvement to one of your existing products or processes** that might make you a market leader?
- Do you find yourself thinking "If only I could get some support & funding I could **create a new, better or quicker way** of doing something that would make me better than my competition"?
- Do you have an idea to **combine existing technologies into one product** that would create something better than its constituent parts?



... then NATEP may be able to help!

You don't need an R&D department or a dedicated technology development programme, **NATEP is fully supported from application to project close out.**

Call 4 for funding is now open – you have until 15th December to submit an outline application. Talk to us about how to apply & we can provide advice on the best way to present your ideas.

**To find out more, please contact Sam Clarke on 07727 678798
or sam.clarke@midlandsaerospace.org.uk**



FOUR IDEAS IN ACTION

MIDLANDS AEROSPACE TAKES A LOOK AT FOUR FUNDED NATEP PROJECTS IN WHICH SUPPLY CHAIN COMPANIES ARE PUTTING GOOD IDEAS INTO PRACTICE WITH THEIR CUSTOMERS.

Lightweight pipe end-fittings

Partners: Sigma Precision Components, 3T RPD
End-user: Rolls-Royce

The objective of this 12-month project, led by MAA member Sigma Precision Components, is to reduce aircraft weight by developing a new process to design and manufacture lightweight, cost-effective pipe end-fittings.

The work under the £143,000 NATEP grant involves redesigning a selection of typical end-fittings to suit metal additive manufacture with the objective of minimising weight and cost.

The partners will manufacture samples in an approved material, develop quality control procedures, and validate the process through a combination of analysis, rig testing and development engine testing.

Xenon pulse technology in fibre placement

Partners: Heraeus Noblelight, Hexcel Composites
End-user: Rolls-Royce

The Xenon Flash technology of Heraeus Noblelight offers potential cost and performance advantages in the processing of composite materials for aerospace applications

This research under this 18-month, £145,000 NATEP grant will result in a fully operational demonstrator at the National Composites Centre.



INTRODUCING...

Sam Clarke, who has joined the MAA to work with technology manager Peter Knight as NATEP industrial liaison manager, is no stranger to industry and technology.

Sam, who started her career in the marine sector, moves to the MAA on secondment from the Manufacturing Technology Centre (MTC) where she focused on SME engagement under the CASiM² and High Value Manufacturing Catapult programmes.

Before that, she was involved with the MAA through the Transport iNET project in the East Midlands and the Midlands Marine Alliance.

"Aerospace is a dynamic sector with good growth opportunities," she said. "I look forward to working with members and non-members through NATEP to support them with practical grass roots help from application to successful completion."

Visual management software tool

Partners: ConsultAvila, CANDA Systems
End-user: RLC Engineering Group

MAA member ConsultAvila Ltd and its development partner CANDA Systems, producer of the XACTIO supply chain portal, received funding to develop a visual management software tool (VIOS) to optimise inventory for end-user RLC Engineering Group.

VIOS is a multi-echelon software tool enabling data visualisation and active and dynamic inventory planning and control – incorporating best practices in inventory management, e.g. segmentation, mapping, trend analysis, alerting, root-cause analysis and forecasting. The solution will be delivered by 'cloud' technology.

"Our approach is designed to change the way of working and create a new way of thinking – 'Inventory is a symptom and not the disease'," said ConsultAvila chief executive Jose Guzman-Bello. "The NATEP team has been very supportive throughout the process."

Process optimisation for aerospace alloys

Partners: ANT Industries, Arrowsmith, Technoset
End-users: ITP, Pattonair

Three MAA members became the first SME cluster to link with a Catapult centre to gain NATEP funding when they teamed up with the Manufacturing Technology Centre (MTC) for their project to optimise the processing of aerospace alloys.

The three – ANT Industries, Arrowsmith and Technoset – are also members of the Coventry and Warwickshire Aerospace Forum (CWAF). They are working with the MTC to develop and optimise manufacturing methods to a degree that by themselves they would have been unable to achieve.

Arrowsmith's Jason Aldridge said NATEP was "hugely helpful" in opening a door to independent in-depth process and metallurgical research. "We're now producing parts onsite which before we couldn't."

