beea

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"However accomplished an individual or company may be, they can only attain that level of accomplishment within the broader context of a healthy engineering sector."

OVER AND ABOVE

The BEEAs have always rewarded those who go that extra mile. This year is no exception.

PAUL FANNING
EDITORIAL DIRECTOR
MA BUSINESS

During the judging process for the British Engineering Excellence Awards, a recurring question when judging entries is 'What have they given back?'

By this it is meant that, over and above their credentials as an engineer, what have individuals or companies done to advance the broader cause of UK engineering? Whether it's by mentoring others, engaging in outreach programmes that seek to encourage young people into engineering or simply by joining industry bodies, these things have sometimes given entrants the extra factor that makes them winners.

This is in recognition of the fact that, however accomplished an individual or company may be, they can only attain that level of accomplishment within the broader context of a healthy engineering sector. Without ensuring that the sector stays healthy and well-supplied with the brightest and best young people, we may be preventing the next generation of BEEAs winners from developing.

This focus on 'giving back' is reflected in this year's winners, with both our Design Engineer of the Year Orla Murphy and our Young Design Engineer of the Year Brent Brakeboer deeply involved in outreach activities.

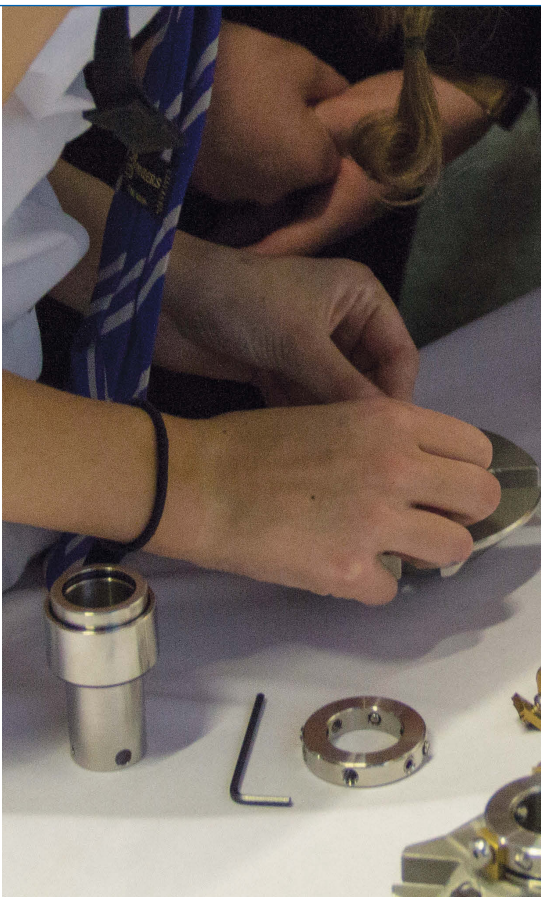
Fittingly, however, it is nowhere more clearly exemplified than in our Engineering Ambassador of the Year winner AESSEAL. This group's efforts to encourage young people into and through engineering are so Herculean that, despite having two pieces devoted to them in this brochure, there still hasn't been room to detail them all.

Going over and above the expected to achieve excellence is what the BEEAs are all about. Please join me in congratulating all those who made the shortlist for the 2018 British Engineering Excellence Awards and, in particular, our winners.

Going over and above the expected to achieve excellence is what the BEEAs are all about.

BRIDGING THE GAP TO THE FUTURE

Some companies talk a good game when it comes to engineering outreach. AESSEAL puts its money where its mouth is – and then some!



Encouraging increased interest in engineering and promoting the uptake of STEM subjects are things that everyone in the engineering sphere agrees are excellent and worthy aims However, there is all too often a big gap between words and deeds in this regard.

AESSEAL has bridged that gap and then some. As Carolyn Griffiths, president of the Institution of Mechanical Engineers put it: "AESSEAL is unique. It does amazing things in helping young people into engineering."

Engineering outreach and engagement is not a 'programme' at AESSEAL, it's a culture that is embedded in in the company's working life and is supported formally and informally by colleagues in every discipline and at every level.

The earliest instance of AESSEAL working with students to promote engineering is in its then newly launched newsletter in 2002, when it sponsored 4,000 sets of 3D CAD software to local schools, Rotherham College and Sheffield Hallam University as part of the Back to Grass Roots campaign. An invitation to visit the company's Mill Close HQ was issued to all students and teaching staff.

The company had contact with a stunning 2,250 students in 2017, including 190 directly involved in AESSEAL in-house outreach work such as visits to schools and visits to AESSEAL by students. This year, the company has gone one better, having contact with 2,840 students to date, of which 640 were directly involved in its in-house outreach work.

