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REVIEW

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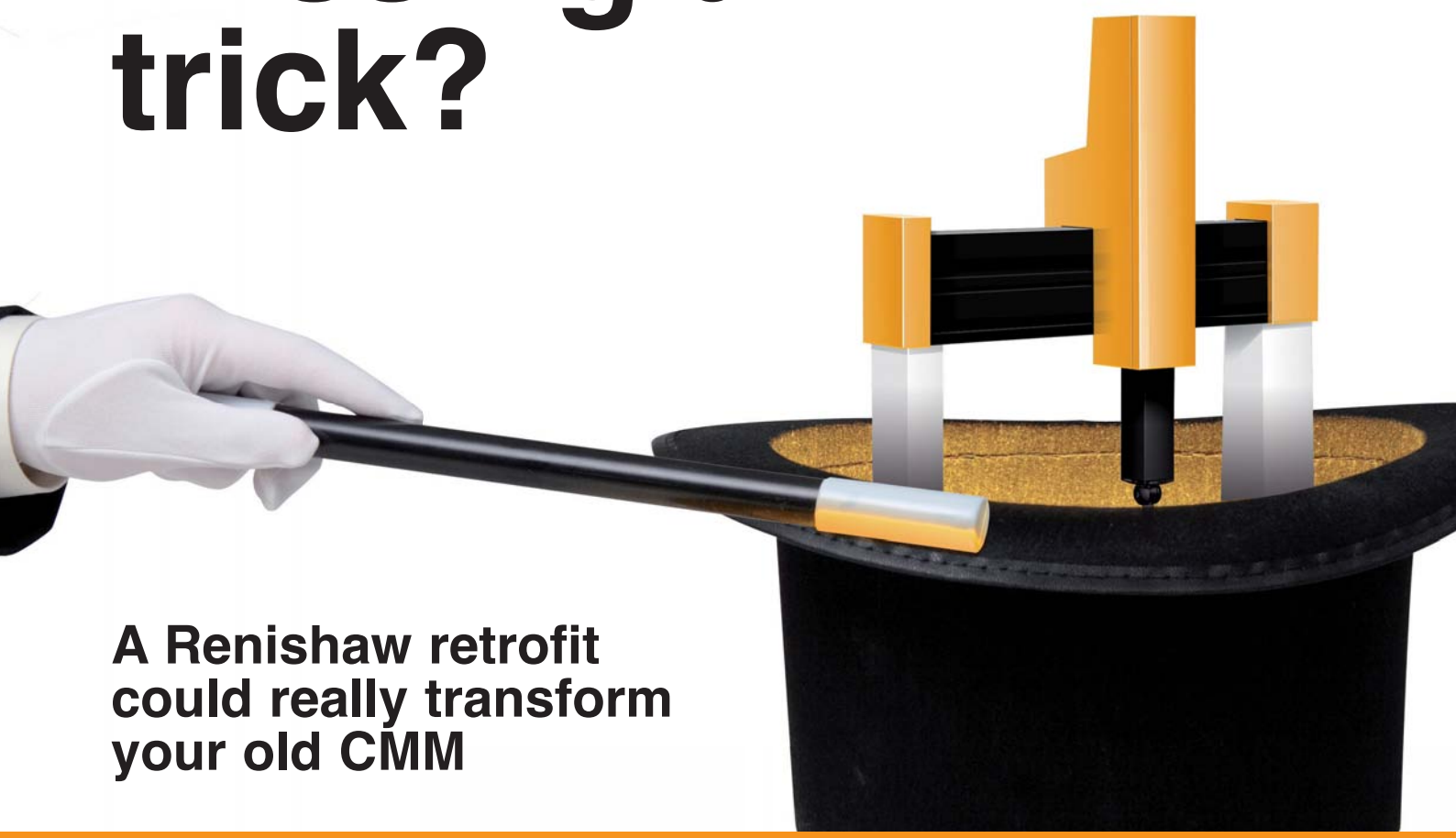

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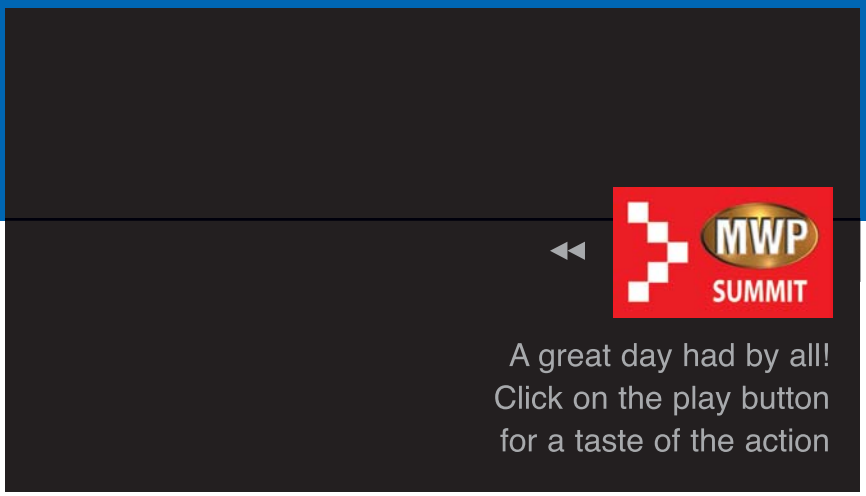
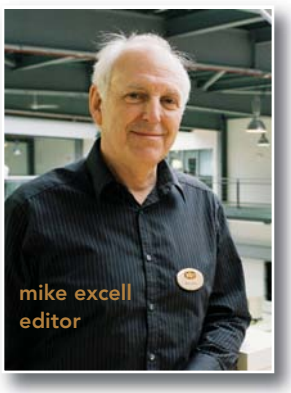


Keeping the faith

The thought of deferring the fourth MWP Summit, in view of market conditions, crossed our minds - for about a nano-second. We believed it was right to maintain some continuity; the need to constantly examine and discuss every facet of what constitutes sustainable manufacturing remains as pressing as ever.