IN TOUCH WITH THE DUTCH

WHAT DO THE DUTCH SEE IN THE EUROPEAN TRANSNETAERO (TNA) PROGRAMME THAT OTHERS DON'T? NETHERLANDS AEROSPACE GROUP (NAG) MD FRANK JANSEN OFFERS AN INSIGHT INTO HIS MEMBERS' CHALLENGES AND OPPORTUNITIES.

Are MAA members missing a trick every time they're outnumbered at European TransNetAero (TNA) events by delegates from the smaller Netherlands Aerospace Group (NAG)? What is it that the Dutch 'get' about doing business in Europe that the British don't?

Frank Jansen, managing director of the 110-member NAG – one of the six European aerospace alliances including the MAA that make up TNA – is loathe to make comparisons.

He is, after all, in the business of building relationships, not questioning them.

But he will allow that there are differences between the two countries' industries which could give clues to the high uptake among his members of this programme designed to support the exchange of knowledge and innovation among aerospace SMEs in north-west Europe – resulting in new business.

"At NAG we try to be very close to our members," he said. "We stress that we're not a company but a resource: a place where people share visions, activities etc. They know we have their interests at heart and respond accordingly when we suggest a programme or activity to them. We're much closer than a company would be, and they follow our lead."

Jansen also thinks the relatively low level of internal competition in Holland makes a

"There are many risks in aerospace. One of the most challenging is finding the right partner. This is where TNA helps."



difference for his members, whose activities are broadly in education, R&D, engineering, manufacturing, MRO and civil and military equipment.

"We're not fighting for the same orders," he said. Companies have more reasons to cooperate than to compete.

And then, while Midlands suppliers have big domestic OEMs to target, the Dutch – who hold about 2% of the global aerospace market – do not; hence their strong outward focus. The industry tends to look west, he said. For example, both the Dutch Ministry of Defence and KLM are large customers of the American primes.

At TNA events to date, the Dutch have been the largest group with between six and 10 participating companies. Has participation been successful? "What happens after the events they don't always share with us," said Jansen, "but



they keep coming back." Member feedback has been good, he said. Making local contacts is an important benefit. One NAG board member told him that TNA had opened doors that otherwise would have remained closed to him.

The Midlands TNA event in 2013 created enthusiasm, particularly about additive manufacturing, he added. As a result of that meeting in Coventry, the NAG is organising a trade mission to the UK.

Jansen hopes TNA will extend beyond 2015, when its funding under the European Interreg IVB Programme is due to end. Preliminary discussions are now under way on how to prolong its life.

"There are many risks in aerospace," he said. "One of the most challenging is finding the right partner. This is where TNA helps. We now know each other well. It's a relationship based on cooperation. We can't let each other down."

■ NAG is hosting the Dutch TNA event as we go to press. The event begins with a reception and networking dinner in Amsterdam on the evening of 6 November and continues with a full day's programme on 7 November in Marknesse with opportunities to meet leading Dutch aerospace companies and research organisations. For more information see www.midlandsaerospace.org.uk.

■ Improve your knowledge of inspection and measurement ■ Progress your professional development

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Course leader: Dr Ahmad Kharas, Reader in Intelligent Instrumentation at the University of Derby.

The course focuses on the latest techniques of measurement and inspection applicable to the aerospace industry. It covers precision measurement techniques, evaluation of measurements, and current regulatory and assurance frameworks for measurement.

Date: February 2015

Duration: 5 days

Admission requirement: Bachelor's degree in engineering, computing or science.

This course is supported by European Regional Development Funding through the INTERREG IV B programme.

For more information, please contact Michael Cunliffe at michael.cunliffe@midlandsaerospace.org.uk or phone 02476 430250

TransNetAero
International network of aerospace engineers





Artist's impression of the MAA stand for Paris 2015.

LATIN FLAVOUR FOR 2015

WILL NEXT SUMMER'S PARIS AIRSHOW GIVE MAA MEMBERS A REPEAT OF THE SUCCESS AT FARNBOROUGH 2014?

Is it still enough to wait for customers to come to you? Can aerospace companies afford to attend Farnborough once every two years and call that a marketing strategy?

Increasing numbers of supply chain companies are concluding that the big and growing aerospace industries of our nearest neighbours in Europe are important markets for them, and are incorporating regular missions to Europe in their business plans.

"Farnborough was an outstanding success for the MAA this year with 27 members exhibiting, making the Midlands the show's biggest region in terms of participants," said MAA marketing manager Emma Burgess. "We're hoping members will make Paris 2015 a similar success.