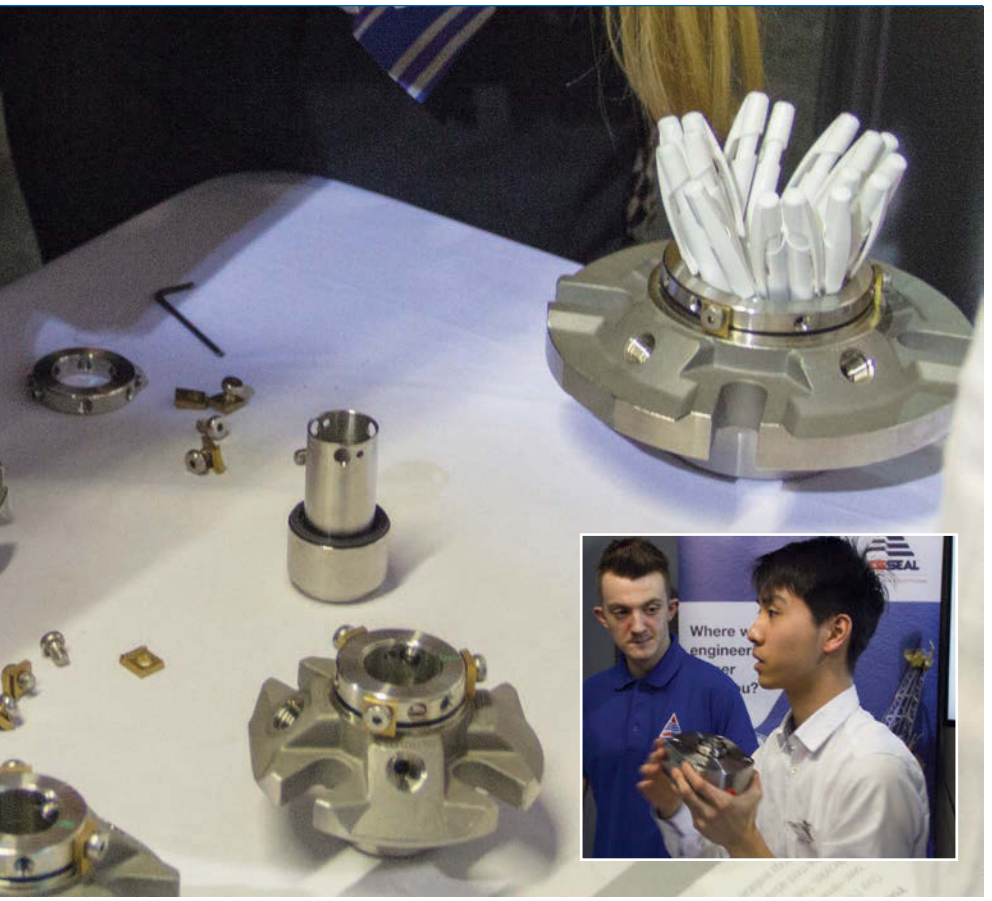
Its apprentices visit schools to give 'Day in the Life' - type talks to students preparing to make choices about their careers - bringing a career in engineering to life and making it a far more attractive prospect to young people yet to experience the world of work. AESSEAL Advanced Apprentice Nathan Wall is the latest to receive an AMRC Special Recognition Award, for going 'above and beyond' and being active in schools and the community.

AESSEAL also funds four engineering bursaries at Sheffield University, donating £50,000 to the university to support its 'Engineering Is' campaign to create a step change in attracting women into engineering through work with primary schools, funding a physics bridging course for female A-Level students and supporting female engineering academics to progress into professorial roles.

The AESSEAL Manufacturing Apprenticeship programme in Rotherham was developed in specific response to the engineering skills shortage. It was launched in 2012 in partnership with the University of Sheffield's Advanced Manufacturing Resource Centre (AMRC) and is run in collaboration with the AMRC and Rotherham College.

The culture of engagement goes from bottom to top in AESSEAL. Anybody walking through the its Global Technology Centre and Special

AESSEAL
EXPERIENCE THE EXCEPTIONAL



Product Division in Rotherham is highly likely to bump into a group of students enjoying a day away from their primary or upper school desk, while managing director Chris Rea's close links with his local community and his unwavering promotion of engineering was acknowledged when he received a Lifetime Achievement Award at the British Pump Manufacturers' Association (BPMA) prestigious Pump Industry Awards in April this year.

Since redesigning its apprenticeship programme in 2012, AESSEAL has trained 100 apprentices. Of those, 69 remain part of the workforce. In 2017, 21 apprentices joined the programme, of whom 20 remain with the business.

WHAT THE JUDGES SAID

"It's time to recognise the work of a company that, since 2002, has worked hard with the wider community to promote engineering. Last year alone, AESSEAL engaged with 2,250 students and the company's indefatigable commitment to raising the profile of engineering makes it a suitable Grand Prix Winner, not only for its commitment to engineering but for reaching out to thousands of potential young engineers."

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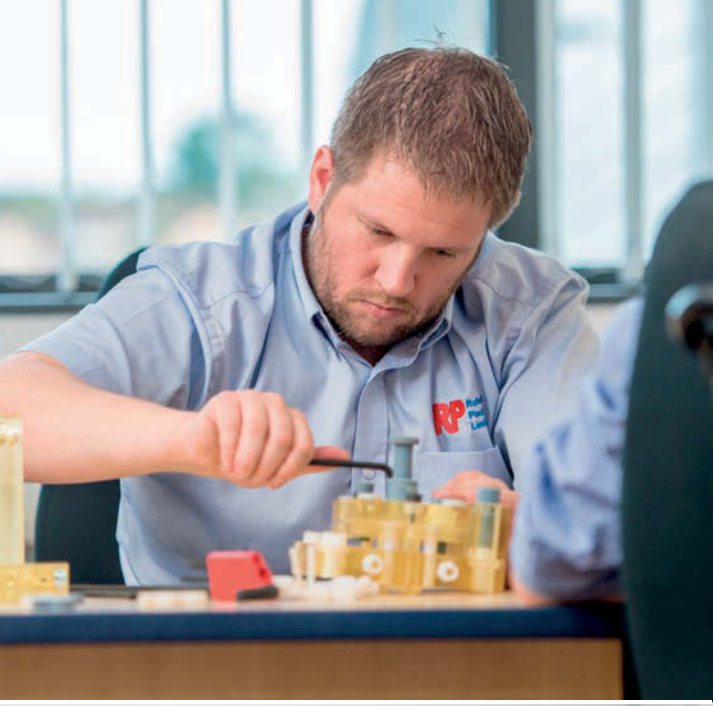

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THE CUSTOMER'S FRIEND

A highly-collaborative approach to its clients and designs has borne fruit for Bristol-based Stirling Dynamics.