On reflection our faith was justified, and I'd like to use this space to express the thanks of the MWP team to everyone who took part, in whatever way: speakers, sponsors, and of course delegates - we were delighted with the turnout on the day, and the feedback we've had is that it was time well spent. Thanks go out also to the Advanced Manufacturing Park and Yorkshire Forward for their support which included the use of the splendid Technology Centre; to the AMRC for working with us to put together a wonderfully varied speaker programme, and for making available to the delegates its award-winning MANTRA mobile technology demonstration unit. This EPSRC-funded initiative takes the latest manufacturing technology equipment and production engineering techniques on the road.

Of course, we believe that for delegates it was about more than just the day - enjoyable though it was. Our aim was to entertain and inform, but also to ensure that all delegates would take away at least one business-improving idea, or make one new and valuable contact, that would justify a day away from the office or shopfloor. If you came to the Summit, we'd be interested in hearing your views on the content and venue (because we're looking to improve, and we are already planning the next event) - and also getting feedback on any positive ways you've been able to apply what you learned.


mike excell
editor

Finally, while none of us are under any illusions about the challenges ahead, most of the companies I've spoken to or visited over the past few weeks are in good shape, are realistic about what lies ahead and, it seems, have the stomach for the fight. May I wish all our readers - in print and online - a peaceful and prosperous 2010.

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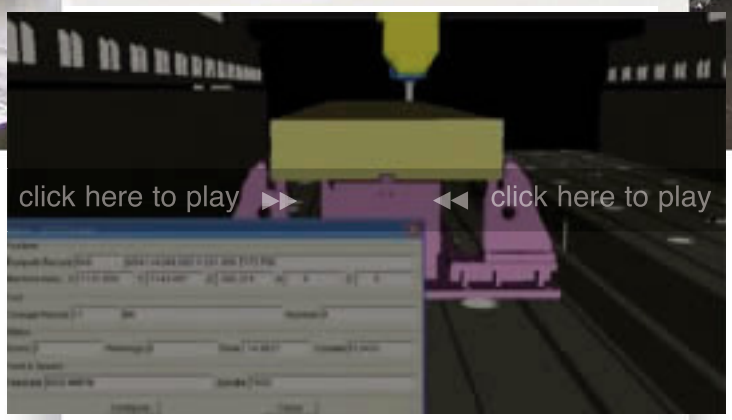

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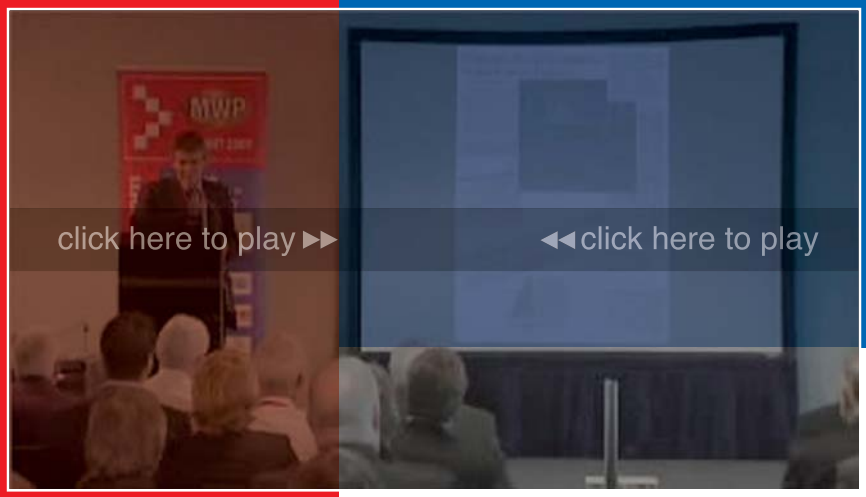

Adrian Allen
- Commercial Director, AMRC

THE ADVANCED MANUFACTURING PARK - PAST, PRESENT AND FUTURE

The background to the creation and purpose of the Advanced Manufacturing Park and what it means for the future of UK manufacturing.

Adrian Allen was born in Sheffield and has dedicated the last decade to helping to regenerate and promote his home region and its university. Through working in the aerospace industry for more than 20 years, including owning and managing a Sheffield-based engineering consultancy firm, he developed a deep knowledge and understanding of the sector's key drivers.

He used this knowledge to persuade Boeing and the University of Sheffield to collaborate and create The Advanced Manufacturing Research Centre (AMRC), a £60 million partnership that applies scientific theory to manufacturing principles to create value-added solutions for its partners. Officially opened in 2004, the centre is tangible evidence of what is possible when industry, academia and government cooperate to deliver pragmatic economic, educational and environmental solutions benefiting everyone.

He reflected on the origins of the AMRC, and the AMP - 'How did we persuade Boeing to share our vision and commit millions of pounds?' - and recalled how he and Keith Ridgway had picked up on the evolving philosophy at Boeing. 'They saw that if they were to compete through their products, just like anybody else, they had to make products that were better, quicker, cheaper, safer, greener - something that's beneficial for the future, and this is the key.'

Allen and Ridgway recognised that an important part of Boeing's route to accomplishing this was to open centres of excellence. 'They articulated twelve key areas in their business, and in those days advanced machining was one of these.' The pitch to Boeing, a multinational company turning over a billion dollars a week, was based on expertise, energy, experience and enthusiasm We're proud - and the nation should be proud - that we were the first such centre of excellence that Boeing invested in.'