"We're taking bookings for Paris now, so if you are considering joining us, you should make enquiries soon."

Meanwhile, the MAA plans to continue

supporting members in marketing to Italian aerospace, building on the work carried out in conjunction with UK Trade and Investment (UKTI) in 2013 and 2014.

This work included trade mission to Piemonte and Lombardia clusters, exhibiting with members at Aerospace & Defense Meetings Torino, hosting an inward mission to the Midlands from the Piemonte cluster, and collaborative activities at the Farnborough airshow.

Plans are well advanced for a mission to the southern Italy aerospace clusters of Campania and Apulia next February, preceded by a special MAA workshop on 'how to do business with the Italian aerospace industry' on 26 November (see www.midlandsaerospace.org.uk).

Both missions are organised with the support of the excellent UKTI aerospace team in Italy.

■ For details on exhibiting with the MAA, contact emma.burgess@midlandsaerospace.org.uk

**GET INSIDE THE
BIG FOUR EUROPEAN
AEROSPACE MARKETS
WITH THE MAA**



51th INTERNATIONAL PARIS AIR SHOW LE BOURGET | 51^e SALON INTERNATIONAL DE L'AÉRONAUTIQUE ET DE L'ESPACE PARIS LE BOURGET



**AEROSPACE
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Contact emma.burgess@midlandsaerospace.org.uk
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TWENTY YEARS AFTER THE EUROFIGHTER TYPHOON PROTOTYPE FIRST FLEW, MAA MEMBERS ON THE PROGRAMME HAD THE CHANCE TO SEE AT FIRST HAND HOW THEIR WORK HAS BENEFITED THE RAF'S 3(F) SQUADRON AT CONINGSBY IN LINCOLNSHIRE.



The Eurofighter story is well documented, from its uncertain beginning in 1983 as Europe's next generation fighter, the product of a four-way partnership between Britain, Germany, Italy and Spain.

The prototype first flew in 1994 and represented the most advanced military aircraft ever designed in Europe. But it was not without problems, and some critics predicted it would be obsolete by the time it entered service in 2003.

The Typhoon has since proven to be a highly successful combat aircraft, flying in the four core nation air forces, including for the RAF, as well as for Austria and Saudi Arabia. It saw action in Libya in 2011.

The MAA estimates more than half its member companies are involved in the Eurofighter programme, many through contracts with systems manufacturers or service suppliers. It was therefore a rare treat for a number of them to have the opportunity on 17 September to spend a whole day at RAF Coningsby as guests of 3(F) Squadron, one of the RAF's frontline units, to meet and talk to pilots and ground crew about their Typhoons.

Mills CNC's Paul Hooper expressed the feelings of many when he said: "It was amazing from the point of view of those of us in the humble supply chain, to see the end result of the Typhoon programme at the sharp end."

Other members concurred. NHE's

Will Green said: "It is good to have the opportunity to talk direct to the end users and see the fruits of all our efforts."

John Hopkinson of Tekdata Interconnections highlighted the importance of SME-end user communication. "For me," he said, "the direct insight into the users' requirements is invaluable background information that the SME doesn't normally have access to."

This was echoed by Meggitt's Mark Torres who found the visit "most informative and educational to hear at first-hand what the actual users of our products think of them."

MAA chief executive Andrew Mair said further RAF base tours will be considered.

WE ACKNOWLEDGE THE SUPPORT OF THE FOLLOWING MAA MEMBERS AND TYPHOON SUPPLIERS FOR THIS FEATURE:





Above: guests, hosts and the object of their attention in one of the station's hardened hangars.

Below, Wg Cdr I J Townsend MA, officer commanding 3(F) Squadron, accepts an MAA membership certificate from MAA chairman Clive Snowdon.



Pictured at right and above right, members make the most of the occasion, watch a spectacular Typhoon display and talk to squadron air and ground crew about the performance and maintenance of the Typhoon – a unique opportunity for all.