With its niche in the aerospace sector, designing and modifying aircraft and components for its customers, Stirling Dynamics has evolved over the last five years from an engineering consultancy that was very UK-centric and reliant on one key customer to an international consultancy servicing multiple customers in North America, Japan, Turkey, China and India.

Stirling has grown in its new markets due to a partnership approach, where it works very hard to support the customer's own capabilities and ambitions rather than acting as a sub-contractor.

2017 was a very successful year for Stirling, during which it won several awards, the Insider South West Aerospace and Defence Award, Business Leader Export and International Business of the year and The Business Transformational Award (BVCA).

The way that Stirling now works differentiates it from the competition. The company follows a 'Customer Friend' business model which is one of its strongest USPs. Stirling is unafraid of sharing IP and knowledge transfer with its new international customer base. The trusted relationships built in these countries has resulted in repeat business. So far, the projects Stirling has supported include new aircraft design in Japan, landing gear design in Turkey and China and the design and development of flightworthy components for aircraft in South Korea.

The WheelTug Taxiing System is one example of its expertise in action. WheelTug is a company that has developed a pioneering concept to meet these challenges. At the end of 2017,

Stirling was awarded a new contract with WheelTug to design and achieve certification for a new landing gear nose wheel, a wheel tailored to the specific requirements of the WheelTug system and incorporating advanced design principles to reduce weight and increase strength and operational performance. Our engineering team will draw on the company's core capabilities in reverse engineering, wheel analysis, landing gear analysis, safety analysis and structural stress analysis to deliver this exciting project.

The company has seen revenue increase from £7,674,000 (2015-2016) to £10,174,000 (2016-2017), a 32.5% increase. This is projected to further increase to £12,005,000 this financial year. Turnover from our design services grew by 49% in the last financial year.

The company's recent success brought it to the attention of Assystem Technologies UK, which then acquired Stirling Dynamics in April 2018.

WHAT THE JUDGES SAID

"Delivering a range of complex systems and technical services in a highly competitive market, the company's track record of expanding into overseas markets is impressive. Having been very UK-centric and reliant on one key customer it has evolved, in just five years, into an international consultancy with over 80% of its business now made up of exports."

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A DYNAMIC WINNER

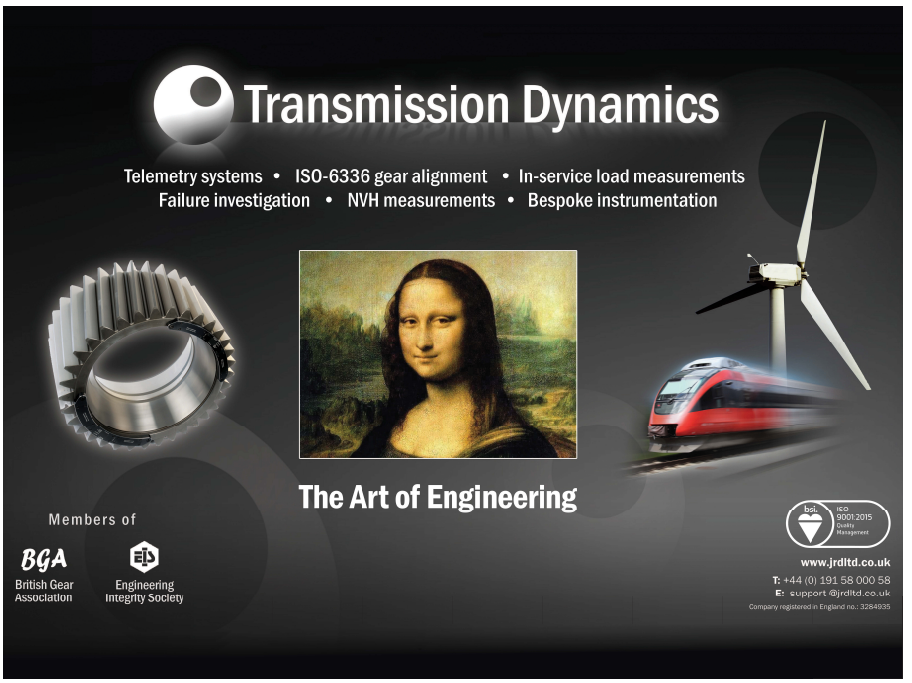
A change of strategy from mechanical to IoT solutions has reaped dividends for this North-East champion.

Although established in 1996 as JR Dynamics (in honour of its owner and CEO Professor Jarek Rosinski), since 2006 the company has traded as Transmission Dynamics. Since then, it has gone on to establish itself as a condition monitoring specialist that uses IoT to deliver critical data and reports related to client assets in real time.

Transmission Dynamics services a number of sectors such as defence, rail, wind energy, automotive, aviation and power transmission. In short, Transmission Dynamics can monitor and report on anything, anywhere and anyhow.