This then, was ostensibly the first step for the AMP - establishing a research base with the capacity, capability and commitment to design and demonstrate new means, methodologies, tools and techniques to create sustainable wealth for all involved; and thus was born the anchor tenant on the Park, the AMRC with Boeing. It now comprises the Rolls Royce Factory of the Future, the Composites Centre, Centre of Excellence in Customised Assembly, and the Innovative Metals Processing Centre.

However, Adrian Allen put this into context by explaining how the Park had commenced via a clean-up of the extensive contamination and derelection of a site which had seen 200 years of mining, with the aim of restoring it for future development. Yorkshire, he observed, had been affected by high unemployment as traditional industries declined, but retained world class universities and technical institutions alongside expertise in manufacturing and materials.

In the broadest sense, the aim for the AMP has been to create a world-class manufacturing technology park, focused on metals and materials, which will provide a lasting legacy for the region. Its activities focus on aerospace, defence, energy/environment, transport/motorsport, medical and sport-related applications of advanced manufacturing technology.

Other residents on the Park now include Castings Technology International. This World leader in metal casting technology specialises in difficult to cast lightweight alloys, notably for high technology applications in sectors such as aerospace, defence, Formula 1.

Nearby is TWI's world centre for materials joining and surface engineering technology. This is the only single source of expertise in every aspect of joining technology for engineering materials - metals, plastics, ceramics, composites and electronic assemblies.

The AMP Technology Centre, venue for the MWP 2009 Summit, is the strategic hub of the Park. Office and workshop space is available, it provides incubation facilities, and support services for small innovative and knowledge based businesses. Clients include Bromley Technology, Fripp Design, Rolls Royce (Pro Laser), Life-IC and Polymer Techniques, and latest developments include the Environmental Energy Wing.

As for AMRC, an extension is planned to accommodate the next phase of development, and the mobile advanced manufacturing technology demonstrator MANTRA is now active 'in the field' - with plans for its appearance at MACH 2010.

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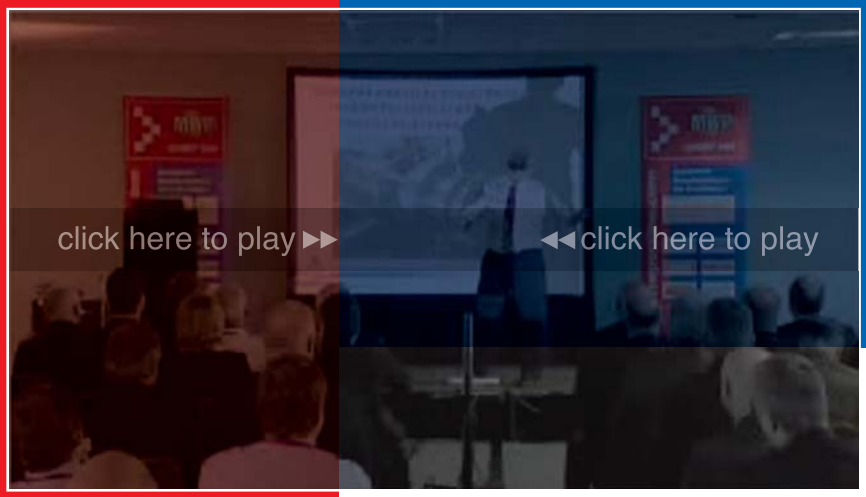

Chris Rea
- Group Managing Director, AESSEAL

BUSINESS STRATEGIES FOR SUCCESS

The leader of one of the UK's most successful manufacturers shares his insights and opinions on strategies for success in a challenging business environment.

Chris Rea was born in Northern Ireland in 1954, and is the Managing Director of AESSEAL, the UK's last remaining mechanical seal manufacturer (also the world's 4th largest). He graduated from Queens University Belfast in 1975 with an Honours Degree in Economics and has spent 30 years growing the business, which had 8 people in 1979. The Group nowadays has 1240 employees, and operates from 73 locations in 34 countries. Sales were £78.3M Sterling in 2008 with 80% exported to 93 countries.

AESSEAL has won 11 Queen's Awards for Enterprise including 4 in 2009. In 2006 it was judged to be 'Best Manufacturer in the UK' by the Institution of Mechanical Engineers; and The British Chambers of Commerce honoured the company with the accolade of 'The Best Chamber Business in the UK'.

Chris Rea was the inaugural winner of the 'Gold Medal for Excellence in Manufacturing' presented by the Company of Cutlers in Hallamshire in 2002. Other business awards include Ernst & Young Entrepreneur of the Year Northern Region Overall Winner and Business Leader of the Year by The Yorkshire Post, both in 2007.

AESSEAL is a very successful business; what lies behind this? 'We find out what our customers want' said Chris Rea; 'we aim to deliver in a time frame that is quicker than our competitors, and at a price that they consider to be value for money.'

Key themes in his presentation to the MWP Summit included the importance of people within a business, having a clear vision of business objectives, persistence in pursuing worthwhile opportunities, and making sure that what you are providing matches customers expectations.

'In your area of business ask yourself what is your vision, how can you get colleagues to buy into it' he said - and this, he stressed, applied to cashflow, people, production facilities and premises, product development, raising productivity. 'On any business strategy at every level - what is your vision? Ask what have you got to do and in what order, to be successful. Do you have the right products; where are you - and where do you want to be – on the technology ladder?' He suggested that there's not much future being at the bottom of the ladder, and that a 'low cost' approach was no strategy for sustainability - because competing low cost suppliers often have no understanding of their real costs.