SOME OF THE MIDLANDS COMPANIES ON THE EUROFIGHTER TYPHOON PROGRAMME

Systems companies

Meggitt Aircraft Braking Systems	Nose and main wheels, brakes, skid control equipment and landing gear computer
Rolls-Royce	Major components for EJ200 engine
Rolls-Royce Controls and Data Services	Main engine fuel pump; afterburner fuel control unit; design of metering and control units
UTC Aerospace Systems – Actuation Systems	Leading edge actuation system; air brake actuator
UTC Aerospace Systems – HS Marston Aerospace	Heat exchangers, oil hoses, lightning insulators

Selected specialist suppliers

Aeromet	Fuselage fairing casting
Atlas Composites (Senior Group)	Aircrew night vision goggles
Aluminium Special Products	Parts for Martin-Baker Mark 16 ejector seat
Castlet	Ground support equipment
Cullum Detuners	Hush house (all-weather engine testing facility)
Eaton	Flexible engine fuel inlet duct
GE Measurement and Control Systems (Druck)	Pressure transducer sensors
RMDG (Sigma)	Pipe assemblies for Honeywell high pressure pure air generators that launch ASRAAM missiles
Tekdata	Test benches for Spanish Typhoon programme (via BAE Systems)

MAA surveys show that about 150 other Midlands companies manufacture specialist parts or supply services to support the Typhoon.



FULL CAPABILITIES IN MIDLANDS LABS

NON-DESTRUCTIVE TESTING (NDT) IS A CRITICAL PROCESS IN AEROSPACE MANUFACTURING, ENSURING COMPONENTS COMPLY WITH RIGOROUS STANDARDS AND MEET TOUGH COMMERCIAL CRITERIA. MAA MEMBER CAPABILITIES EXTEND TO THE WHOLE GAMUT OF TECHNIQUES AND PROCESSES.

NDT has been part of the industrial process for well over a century; many of the techniques used in the aerospace industry go back a long way.

Radiography's first NDT application was in 1931 with GE, while the impressively modern sounding magnetic particle inspection (MPI) has an even longer pedigree, first used in 1868 to check cannon barrels for defects.

NDT has come a long way since these beginnings. The modern aerospace industry takes advantage of the latest electronics, physical modelling techniques and safety guidelines to ensure NDT is as accurate and safe as possible.

Modern MPI continues to be an important process for parts containing iron. It involves magnetising the component and covering it with iron filings which are drawn

The modern aerospace industry takes advantage of the latest electronics, physical modelling techniques and safety guidelines to ensure NDT is as accurate and safe as possible.

to where the magnetic field is strongest – around flaws – where they can be detected by visual inspection.

Derby-based NDT Services has MPI capability; aerospace and industrial finishing specialist Ashton and Moore of Birmingham has recently acquired similar

capabilities which complement its other work streams.

Another technique is dye penetrant inspection (DPI), which took its modern form in 1942. DPI involves coating the part being inspected with a dye that seeps into any cracks and flaws without damaging the material. The dye fluoresces under UV light to reveal any defects.

As it can be deployed onsite with a wide variety of component materials, DPI is used by several MAA companies including Acorn Technologies in Nottinghamshire, Ashton and Moore, NDT Services and SL Engineering in Lincolnshire.

Eddy current testing (EDT) was first used for quality control in the aerospace industry in the 1950s. It uses an electromagnetic field to generate electrical 'eddy currents' in the part being inspected. Flaws can be

DESTRUCTIVE TESTING

ADVANCED SYSTEM FOR TESTING COMPOSITES

An advanced system for testing composite materials has been commissioned at Banbury-based MAA member Westmoreland Mechanical Testing and Research (WMTR) as part of the firm's expansion.

The company has upgraded its capabilities so it can produce accurate strain-related results in mechanical testing beyond what is

possible using standard clip-on extensometers and strain gauges.

These additional capabilities covering a variety of composite materials, most notably glass and carbon fibre types, complement WMTR's specialist knowhow in a variety of ferrous, non-ferrous alloys, thermoset polymers, thermoplastics, fibres, fillers and adhesives.

Among the benefits of the new iMetrum set-up are speed and efficiency, targeted analysis of test samples, instant video feedback, flexibility in gauge length and positioning and the ability to integrate the optical system with the test frame.

Business Development Manager Vinay Vaghela said the new capabilities maintain WMTR's position as a leading

independent testing facility in Europe. "We work with most OEMs, often in a programme's development phase," he said. "We support their supply chains and sub-tier suppliers throughout the programme's life."

■ **WMTR's new laboratory is due to open early in the first quarter of 2015 after a phased move from the company's current site.**



Commercial labs such as those used by Wallwork Cambridge use equipment adhering to the latest scientific standards.

and subsurface irregularities and create detailed images of component interiors. Both EDT and ultrasound techniques are used by NDT Services.