In 2006 Professor Rosinski acquired offices in Cramlington, County Durham and gave up his position at Newcastle University to take his interest in electronics, instrumentation and machine dynamics, and offer it as a commercial service. That was shortly followed by a £280,000 DTI grant that allowed the company to develop its first gearbox condition monitoring technology. Over the next years, growth was steady and consistent until a change of strategy in 2015 that shifted the company from a mechanical engineering service provider to an IoT company and that accelerated growth rapidly. Two years later, Transmission Dynamics won the overall North East SME Innovation Award.

The ability to create solutions where none previously existed is where Transmission Dynamics has excelled, not just for its clients but also in situations where the company had been reliant on subcontractors and service providers that were unable to match the quality and. By persevering with innovation and creativity, combined with the unique talent, enthusiasm and hard work of its key staff, TD managed to establish one of the most innovative and dynamically growing SMEs in a global market.



As evidence of its commitment to retaining its capacity for innovation, Transmission Dynamics reinvests close to 50% of its turnover back into research and development. As the company puts it: "Just because it works doesn't mean that we can't make it better, smaller, lighter, quicker and more aesthetically pleasing – not just functional."

This ability to design products from concept to fruition has allowed Transmission Dynamics to maintain control over product development right through the product life cycle. At the same time, the company's agility has allowed it To respond quicker than larger, more established competitors.

Transmission Dynamics

WHAT THE JUDGES SAID

"This was a terrific example of how to take a technology, developed in academia, and use it as the basis of a highly successful and flourishing business."

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CONSULTANCY OFFERS HELPING HAND

By specialising in helping its fellow start-ups bring products to market, Circuitworx has enjoyed exceptional growth.

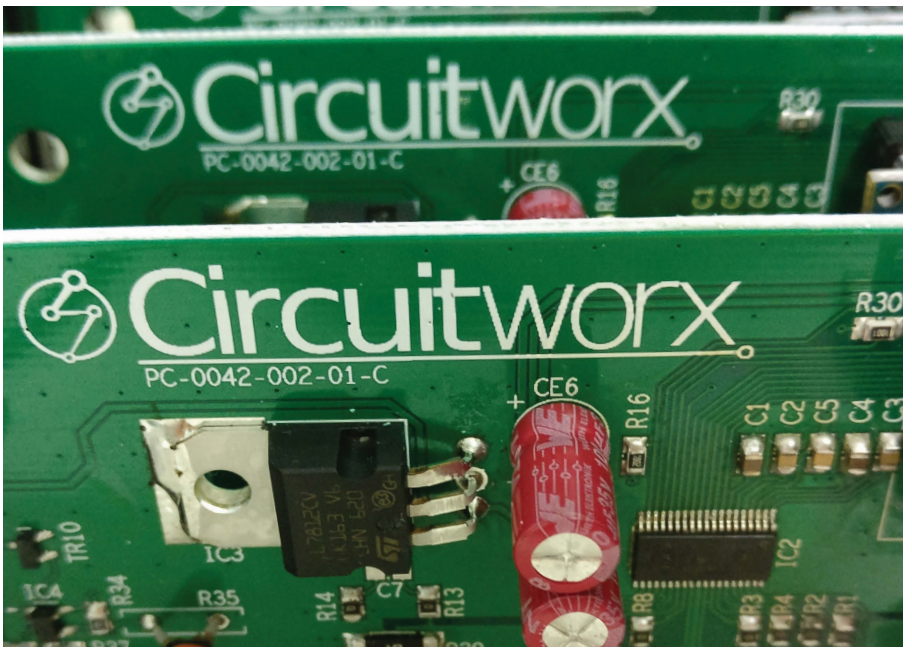
Many start-up companies have already proven a particular niche aspect of their product / technology but lack the wider technical expertise, systems engineering knowledge or commercial experience to develop their idea further and bring their product to market. This is where CircuitWorx is able to help by designing bespoke electronics and software, managing subcontractors (e.g. industrial / mechanical designers, test houses etc) and working with the client through the whole product development lifecycle from concept through to production.

This integrated, whole-lifecycle engineering design service allows the client to focus on its own strengths and wider business objectives being confident in the quality of the technology designed/manufactured by CircuitWorx, resulting in the client's product being successfully brought to market.

CircuitWorx was founded nearly four years ago by two experienced engineers, financed by personal savings. It rapidly developed into a financially viable company with no business debt and was able to pay back the initial personal investment within five months of trading.

The company took on its first part-time employee after eight months, and comfortably exceeded its financial targets for the end of year one with a turnover of over £100,000, profit of more than £60,000 and a client base of almost 20 local and national companies.

By the end of year two, CircuitWorx had expanded its team to five engineers, allowing it to offer a wider skill-set to clients, meet deadlines more efficiently, and focus attention on their broader business issues and objectives. In the summer of 2016, it moved to much larger premises. This gave it room for a dedicated electronics lab in addition to office space, enabling us to expand our



prototyping and production / assembly services.

In November 2016 it formed a strategic partnership with established French manufacturing specialist Selva Electronique. As part of this collaboration, a Selva Sales Engineer is seconded to the CircuitWorx office; new leads secured via this route are presented with a joint proposal from the two companies, with CircuitWorx engineers offering the design services and Selva the production.

a £750,000 order in the pipeline for supported manufacture of a high-value product (designed by CircuitWorx) for worldwide distribution, and the company also reports that it hopes to win a new design contract worth over £150,000. In the past year it has expanded its team by two more engineers, giving it a more diverse skill-set and allowing it to take on more projects and new clients.

WHAT THE JUDGES SAID

"CircuitWorx provides B2B electronics and design services to start-ups and small companies. The company has demonstrated a strong track record, delivering exceptional growth and profitability, based on its ability to provide innovative solutions for companies lacking in-house skills."