Transferring that vision to the workforce is a key element in any continuous improvement philosophy, he said: 'I'm a great believer in continuous improvement- you can always do things better. But while many organisations talk about continuous improvement, about servicing the customer, but they don't do it, they don't believe in it.' He suggested that for many companies it was a 'toy they might pick up and play with - trying a few initiatives such as getting the workforce in over the weekend to paint a couple of machines.

'I know I'm exaggerating – but I think really that it's too late to expect that we are going to get any government help when we've suffered 40 years of sometimes slightly benign neglect but often complete indifference. It's about self-help – and the only way we are going to have sustainable businesses is if we improve quicker than the competition. Any business you're in, if you do what you say you are going to do, and you do it better and more predictably than the people you are competing with – you'll take some of their market share.

'But it all comes from the customers. Have you customers in sectors that are in decline or are growing; are you finding new markets to replace those you are going to lose?' His market globally, he explained, was dominated by four companies. 'So we are going to find the customers who want to deal with us; we are going to find the sectors who want what we've got to offer; we're going to use guerilla tactics when it's appropriate, we're going to put a small platoon in when there seems to be an opportunity to win some market share – and once in a while we are going to put our army into battle and we are going to get a $3 million contract – but if it proves to be the wrong battle we are going to run away quickly, keep our people intact to fight another battle.

'One of the things that's made our business sustainable is perseverance' he said, recalling for example how AESSEAL had worked itself into a position to service the Algerian oil and gas industry after two competitors had been effectively 'kicked out'. 'We got an order for 800000 euros, but it was one of the most horrible, one-sided contracts you've ever seen.' Problems included insufficient information so the job had to be over-engineered; and AESSEAL staff were effectively marooned in the desert for several weeks. 'But now they've given us $2million worth of orders – so persevere!'

“By dramatically reducing machining time we have also **cut carbon emissions**”

Mark O’Rourke - Managing Director at H.Mullins

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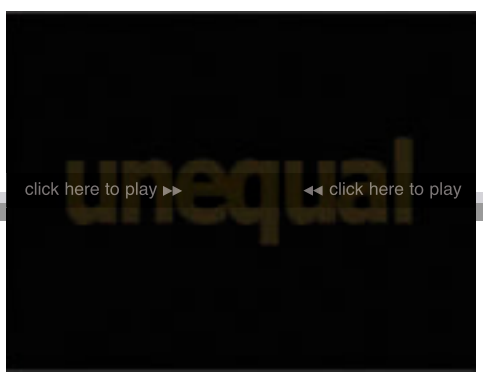

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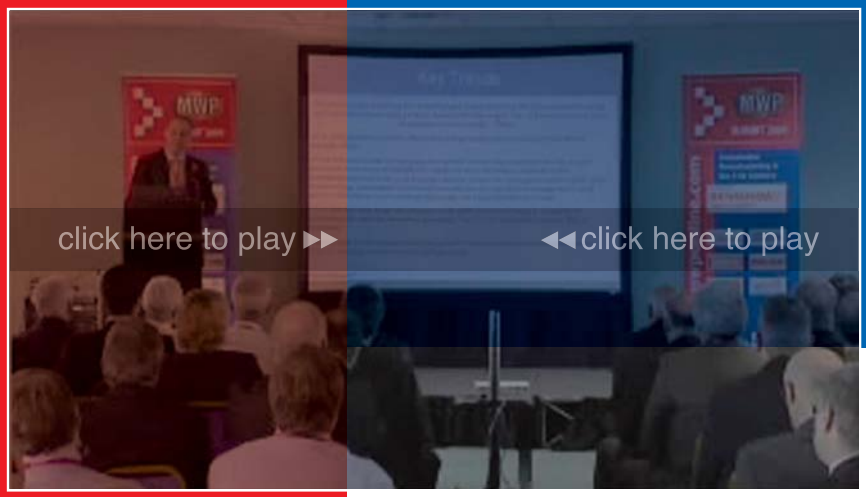
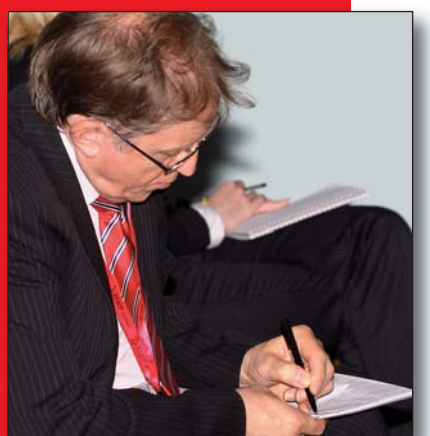


Nick Guttridge
- EVP Business Development, Gardner Group

JOINING THE HIGH FLYERS



What you need to know if you aspire to become a critical link in the continually changing aerospace industry supply chain.

Nick Guttridge qualified as a Licensed Aeronautical Engineer in 1979 following an Airframe/Engine Apprenticeship with British Caledonian Airways. He joined Fairey Hydraulics in 1989 as Business Development Director to drive the 'turnaround' of the company's market position, and was a member of the MBO team that acquired the business from Fairey Group in 1998. He played a pivotal role in the successful sale of the business (renamed Claverham) to Hamilton Sundstrand (HS) in 2001 and became Director of European Mergers and Acquisitions for HS at that time.

He joined Gardner in 2002 to take part in the 2003 MBO of the business that created Gardner Group Ltd. Nick Guttridge is also on the Board of the Society of British Aerospace Companies (now merged with the Defence Manufacturers Association and The Police and Public Security Association to form ADS), and is Chairman of the SBAC Toulouse Bureau. He believes that companies in the UK manufacturing supply chain need to become players of scale on a global basis.