Detailed internal images of components is also possible with radiography, which is similar to the medical X-ray. It uses high energy radiation and radiographic film to produce images of parts which will show any defect. NDT Services and SL Engineering are among MAA members which offer radiography.

NDT is intertwined with materials testing and materials science. Many commercial labs serving the aerospace industry use equipment adhering to the latest scientific standards to implement NDT processes. Materials testing laboratories used by the specialist coatings company Wallwork Cambridge for surface profilometry, microscopy and spectroscopy, for instance, are equipped to a standard equal to that of materials science departments at universities.

The Midlands aerospace industry values good quality science as much as academia.

detected by the way they disrupt the eddy currents. EDT can be used onsite with complex shapes which it will not damage as it is a contactless technique.

Another contactless technique is ultrasonic testing, which first became a viable NDT process in the 1970s. Using the same principles as sonar, the testing device targets a component with ultrasonic waves. Flaws reflect the sound. Ultrasonic testing can detect both surface

Materials testing laboratories... are equipped to a standard equal to that of materials science departments at universities.

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SINGAPORE IS TODAY THE FOCAL POINT FOR UK COMPANIES EXPANDING INTO THE ASIA REGION WITH ASPIRATIONS TO CAPITALISE ON THE DEMAND FOR NEW AIRCRAFT IN THE WORLD'S FASTEST-GROWING ECONOMIES.

↘ Businesses of all sizes today operate in an era of globalisation that has the potential to supply a world of opportunities. Aerospace by its very nature is an international industry and the globalisation of the commercial airline sector's customer base has become particularly apparent. Last year, carriers from the Asia Pacific region carried a combined total of 220 million international passengers and routes within or connected to China will be the single largest driver of growth over the next four years. The growth in passenger demand is leading to the development of a larger global fleet, which is anticipated to double in size over the next two decades. Asia Pacific's fleet alone is expected to triple to about 13,500 aircraft by 2031, and many OEMs are looking to strengthen their supply chain in the region.

At the centre of this opportunity is Singapore, which is now firmly positioned as a global hub for the aerospace industry. In fact Singapore's aerospace sector has grown, on average, 10 per cent per annum in the last 20 years, hitting a record output of £4.3 billion in 2013.

Singapore has one of Asia's most complete aerospace supply chains and sector ecosystem. There are over 100 aerospace companies operating in the country, employing more than 19,000 skilled aerospace workers. They are supported by a world class infrastructure, such as Seletar Aerospace Park, a 320 hectare hub that creates synergies

Asia Pacific's fleet expected to triple to about

13,500

aircraft by 2031



Aerospace businesses of all sizes in the Midlands can also be a part of Asia's aviation hub profiting from the increasing demand in the region.

through supply chain integration to support companies' manufacturing and research and development operations.

To meet growing demand, the Government of Singapore is funding further development of Seletar Aerospace Park, which will create an additional 60 hectares of space for aerospace companies when completed. Two new terminals and a third runway will also be added to Changi Airport by the mid-2020's, which will double its capacity to serve 135 million passengers annually. The airport currently serves about 100 international airlines flying to over 300 cities in 70 countries and territories worldwide and handling approximately 6,500 flights every week with over 53 million passengers a year.

To showcase Singapore's position as Asia's aviation hub, it hosts the bi-annual Singapore Airshow, which is Asia's largest aerospace event. At the 2014 airshow £20 billion worth of deals were announced with 1018 participating companies and 45,152 trade attendees from over 125 countries. It also hosted the first ever joint trade mission from UK and Ireland.

Singapore is today the focal point for UK companies expanding into the Asia region with aspirations to capitalise on the demand for new aircraft in the world's fastest-growing economies. Companies such as Rolls-Royce are seizing the opportunity and investing in Singapore, making it an integral partner within their global supply chain. The company has invested over £350 million into their Seletar Campus, which is now one of their most modern and innovative manufacturing, training and research facility.

Aerospace businesses of all sizes in the Midlands can also be a part of Asia's aviation hub profiting from the increasing demand in the region. The Singapore Economic Development Board will work hand in hand with any company that is interested in taking advantage of this international opportunity.