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IMAGINATION GOES A LONG WAY

A team consisting of 90 engineers across four countries has delivered a top level product in a remarkably short space of time.

It takes a hard-working team to deliver a leading product from the ground-up in just 14 short months. Achieving this with a product that required extensive research into Artificial Intelligence and the ability to apply this learning to meet market requirements while under tight deadline pressure is remarkable.

But this was what Imagination Technologies achieved with the PowerVR Series2NX neural network accelerator (NNA). The 2NX (as it is more snappily known) delivers high-performance computation of neural networks at very low power consumption in minimal silicon area. It was designed ground-up to provide hardware acceleration for efficient neural network inference in mobile/embedded platforms.

With flexible bit-depth support on a per-layer basis for weights and data, 2NX can maintain high inference accuracy while drastically reducing bandwidth/power requirements. It is the only solution supporting bit-depths from 16-bit (required for automotive), to 4-bit, resulting in higher performance at lower bandwidth and power. A single core of 2NX, running at 800MHz, offers up to 2048 MACs/cycle.

The project began with a small dedicated group of engineers and limited resources. A mix of research, hardware and software engineers, they saw a need for the product, and set out to make it a reality. As management saw initial results, a larger focus was put on the product, and the team grew steadily to realise and implement requirements. Ultimately, the team behind 2NX, led by Imagination's VP of Vision and AI Russell James, comprised 90 engineers across four countries.

At the concept stage, industry solutions for computer vision were not fast or efficient enough to be able to execute the compute-intensive operations required for neural network acceleration on edge devices. The PowerVR decided to address this need. Given its deep experience in designing leading GPUs for mobile and embedded, the team initially started the design by modifying the PowerVR GPU architecture to achieve the performance levels needed for neural network acceleration. However, this approach led to a solution that was too large, and that idea was put aside. The team decided to create a completely new design. 2NX was created as a specific, optimised hardware acceleration unit for convolutional neural networks.

The end result exceeded the company's expectations, with the team delivering a highly competitive product and all the required software tools within 14 months.

WHAT THE JUDGES SAID

"A hard-working team that, despite being geographically dispersed, came together effectively to deliver a complex product in a short amount of time – a great result."

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A highly innovative use of Polyamide 6 has found a happy nautical home.

The Chock Liner by Nylacast is an evolution in mooring technology with safety in mind. Custom manufactured from initial chemistry to end product, the patented Chock Liner delivers safe and reliable moorings.

Initially developed for LNG (Liquefied Natural Gas) carriers in the Oil & Gas sector, the value added by the Chock Liner today sees it being used across the global maritime sector and is featured on Navy, tugs, ferries, container vessels and cruise liners to name but a few vessel types.

The low friction Chock Liners are an engineering solution and application developed to address the mooring challenges faced within the marine industry. This includes high levels of rope wear, safety hazards when mooring and the transition from wire rope to synthetic rope.

The Chock Liner technology creates vast commercial value, increased mooring performance and significantly greater health and safety benefits for vessel builders, owners, operators, crew members and subsequently their customers.

The Chock Liner works by using the advantages of its custom-formulated Polyamide 6 material with very low-friction properties in order to line the often rough, worn and rusted chocks (or panama fairleads) on vessels. This creates a harmonious relationship between the costly, safety-critical mooring lines and the chock itself, resulting in significant safety, cost and performance advantages. The material application also allows vessel operators to shift from traditional steel wire rope, to higher performing fibre ropes such as HMPE (High Modulus Polyethelene).

Vessels using the product benefit from the elimination of wear, abrasion and tearing of the mooring line. Better equalisation of mooring loads is created which reduces any snatching and jerking to take place, especially when vessels are in rough seas. The chosen material also allows the elimination of routine and costly maintenance. The product also improves health and safety for crew members as it eliminates their need to be in the mooring area whilst lines are under high tension. The Chock Liner is also easily fitted to both new and existing vessels with no need for time consuming hot work and the stripping down of a vessel and its gas chambers (LNG/ Chemical transport vessels).

This innovative material application functions in order to increase the performance and efficiency of mooring operations worldwide, whether it is on a ferry transporting vehicles and passengers, or on an LNG carrier transporting fuel required by many regions across the globe.

NYLACAST
ENGINEERED PRODUCTS

WHAT THE JUDGES SAID

"A classic example of the right material finding the perfect application to create a successful product."

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CHIPS FOR A HUNGRY MARKET

The data and power demands of 5G networks require a special product to satisfy them. This development promises to do just that.

Massive Multi-Input/Multi-Output (MIMO) is essential to support the large numbers of channels and high data rates demanded of 5G networks, but current test-beds are large, power-hungry, and unsuitable for commercial deployment. This could delay or even prevent 5G roll-outs.