He addressed the changes that he has seen in the sector since he last spoke to the MWP Summit four years ago, describing the changing landscape in the aerospace metallic manufacturing supply chain and how this is being further influenced and shaped by the current global economic situation. The trend continues for Prime Contractors and major Tier 1 OEMs to seek fewer larger suppliers in the 'details' manufacturing sector with new players being formed as prime contractors divest themselves of such non core manufacturing and Tier 1's acquire similar elements as they seek to move further up the supply chain. This is putting further pressure on the need for the smaller manufacturing enterprises to broaden their offering, gain scale such that they can become a more integrated long term risk sharing partner to their customers, and extend their marketing reach beyond the UK.

Commenting on the current state of the market, Nick Guttridge observed that military demand is generally flat; demand for business jets is down by typically 50%, and for regional jets down 30%. Alongside this, programme ramp up of large civil aircraft has slowed down, with new starts such as B787 and A400M significantly delayed. He believed that 2010 will be slightly worse than 2009 in terms of aircraft build.

Historically, he pointed out, air traffic growth has followed that of GDP, with emerging nations representing the largest area of growth going forward. Airbus has no delivery slots available until 2012, and air traffic has doubled every 15 years since the dawn of the jet age. Freight and passenger traffic downward trends, he said, have reversed and are starting to climb again.

Key supply chain trends

Customers are looking for fewer larger players in the 'details' manufacturing sector in the same way as they have with the major Tier 1 aerostructure and equipment community. This reflects the reality that in a truly global industry there are a few large players at each tier of the supply chain. The scale-related benefits allow the supplier to risk-share, assume cash responsibility for material and inventory, resource the establishment of low cost supply chains, invest in new generation plant and technology, establish functional excellence in logistics management, and above all deliver cost savings through the aggregation process. The market has been too fragmented with very few players capable of entering the race to remain a growing Tier 1 or to become a Super Tier 2 supplier; but new players are rapidly emerging as Primes sell off non core operations.

A future Tier 1/Super Tier 2 needs to offer an aerospace details total manufacturing service. This includes a broad technical and manufacturing capability enabling the supplier to manage large packages of multiple metallic commodities. Broadly, company characteristics will embrace the ability if required to move up the supply chain; delivery performance, responsiveness, creativity, value for money, scale, competitiveness, vision; dedicated project teams for major outsourcing and re-sourcing projects; and cost savings based upon its commodity aggregation and low cost sourcing experience

Companies with the starting scale to enter the race, he said, should move quickly towards meeting the customers' immediate needs. A company without this strength has a number of possible strategy options: move quickly to specialise in a particular commodity - small 'Jacks of all Trades' will not survive; align within the supply chain of the emerging Tier 1/Super Tier 2 companies; join forces with other small companies in the same sector but make sure ownership is common and decision making is ultimately unilateral – networks/clusters with uncommon ownerships don't tend to work adequately; reverse into one of the emerging Tier1/Super Tier 2 companies.

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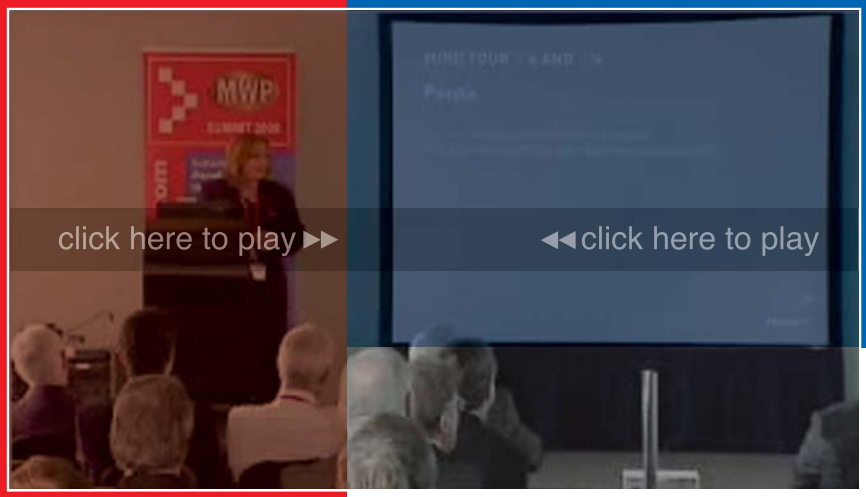

Andrea Rodney
- Director, Hone-All Precision

TURNING ADVERSITY TO ADVANTAGE

How you can sustain, reinforce and develop your key business strengths during tough times; perspectives from one of the UK's most go-ahead engineering subcontractors.

Andrea Rodney believes that good business is achieved by implementing effective communication, excellent team work, embracing fresh perspectives, innovating at every level and finding enjoyment in a challenge. She gave a brief overview of how a small engineering company overcame the obstacles associated with growth; and with the assistance and co-operation of its team, turned these obstacles into an opportunity for improvement throughout every level. This included expansion, refurbishment, training and process improvements throughout to ensure that the customer experience is the very best that a supplier can offer. The presentation combines the story of Hone-All's journey with a little guidance on how companies can themselves identify the issues, address them and find the way forward to a brighter, more efficient and successful future.

Hone-All was formed as a sub-contract honing company by Colin Rodney in 1979. In 1996 the firm purchased and refurbished 8000 sq ft factory, and eight years later rented a satellite unit to accommodate more work - but was soon once again operating at full capacity. 'Our growth became our biggest barrier' recalled Andrea Rodney.