Beh Kian Teik

International Director for Europe,
Singapore Economic Development Board

Two new terminals and a third runway will also be added to Changi Airport by the mid-2020's, which will double its capacity to serve 135 million passengers annually.

HIDDEN TREASURE

INTELLECTUAL PROPERTY (IP) CAN BE A REVENUE STREAM BUT FOR MANY IT REMAINS AN ELUSIVE CONCEPT. HOW DO YOU IDENTIFY AND PROTECT YOUR IP? LAWYER AND MAA MEMBER HELEN BRIANT OFFERS ADVICE.



Many SMEs consider research and development (R&D) something that big companies do, yet happily use their years of experience and superb know-how to solve problems for their customers.

Who profits from this expertise? Who has the right to exploit the ever-growing pool of skills at the supplier?

"People often miss what IP is and the value of it," says Helen Briant of the law firm DWF. "It's not only patents and trademarks. There's all the 'soft IP' around copyright, confidential information and design rights that can be involved in product development that an engineering business will do for its client and 'gift' to them."

She said UK businesses lose something

like £9bn of IP a year that way, or when employees leave and take IP with them.

While there's little point in protecting something that has no market, it can be difficult to predict where someone else will see an opportunity for exploitation.

Protecting IP can be relatively straightforward and inexpensive in the early stages of developing a product or process. If you are sharing ideas with a third party, a non-disclosure agreement is advisable. A business can have a standard non-disclosure agreement that it can adapt itself.

The next step commercially is agreeing to trade with someone. "At this point you need detailed agreements that refer

to where ownership of IP remains."

Businesses also need to look at their policies and procedures for staff. Robust policies and employment contracts can help protect your IP and avoid costly litigation. "I often see instances where businesses should have protected themselves better," said Helen. "If possible, prevention is better than cure."

→ Helen Briant is Director, Litigation in the Commercial Litigation department of the law firm DWF LLP.

DWF and the MAA present a workshop on 3 December 2014 about how to manage risk and business emergencies. See midlandsaerospace.org.uk

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PROFILE

VIEW FROM THE MAA BOARDROOM

“I enjoy feeling part of a very large engineering project”

David Danger, Managing Director of UTC Aerospace Systems company HS Marston, turned a fascination with aircraft into a career.

WHEN DID YOU GET INTERESTED IN AEROSPACE?

I used to go to Heathrow on school holidays to watch planes. In those days you could stand on top of the carpark and other buildings to watch them take off and land. Living in London, you would see Concorde fly over. Everyone looked up.

I studied engineering at Cambridge and then worked in the automotive industry for about 12 years. My first aerospace job was with GKN Aerospace in their design services business. I went back into automotive, then a few years ago got the opportunity to return to aerospace with HS Marston.

WHAT IS IT ABOUT THE AEROSPACE INDUSTRY THAT YOU FIND APPEALING?

As MD, I get involved in all aspects of the business. The technical side interests me, as does the complexity and variety of the industry. I enjoy feeling part of a very large engineering project, even though we're making things that are a relatively small part of it. I still look up at aircraft with fascination when they take off.

WHERE DO YOU SEE THE INFLUENCE OF AUTOMOTIVE IN AEROSPACE?

It's good that aerospace is embracing things that automotive does well, such as reduction in inventory, lead times and costs and ensuring your people are involved at all levels in continuous improvement. When I was in automotive, Japanese car companies were revolutionising an approach to manufacturing that aerospace is following. Although aerospace has always had a high quality threshold, the industry has taken techniques from automotive to ensure quality all the way through the manufacturing process.



HOW IMPORTANT IS IT TO DEVELOP YOUR OWN IP?

It's essential for companies like us. You have to be competitive in a global industry. We can't always compete on cost because of where we're located, therefore we have to offer other benefits. The designs of aircraft are highly optimised for performance, particularly in regard to fuel consumption, so if we can supply products that, for instance, have reduced weight and volume, it's a huge benefit to our customers. That's what gives us competitive advantage.

WHY DO YOU TAKE PART IN PROGRAMMES SUCH AS ATEP AND NATEP?

Their advantage to us is the way they bring us together with our suppliers. Any successes we've had in these programmes have been in partnership with our suppliers. They have facilitated that sort of working. Could we achieve the same success without the backing of NATEP?

“[ATEP and NATEP] bring us together with our suppliers. Any successes we've had in these programmes have been in partnership with our suppliers.”