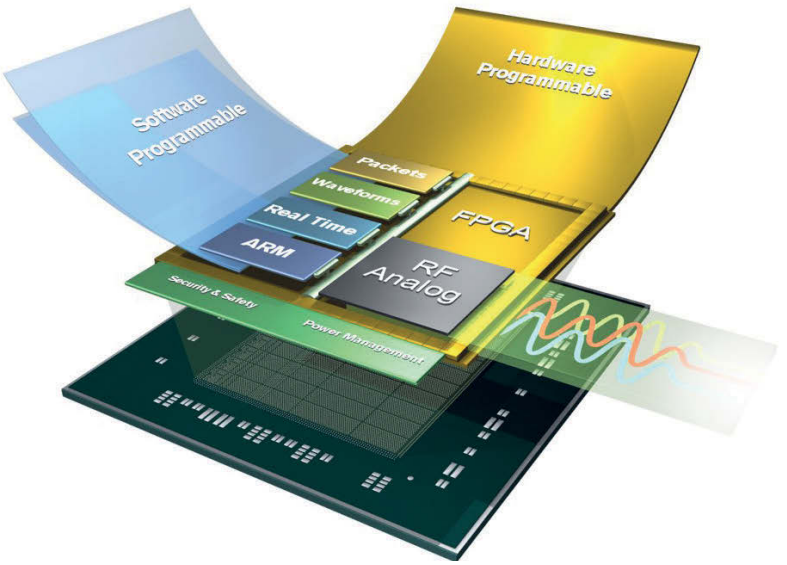
Xilinx conceived RF System on Chip (RFSoC) to deliver previously unachieved levels of integration, leveraging its advanced 16nm FinFET process to let analogue functions benefit from the pace of CMOS technology advancement, and so overcome the power and size challenges presented by Massive MIMO, impossible previously.

The key innovation, enabling RF and analogue circuitry to be brought on-chip, is direct RF sampling. To achieve this, Xilinx has leveraged its existing Zynq UltraScale+ MPSoC know-how developed with established customers in the wireless space, to provide a proven launchpad. As a result, the RFSoCs monolithically integrate RF data converters and soft-decision Forward Error Correction (SD-FEC) cores to meet 5G and DOCSIS 3.1 standards using the 16nm Zynq UltraScale+ MPSoC architecture.

Xilinx's approach has recognised that RF is a new field for the company. It has utilised its extensive FPGA know-how to accelerate device realisation. One example is in leveraging the FPGA programmability to download a Built-In Self-Test (BIST) module onto the device for analogue and RF testing.

In addition, Xilinx has made significant investments to increase RF and analogue know-how within the organisation, including recruiting RF test experts, bringing new RF and analogue specialists into the technical field-sales organisation, and training existing field-sales and customer support teams.

As a market-ready product, RFSoC



brings together several technical threads, encompassing digital, analogue and RF chip design, as well as soft IP blocks, device drivers and customer development tools.

Working with leading infrastructure makers and mobile network operators (MNOs) to ensure RFSoC meets all the needs of 5G stakeholders, Xilinx produced test chips for evaluation in customers' programmes. To help ensure the quality of the solution, and study the reliability of the processes and products, RFSoC devices were delivered initially to only a small number of customers – just ten of the top-tier 5G infrastructure developers. Roll-out was then expanded to 20 customers, in preparation for general availability on the market in 2018.

The results and customer feedback have been utilised to deliver reliable, high-quality devices in production quantities, at an economical price, supported by ready-to-use tools and knowledgeable technical back-up for customers.

XILINX

WHAT THE JUDGES SAID

"This provides a key enabling technology for the future roll-out of 5G. A multinational effort Xilinx has deployed a variety of innovative techniques to overcome a range of technical challenges preparing the way for commercial deployment."

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FUELLING THE FUTURE

The development of a motor control technology capable of achieving unmatched performance could revolutionise fuel cell-powered vehicles.

When Aeristech's research revealed that, while fuel-cell powered vehicles were being promoted as the transport of the future, they were using inefficient and expensive positive displacement air side compressors, it provided the inspiration for innnovation.

In fact, the company found that only Nissan a Honeywell two-stage centrifugal compressor spinning at 85,000rpm could be considered efficient. This is why Aeristech has designed a 27kW single stage compressor spinning at 150,000rpm as a competitor. When mass produced this will be smaller, cheaper, more powerful and more efficient than the Honeywell machine.

To achieve this, the company has invented and patented a new motor control technology, Aeristech Control Technology, ACT. This makes possible a variable speed electric motor more power dense than any other in the world.

Aeristech's engineers spent five years developing the technology and proving a motor for automotive applications. ACT is ideally suited to powering an electric supercharger that is a very fast, variable-speed, electrically-driven centrifugal compressor supplying air to a hydrocarbon-fuelled engine.

The UK's largest fuel-cell manufacturer approached Aeristech. After researching the published data on ACT, t had concluded that it was a technology that might be suitable for powering a fuel cell compressor. A fuel-cell compressor pressurises the fuel cell's inlet air supply and this increases the power density of the fuel-cell stack.

Aeristech established that if it were to redesign its control systems to suit the needs of a fuel cell it could develop an air compressor, FCC, superior in every respect to any other in the market.

Based on its painfully won experience of the auto industry Aeristech knew that the industry would only commit to an Aeristech FCC when a fully-costed, pre-mass production prototype FCC had been developed and a number were available for testing.

The initial prototype design testing programme will be completed this summer - supported by an "Advanced Propulsion Centre" £75,000 grant. An "EU Horizon 20/20 £1m follow-on grant" for reengineering the device for mass production and developing a bill of quantities, is under evaluation. The prototype machine and bearings have already been tested to the equivalent of two vehicle lifetimes.

The launch of the Aeristech FCC supplying a 120kW+ fuel cell powering a vehicle demonstrator is scheduled for summer 2019.