She then explained how the company had analysed and confronted the implications of this shortage of space. The knock-on effects included inefficiency, inability to deliver, failure to communicate, customer dissatisfaction, inability to respond - and loss of confidence. The need to remove the barriers prompted a number of initiatives 'which we agreed as a team'. The main steps included the purchase of new premises, and planning a bright and well ventilated facility. Overall strategy embraced lean manufacturing principles and methods throughout the factory, and increasing capacity in peak sections; existing equipment was refurbished and upgraded. The company assigned a dedicated customer relationship manager, improved its communication systems, and reviewed and streamlined all processes.

'All this was achieved within 12 months - and our customers seem to think it was all worthwhile' she reflected, giving two examples of customer testimonials: 'From quotation to delivery, every aspect was dealt with promptness and professionalism' (Andy Swain, Metaltec); 'We find you to be a first rate supplier; our work requires a great deal of skill and technical ability and you achieve and exceed our requirements. You have shown us honesty and an excellent working attitude towards our sound business relationship. Long may it continue' (Onaki Campo, QStar Precision).

Andrea Rodney expanded on this with the help of a simple aide-memoire which Hone-All employed to cover all the bases, and which she described as 'minding your Ps and Qs' . Essentially this meant addressing 'people, place, process, product, profile' - and asking the right questions and implementing the right actions. 'Do you understand the people who are key to running your business successfully? Your team - listen to them, learn from them, lead them but most importantly, inspire them. Communicate and co-operate with your suppliers and partners to guarantee that they understand your needs. As for your customers, make sure you understand, agree and deliver exactly what they need to provide excellent service and real value for money.'

The issue of 'place' raised a number of key questions, she suggested. 'Do you have the right facilities, equipment and environment to enable your people to deliver? Does the environment encourage best practice at every stage? Do you have the machines and equipment to deliver the job - right first time, every time? Do your facilities and equipment inspire immediate confidence?

It was important she said to challenge traditions when looking at processes and products: 'Are you consistently reviewing your processes to ensure your business operates efficiently and profitably? Are you making the best use of available space? Is equipment utilised fully? Are you still doing things they way they have always been done? Are your products manufactured to the highest quality standards, within the shortest lead times In the most efficient manner - and at a cost which represents great value for money?'

As for profile, this had implications for sales and marketing activities: 'How well is all of this communicated to your customers? You should stay in touch with your customers, contact dormant accounts, and research and contact potential customers on an ongoing basis. Send regular newsletters or publish press releases, and attend relevant industry trade shows and networking events.' It was also important, she said, to have a simple but strong logo; stylish, uniform documentation; and a professional website.

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David Heck
- Associate Technical Fellow: Manufacturing Technology, Metallic Processes, Boeing Research & Technology

THE RIGHT STUFF FOR AIRFRAMES

Modern airframes demand a mix of advanced alloys and composites - a marriage made in heaven? How will these two classes of materials coexist? And what are the implications for suppliers to the sector?

David Heck is an Associate Technical Fellow in Airframe Design Engineering in Boeing Research and Technology's Manufacturing Technology - Metallic Processes team. He has 27 years of experience in the aerospace field and has designed numerous metallic and composite airframe components on a variety of programmes, including the F-15, AV-8, YF-23, A-12 and F/A-18 E/F.

He specialises in developing applications for new metallic processes such as linear and rotary friction welding, friction stir welding and friction stir processing, advanced casting methods, metal injection moulding, additive manufacturing, advanced sheet forming, and advanced milling methods to reduce airframe cost and weight. He routinely coordinates and leads efforts involving BR&T's Advanced Composites, Advanced Assembly and Additive Manufacturing teams, and has recently completed a $14 million US Navy ManTech program demonstrating these technologies. He has transitioned many of these technologies onto active Boeing products including the F-15, F/A-18E/F/G, JDAM, SDB, 747-8, 787-8 & -9, as well as several proprietary projects.

David Heck is also very active in international R&D. He is Boeing's Technical Coordinator for the Advanced Forming Research Centre with the University of Strathclyde in Glasgow; and he is highly involved in the Advanced Manufacturing Research Centre in Sheffield, and serves as Boeing's Principal Investigator for the Innovative Metals Processing Centre. He advises researchers in the AMRC's Composite Centre, Assembly Centre and Process Technology (machining) Group and has been active in bringing new technologies and new partners to the AMRC. He also has several R&D programmes in the Netherlands and Sweden.

His presentation dealt with the fact that modern airframes have come full circle, from the original mixture of metal and composites used in the Wright Flyer to the modern combinations in commercial and military aircraft. These materials are in constant competition, each advancing to outperform the other's capability. These combinations are therefore continually changing and present a need for constant innovation in manufacturing technology and re-application into the design of new airframe components.

This has been seen in the design of Boeing's 787. With its large amounts of carbon-fibre composites and increased use of titanium, including new alloys, the need for dramatic improvements in manufacturing technology is critical. Using the manufacturing methods of 2004, there would not be enough milling machines in the world to make the titanium parts. And clearly there were not enough autoclaves for the composite structures.

He began by looking at historical trends in aircraft build, and went on to compare the benefits and disadvantages of composites and metallic materials for aerostructures - covering the effect of physical properties in service such as density, strength, 'brittleness', as well as the characteristics which determine methods of manufacture of parts and assemblies. For example, in discussing the way components are joined, he acknowledged that the bonded assemblies which characterise composite structures allowed great flexibility; but he also suggested that the real weight benefits of composite use were perhaps less clear cut when one considered the weight of fasteners (eg steel bolts as opposed to aluminium rivets) that were sometimes needed. The challenge, therefore, was to find the right mixture of materials for a particular airframe; to aim for the lowest density which is permitted by the geometry of the parts and the anticipated loads.

