

R & B

RESEARCH & BUSINESS

ISSUE 3 – APRIL 2014

A Teesside University Magazine

A ROYAL HONOUR

Queen's Anniversary Prize
for Teesside University

TEN YEARS OF DIGITALCITY

The transformation of Teesside
to a technology hotspot

DARREN CUMNER

Get the inside track on Hitachi's arrival in the North East



Welcome from the Vice-Chancellor

I am delighted to share with you the news that we have recently received a hugely prestigious royal accolade.

Teesside University has received the national honour of a Queen's Anniversary Prize for its excellence in higher education.

This much coveted award also recognises the outstanding work we do as an institution in the field of enterprise and working with business to grow and secure the economic future of this region.

Prizes are awarded biennially to only a handful of universities and colleges across the UK for a period of four years.

This, for me, is a high profile signpost, approved by Her Majesty the Queen, to the excellence we deliver to our current partners and that we can offer to our partners of the future.

It signifies everything that Teesside University has grown to be with our excellent track record of supporting enterprise, fostering innovation and delivering real business growth in the region.

It is a great honour for the whole institution to receive this award, which demonstrates how the University's academic expertise, coupled with business acumen and responsive services are increasingly adding huge value to the business sector within the North East and beyond.

It is a truly wonderful reward for our efforts and achievements and it serves to provide you with an indication of the quality and extent of the work we carry out here at Teesside with our partners.



Professor Graham Henderson CBE DL
Vice-Chancellor and Chief Executive

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**Teesside
University**

Royal honour for North's most enterprising university



Teesside University is the recipient of a highly prestigious national honour for its outstanding work in the field of enterprise and business engagement.

The University has been awarded a Queen's Anniversary Prize, a much coveted award which is part of the UK's national honours and the most prestigious form of national recognition for excellence in higher and further education.

The prizes recognise outstanding work at world-class level and are awarded biennially to only a handful of universities and colleges across the UK, allowing recipients to use the prizes logo for four years to signpost their excellence to current and future partners, staff and students. As a national honour, the awards are approved by Her Majesty the Queen.

Teesside University, which is built on the academic foundations of its predecessor institution Constantine College, was opened in 1930 by the Prince of Wales (who later became King Edward VIII). It boasts an excellent track record of supporting enterprise and works to promote entrepreneurship as a realistic career choice among its graduates.

Over the past decade, 430 new businesses have been created through its pioneering graduate enterprise and DigitalCity Innovation (DCI) initiatives, which have facilitated a vibrant start-up ecosystem in the North-East.

Vice-Chancellor Professor Graham Henderson says, 'This accolade is recognition of the way in which our academic expertise, coupled with our knowledge transfer, business support and enterprise services, has supported the creation of a digital media 'super-cluster' on Teesside to reposition and re-ignite our

regional economy. This is a truly wonderful award and will serve as a real incentive to everyone involved with this type of work in the future.

'I have followed the Queen's Anniversary Prizes for many years and marvelled at the world-class quality of the university and college winners. To join that group, in an area so central to our mission of supporting the digital sector and developing highly employable graduates, is a source of huge pride to the whole Teesside University community.'

The prizes scheme is administered by the Royal Anniversary Trust and was established in 1990 with the approval of The Queen and all-party support in Parliament. The assessment process is overseen by the Trust which makes the final recommendations to the Prime Minister for advice to The Queen.



This accolade is recognition of the way in which our academic expertise, coupled with our knowledge transfer, business support and enterprise services, has supported the creation of a digital media 'super-cluster.'



Vice-Chancellor Professor Graham Henderson CBE DL and Laura Woods receive the Queen's Anniversary Prize

BUSINESS FOCUS

with Professor Cliff Hardcastle



Professor Cliff Hardcastle is Deputy Vice-Chancellor for Research & Business Engagement at Teesside University. He directs the use of University skills and expertise in support of business and industry, heads the University's work on the regional DigitalCity regeneration project and grows and develops the institution's research strategy.

The past few months have been an extremely busy period at the University as we continue to work more and more closely with business and enterprise across the Tees Valley and beyond.