WHAT THE JUDGES SAID

"Aeristech impressed with its response to a real market need. Its Aeristech Control Technology (ACT), which is suitable for powering a fuel cell compressor, is cheaper, more efficient, lighter and smaller than many on the market and is set to generate real commercial success for this dynamic business."

aeristech

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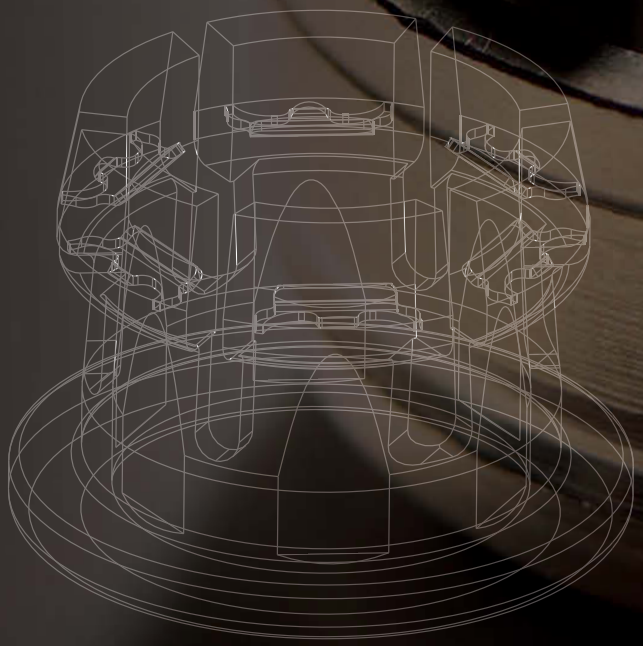

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DRIVING EDUCATION FORWARD

For most engineering companies, encouraging young people into engineering is part of what they do. For others, however, it's part of their DNA.

Sheffield-based AESSEAL's work to engage young people in science, technology, engineering and mathematics (STEM) subjects and promote careers in engineering permeates the daily working life of the AESSEAL team.

Its first links are forged at primary school and continue through to university level. The company's promotion of engineering as a study path typically starts Year 6. This is less explicit than its work with secondary schools and colleges and often takes the form of sponsorships, ranging from sponsoring local Laughton Junior and Infant School to turn its £150 'loan' into a profit in the 'Make £5 Blossom' initiative; to giving the Wacky Wobots team at Our Lady St Joseph's Primary School a £5,000 grant to build and programme their robot Stevie 2.0 - which earned them a place in world finals of the Vex Robotics Championships in Kentucky, USA.

Every sponsorship or grant comes with an invitation to visit the AESSEAL global headquarters, where students get a chance to dismantle and rebuild a mechanical seal. These invitations are taken up without exception and have received enthusiastic feedback.

This encouragement continues all the way up to apprenticeship. Apprentices have an equal opportunity to work on the company's state of the art machinery. In fact, Advanced Apprentice Nathan Wall was a member of the team tasked with overseeing the installation of the new £1 million, 11 axis Nakamura Tome Super NTX, alongside senior management. Since redesigning its apprenticeship programme in 2012, AESSEAL has trained 100 apprentices. Of those 69 remain part of the workforce. In 2017, 21 apprentices joined the programme, of whom 20 remain with the business.

AESSEAL has a culture of lifelong learning, with learning and development support offered to all employees. Opportunities for continued career progression trickle down by word of mouth during school ambassadorial visits, at exhibition stands and even at the local pub – and enhance the reputation of engineering as 'A Good Thing'.

WHAT THE JUDGES SAID

"In an exceptionally tough group AESSEAL stood out. As the judges noted, it has been doing some 'amazing' things over many years."

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SPACE FOR A RISING STAR

The UK satellite industry is no easy place to make your mark, but this year's winner has achieved that and more.

Having been in the company for just over two years Brent Brakeboer has had a huge impact on Surrey Satellite Technology (SSTL).

From a blank sheet of paper, Brent has taken the needs of one of SSTL's customers and driven the internal development of the next generation of Earth Observation medium resolution wide swath multi-band camera systems to replace and upgrade the ageing Rapideye spacecraft system, which has been in orbit for years and is reaching the end of its life.

Working competently outside his area of expertise, Brent embraced new areas with ease and, through the programme, moved the project from design and analysis through to building and testing this new generation of camera system himself. When faced with a challenge, this spurred him along further to find initiative ways to solve the problems while still keeping rooted to the overall goal of being able to provide a product that can be mass produced at a competitive price, an example of this is in the roof mirror design where a combination of techniques were employed to solve a packaging issues adding steps to the mirror rather than redesigning the detector at an estimated £5m cost.

Leading the whole design from scratch through to delivery of hardware, Brent has been able to engage with all the various subcontractors and suppliers, bringing new suppliers into space activities and passing on knowledge of SSTL's needs for operation in space to allow them to improve their designs and expand their businesses into new engineering fields.

The design has been presented internally across the company from graduates to senior management, encouraging excitement around the design, challenging norms and bringing in new ideas and techniques to a traditionally conservative industry.

Leading a team, Brent inspired those around him to rise to he challenge of finding solutions – often in places one might not expect them. This work de-risked a significant programme for SSTL in advance of the main project and helped strengthen the position of SSTL to provide another world-class mission in a market that brings tens of millions of pounds of work to the UK space sector, not to mention future downstream applications.

WHAT THE JUDGES SAID

"Showing exceptional technical skills as well as initiative in solving complex problems, Brent came up with a truly exceptional and differentiated product."