He gave numerous examples of current practice in use of both metals and composites, and of combinations of the two, looking at issues such as fatigue, where the right blend of materials can bring benefits. As for the future, he explained that Boeing was looking at new laminates and new alloys for use in hybrid structures, which he considered was the best way forward. 'Where's a nice mixture? We think hybrids are interesting'. Broadly this approach would deliver long life at reasonable cost. The metallic element would deliver high strength in bending and bearing damage-resistant structures, a good blend of corrosion resistance on the exterior and strength on the interior; and a long life which reduces the necessity of inspections, something which is important to the customers.

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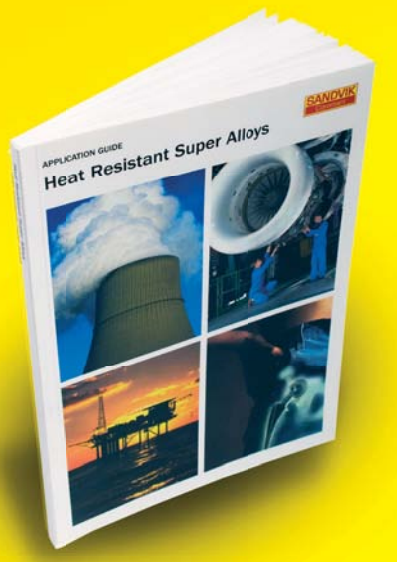

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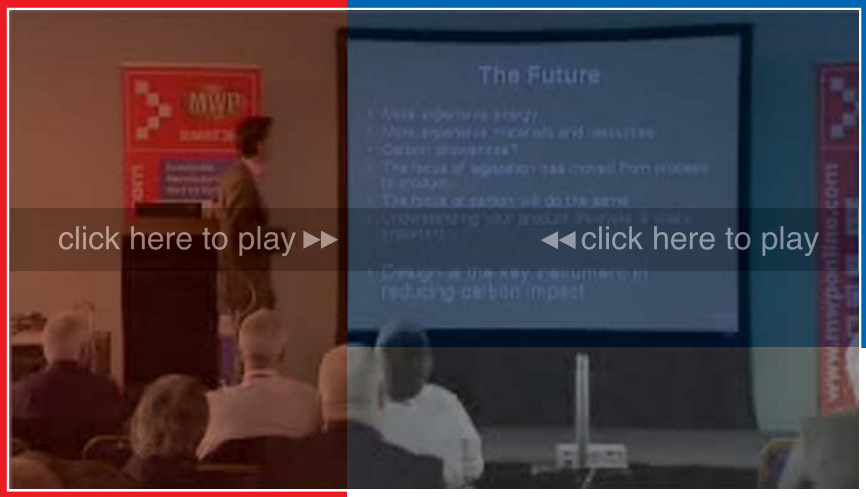


Leigh Holloway
- Director, eco3

THE LOW CARBON AGENDA - AND THE FUTURE OF MANUFACTURING

80% of the costs and environmental impact of a product are determined at the design phase. 'Low carbon design' is arguably the most powerful tool available in reducing waste, environmental damage, and energy use - and consequently your costs now and in the future.

Leigh Holloway has more than 15 years' experience in the field of producer responsibility. He gained his first degree in Mechanical Engineering and later was awarded a PhD in Ecodesign. He began his career with research projects on the implications of product design and related legislation and later moved into business consultancy in the field of producer responsibility legislation and eco-design. In 2003 he formed eco3 with his business partner Mark Shayler. Eco3 is a specialist consultancy advising all businesses from multinational corporations to SMEs on eco-design, carbon foot-printing, adaptation strategies and producer responsibility issues.

In late 2007 he was appointed as a member of the UK's newly formed WEEE Advisory Body (WAB). The WAB is an independent non-governmental public body consisting of 13 individuals from various industry sectors and provides independent advice for the development of the WEEE system within the UK.

The central message of his presentation was that 'carbon is the new currency'. Manufacturers and suppliers, he observed, are being asked to undertake carbon footprint assessments of their operations. This could be due to suppliers requiring them to provide a footprint of their products, targets within the company's environmental management systems, or commitments made under agreements like the Carbon Reduction Commitment.

With manufacturers rushing to carbon footprint their operations it is easy to forget that in some cases the vast majority of a company's carbon footprint is down to embedded impact or the use phase of the products and packaging that they produce. This impact is determined by the design of the product and packaging. It can account for over 95% of a company's impact yet traditional carbon foot printing tends to focus on site-based impacts. The presentation looked at the principles of the emerging 'low carbon agenda', explained how to find your company's area of biggest carbon impact, and looked at what it really means for manufacturing.

'What does it mean for manufacturing?' asked Leigh Holloway. 'It means business as usual, because you're all trying to be more efficient - and that's what this is all about. What I'd like to look at is what has traditionally been the focus, and where it's going to shift - because I think we've been focusing on the wrong things and missing the bigger issues.'

He looked first at what might generally be described as government solutions, which more or less focus on energy use: EU Emissions trading schemes; the Climate Change Levy; Climate Change Agreements; and carbon reduction commitment. 'We have' he said 'legislated process to death -we can't do any more. What's happened in the area of general environmental legislation is that it's moved to product - for example end-of-life vehicle recycling, and limiting what materials we can put in them. Designing the problem out is the most effective way to deal with this.' He developed this theme to raise the issue of 'embodied carbon' suggesting that this is where the focus is likely to be in future. What he was referring to was the 'carbon footprint' of the product.