Possibly, but by making such partnerships easier, the programme makes it more likely that it will be successful.

The way we approach it, we first identify what the end customer needs, then partner with eligible suppliers. With the size of company we are, the funding goes to our supply chain.

WHAT MOTIVATED YOU TO BECOME A DIRECTOR OF THE MAA?

Aerospace is a big and diverse industry and I'm interested in working with people in other parts of it. I personally find that fulfilling. It's also an opportunity to put something back into the wider community.

IF YOU WEREN'T IN AEROSPACE, WHERE MIGHT YOU BE TODAY?

I would want to be involved in a high-tech industry, something that provided technical challenges and opportunities for development. I could have stayed in automotive; electronic, marine or other forms of transport would provide similar challenges. I'd get bored quickly on a desert island.



www.utcaerospacesystems.com

FOR YOUR DIARY

ONLINE: WWW.MIDLANDSAEROSPACE.ORG.UK/EVENTS

CALENDAR

AERO ENGINEERING 2014

NEC, Birmingham,
11 November 2014

Visit the Midlands Aerospace Alliance NATEP team at Stand B51. Come and talk to your regional alliance about the support you could be receiving.

TRADE MISSION TO ITALY

February 2015

MAA/UKTI trade mission to the aerospace industry of southern Italy, focusing on the Campania and Puglia aerospace clusters. 1-to-1 meetings with leading Italian aerospace customers.

PARIS AIRSHOW 2015

Paris Le Bourget, 15-21 June

Exhibit with the MAA at one of the world's biggest and most important aerospace trade shows: a key event for the industry.

MANAGING RISK AND BUSINESS EMERGENCIES

3 December 2014

Join MAA/DWF event to help you make sure you have the right processes in place.

3RD ANNUAL MAA CONFERENCE

Wolverhampton, 26 March 2015

This year's conference, being held in Wolverhampton for the first time, focuses on regional and local industry and its role in global aerospace.



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 Controls and Data Services, 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.

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F: +44 (0) 2476 430251
E: info@midlandsaerospace.org.uk

NEW MEMBERS

The MAA welcomes the following new members

42 TECHNOLOGY

St Ives,
Cambridgeshire
Novel high throughput manufacturing processes.

ADVANCED MANUFACTURING UTILISATION

Brierly Hill, West Midlands
Precision manufacturing services.

AEB (INTERNATIONAL) LTD

Leamington Spa,
Warwickshire
IT solutions.

ALPHA ADHESIVES & SEALANTS

Stourport-on-Severn,
Worcestershire
Manufacture of adhesives, sealants and coatings.

AXISCADES

Enderby,
Leicestershire
Design consultancy.

CFS AEROPRODUCTS

Coventry
Component overhaul.

CIMCOOL EUROPE BV

Desford,
Leicestershire
Industrial networking fluids supply.

DENIOS

Newport, Shropshire
Solutions for environmental protection and work safety.

DMS PLASTICS

Ludlow, Shropshire
Vacuum form, machined and assembled components.

DYNAMIC METALS

Hemel Hempstead,
Hertfordshire
Titanium, nickel alloy, stainless steel, alloy steel and other exotic materials.

FTT (UK)

Derby
Design of gas turbine components and test rigs.

FUTURE METALS UK

Milton Keynes,
Buckinghamshire
Supplier of aerospace tubing.

GEFCO

Coventry
Global logistics solutions.

IN-COMM TRAINING & BUSINESS SERVICES

Aldridge, West Midlands
Development programmes, training services academy, apprentice programmes.

POWDERTECH (BICESTER)

Bicester, Oxfordshire
Lightweight alloy coatings and pre-treatment.

RAF 3(F) SQUADRON

Coningsby,
Lincolnshire
Front-line Typhoon fighter squadron.

VEALE WASBROUGH VIZARDS

Birmingham
Law firm.

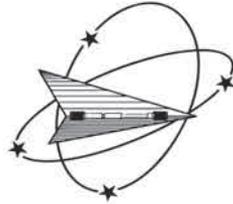
For information about membership in the MAA, go to our website: midlandsaerospace.org.uk or contact the MAA office.



www.midlandsaerospace.org.uk/join



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UK test Laboratory based in Banbury, Oxfordshire - **USA** test Laboratory based in Youngstown, Pittsburgh, Pa.