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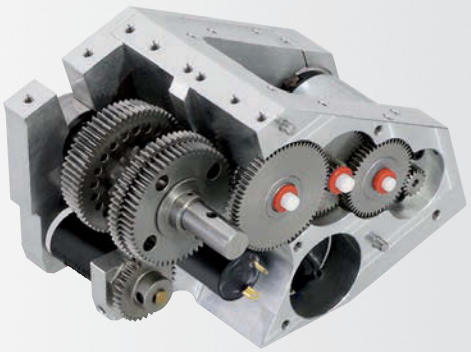

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'BLACK BELT' ENGINEER TRIUMPHS

A multi-talented, multi-disciplinary engineer with an enviable track record.

Since joining Jaguar Land Rover in 2012, Orla Murphy has progressed through different roles in the business, in both the Electrical Engineering and Vehicle Engineering departments.

She has worked in the audio team, calibrating the sound systems within the vehicles using analytical, acoustic and both objective and subjective testing skills. In the quality team, she works in complex problem-solving for warranty issues. However, over the last year her work in a design role has focused on a study into Automotive Software Over-the-Air (SOTA), which she led as a joint research project between Jaguar Land Rover and the University of Bradford.

Outside of work, Orla is a STEM ambassador and public speaker, and gives technical lectures on her work for all ages, from schoolchildren up to retired engineers.

Orla is a Black Belt qualified engineer, that means she specialises in six sigma problem solving. She uses many of the analytical, sttiastical and problem-solving techniques to run the SOTA project.

Particularly in the last year, Orla has lead an innovative project which has had a big impact on the company, for a new feature called "Software Over-the-Air" (SOTA). Though some examples of SOTA currently exist in JLR and in other companies, a full SOTA deployment means any module in the car could have their software upgraded remotely, without the need to go to a dealer. This will of course avoid huge costs and customer disruptions, while drastically improving quality and customer satisfaction.

As a result of her work in the past, Orla was the IET Young Woman Engineer of the Year in 2016, the Royal Academy of Engineering Engineer of the Year in 2016 and was listed in the Telegraph and Women's Engineer Society (WES) as one of the Top 50 Women in Engineering in 2017. She has given technical evening lectures for the Institute of Physics, IMechE, IET, and for Glasgow University. Orla is also the vice-chair for the IET Coventry and Warwickshire Committee and is a qualified coach and mentor.

JAGUAR

LAND ROVER

WHAT THE JUDGES SAID

"Orla has come a long way in a relatively short space of time, having progressed through the company in a variety of roles."

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John Guest

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ERIC WILKINSON, CHAIR

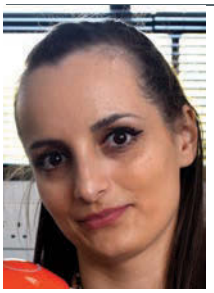
Chief Executive Officer of Cambridge Consultants, Eric has managed projects as diverse as the development of the latest in anti-terrorism radar, a machine to produce premium frozen drinks and the world's most intelligent iron. A materials scientist by training, Eric is a regular speaker at international conferences.

RICHARD POULTON

Hardware team leader and part of the senior management at Navtech Radar, Richard manages an engineering team addressing new product R&D, project management, customer project engineering, site work and supplier management. He also plays an active role in European regulatory groups.

JOHN WHITEMAN

John Whiteman has nearly 30 years' experience in the silicon and compound semiconductor sector and has held many roles within Plessey, including technical, managerial, quality and research and development. He currently heads Plessey's product and process development activities at Plessey Semiconductors.

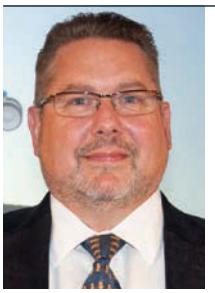


IULIA MOTOC

Winner of 2017's BEEAs Engineering Ambassador of the Year, Iulia Motoc has been involved in more than 30 local and national outreach activities during the past year. She is an Academic Ambassador for the University of Kent and a STEM Ambassador and was appointed an Ambassador for the Queen Elizabeth Prize for Engineering in 2017.

PAUL FANNING

A technical magazine editor for more nearly 20 years, Paul has spent much of his career in the engineering press, with spells covering most aspects of the sector. He first became editor of Eureka! in 2010 and was part of the team that launched the Engineering Design Show. This year, in addition to his role on Eureka! he was appointed editorial director of MA Business.



DR MIKE IRVINE

Mike has more than 30 years experience of healthcare product development and has been instrumental in bringing novel imaging, therapeutic, diagnostic and sensing technologies to market. His product development activities are complemented by business development and alliance management experience.

SIMON BENFIELD

Simon has spent the past 30 years in the Civil Engineering sector. He has worked on a variety of engineering projects in the highways and marine engineering fields. Currently head of Ramboll's Bridges UK team, Simon is a Chartered Engineer and a Fellow of the Institution of Engineering Designers.

PHILIPPA OLDHAM

Philippa discovered her love of technology at her local garage. With a Master's degree in mechanical engineering, Philippa joined QinetiQ as a mechanical design engineer and rose to become product manager for its £150m aerospace business. Previously head of transport and manufacturing with the IMechE, she is now programme lead for the Advanced Propulsion Centre.

JAKE WALLIS

The BEEAs' Design Engineer of the Year 2017, Jake joined Lontra in 2012, rising quickly to become its principal engineer. As part of his role, he has changed the design process so that engineers work more closely to create more sophisticated and commercially appropriate products.

NEIL TYLER

A highly-experienced journalist, Neil has been covering developments in the electronics industry for more than a decade. Editor of New Electronics since 2014, he has also worked across a variety of industries including: telecommunications, automotive, business systems, banking technology and finance.

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