Taking into account embodied carbon, plus use of energy and other resources, should lead to the question 'where is your company's real carbon footprint?' Companies needed, for example to look at the raw materials they consumed. 'Every single kilogramme of aluminium you use has a carbon footprint of 12kg behind it - but if you use recycled aluminium that drops by over 90%.' He went on to quote equivalent figures for other materials such as copper or stainless steel (5kg), titanium (41kg). 'It's usually to do with processing of the metal, getting the ore out of the ground'. He pointed out that using a 'carbon intensive' material could however result in a much lower carbon impact further down the life cycle- so it's not simple.

He developed this theme in some detail, concluding with some 'broad brush' figures: 'A 10% increase in production efficiency would save 300 tonnes of CO_2 per year; a 10% increase in product efficiency would save 60,000 tonnes of CO_2 per year. So focused design is 200 times more efficient at reducing life-cycle carbon. Design is the key instrument in reducing carbon impact.'

WATCH US GROW

Two of the companies housed within the AMP's Technology Centre outlined their aspirations and the benefits of being located on the Park.

Steve Roberts
- Owner, Fripp Design and Research

Fripp moved to AMP three years ago. 'We're not manufacturers - yet' said Steve Roberts. 'When we formed the company, the mission was to develop our own intellectual property and then license it to third parties; but we are now looking to go into manufacturing, and one of the obvious ways to develop sustainable manufacturing is to own the intellectual property.'

Clients include large organisations such as Echostar, Leeds University Engineering CIC, Group 4 Securicor, Sagentia Group, Marks and Spencer and Galpharm; and medium sized organisations such as Panel Systems, Key Technology, Digital Mount.

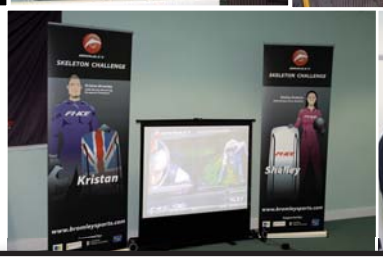
However the main focus at Fripp is on healthcare, including very specifically the development of soft tissue prosthetics using CAD and 3D printing techniques. The company has attracted £1/2m funding from Welcome Trust, which, said Steve Roberts came about through Yorkshire Forward intervention. In fact he was very appreciative of Yorkshire Forward, and what they've done for the AMP and his company. 'There's a wealth of talent on the Park, and a fantastic opportunity to create a centre of excellence for healthcare delivery' he commented. The value of collaboration is seen to good effect in the context of the prosthetic work, which is undertaken alongside Sheffield University.

The NHS, said Steve Roberts, hadn't realised the benefits of CAD. 'There are practices within NHS that need bringing into the 21st century, and one that we've identified is the manufacture of soft tissue prosthetics. At the moment they are hand-made, and every time a patient needs one it's an invasive and unpleasant experience.' Rapid manufacturing techniques, he said can be used to effect a dramatic change. The method is to take a '3D photo' of the patient, make CAD model, and manufacture on a 3D colour printer within 24 hours.

Mike Maddock
- Chief Operating Officer, Bromley Technologies

Mike Maddock began by dismissing the 'tea trays and woolly hats' stigma that attaches itself to winter sports. The reality is that Bromley Technologies is a world-beating sport product and technology business and brand that was born out of the Olympic sporting needs, experiences and vision of Prof. Kristan Bromley, one of Great Britain's - and the world's - most successful winter sports athletes and an award winning aerospace design engineer. Its best known product is the 'skeleton bob', and its stated mission is 'to drive market share by continually challenging & pushing performance boundaries, maximising user experience through an unwavering dedication to market driven innovation & market disruptive cutting edge technologies'. The company offers a one stop shop for product performance development, developing fully integrated engineering design solutions. In-house capabilities include 3D CAD, reverse engineering, computational fluid dynamics and wind tunnel testing; the client base covers Olympic sport teams and athletes, medical engineering, automotive and motor sport, the energy sector, and the satellites industry. Latest initiatives include Formula ICE 2010, the world's first 'Formula One style' winter sport works team, tasked with developing the world's fastest sports equipment.



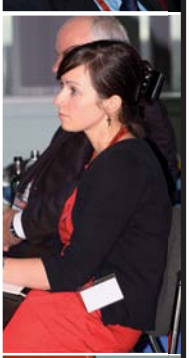




What's next for MWP?

We're already in the early stages of planning the 2010 MWP Summit event, because the response from sponsors and delegates has provided us with a clear signal that we should continue to develop this project. Time and place? What we can say at this point is that the next Summit will probably be in November, and that we are looking at a number of attractive, high profile venues that are relevant to the world of advanced manufacturing.

As for the content, we intend to keep that as wide-ranging as possible without sacrificing any of the focus that our specialist speakers are able to bring to the day. As well as advanced manufacturing technology, we aim to cover training, supply chain issues, health & safety, legislation, finance, operating in a global marketplace. Have we got the balance of topics right? Is there anything different you'd like to see in next year's programme? Your observations - as delegates, sponsors, or indeed as readers of this ezine who didn't attend - would be very welcome in this regard.

Before that, there's MACH - and the MWP Awards, which culminate on the evening of Tuesday 8th June. We've revamped the categories and the entry templates, the judges have been appointed and we're ready to accept entries. Entry is free, straightforward, and is open to all users and providers of advanced manufacturing technology - ie it is not limited to exhibitors at MACH and Subcon. Your first step is to log on to the Awards website at www.mwpawards.com.

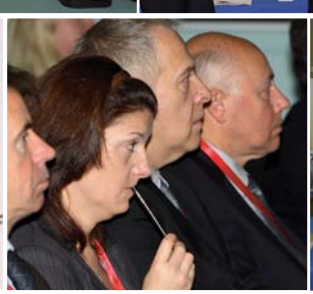














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