It is gratifying to know that businesses working with Teesside University through Knowledge Transfer Partnerships (KTP) are generating hundreds of thousands of pounds worth of increased profits each year.

We have been recognised as a national example of excellence in working with business and more than £3m is projected to be put into the regional industry profits over the next five years – all as a result of KTPs. This recognition has come from independent assessors who have rated 82% of our KTPs over the last five years as 'outstanding' or 'very good' compared with a national average of 55%.

It demonstrates just how much added value there is in working with the University. From our KTPs we have developed our own bespoke scheme – KEI – Knowledge Exchange Internships which are part-funded by the European Regional Development Fund (ERDF).

Companies who perhaps don't have the resources or current need for a larger KTP project can still benefit from support

to solve a particular project or implement a specific project through a shorter targeted KEI. This popular scheme can place a talented graduate with your company or organisation to help you with the support of academic staff at the University.

We are also looking forward to working with our first cohort of 20 small to medium-sized enterprises who are each benefiting from £10,000 worth of business support. Our new Leading Growth scheme, run by Teesside University Business School, is also supported by ERDF.

It is a really exciting opportunity for businesses who take part. The programme has been carefully developed by University experts to ensure there is a rigorous approach to development and rich content which includes input from inspirational industry leaders.

The scheme will have a real impact on the companies to help them grow and expand their business through ten months of leadership training which includes masterclasses, coaching and a residential setting. We are now in the process of selecting the first 20 businesses and we will soon be recruiting for the second cohort of 20 who will begin the programme in September.

We have recently established a new office at the Wilton Centre in Redcar so

we can be onsite to offer our innovation services to the businesses located on the privately run business and science park.

Teams from the University have already worked with businesses on the site and I am delighted that their feedback has been extremely positive and encouraging. They are particularly pleased that members of our business team are onsite on a regular basis to help companies with specialist expertise, training, recruitment and accessing global networks.

And finally it is fantastic that we are the first North East university to be nationally approved to teach the Certificate in Knowledge of Policing (CKP) by the College of Policing. An increasing number of police forces, including the Metropolitan Police Service, request the CKP qualification before an individual applies to join the service.

I hope you enjoy this edition of R&B and discover more about the many and varied ways we work with business. I hope it gives you a flavour of how we could work with you and your business.

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Teesside University teams up with major employers for leadership course

By David Roberts

Teesside University has teamed up with leading employers to design a course to help future leaders of industry realise their potential.

The Leadership Accelerator Programme will help talented graduates develop their managerial skills to allow them to achieve their personal and career goals.

The two-year course, which started this Spring, has been designed in collaboration with several leading industry partners including Lotte Chemical, Sembcorp, Huntsman, Cordell Group and GrowHow.

Participants will spend two days per quarter on the programme and undertake a variety of specially tailored modules in subjects including self-management, human resources, performance management, communication and critical thinking.

Dr Amy Smith, Corporate Programmes Manager for Teesside University Business School says the course has been designed for graduates in the engineering and manufacturing sector who may have degrees in related disciplines but no formal management training.

She adds, 'We wanted to design a course which will help train the business leaders of tomorrow to ensure continuity in the region's key industries.'

'Many of our staff have experience in industry which they can draw upon and working with the companies to design the course ensures that everything they teach is relevant.'

'Each participant will also be assigned a company mentor and the courses are contextualised for the sector that they work in.'



Dr Amy Smith with Stephen Trillo from Lotte Chemical

Stephen Trillo, Human Resources & Organisation Development Director at Lotte Chemical says, 'Lotte Chemical believes in a continuous learning and development culture and we are always seeking new and innovative ways of providing our employees with new opportunities to develop and progress their careers.'

'We firmly believe that learning should be a journey not a destination and we recognise how important it is to develop new, existing and future talent within the company.'

He adds, 'The new and innovative Leadership Accelerator Programme from Teesside University Business School does exactly that and we are proud to be associated with the programme.'

'We are enthusiastic about the programme because it has been designed in close partnership with industry to ensure that graduates and middle managers acquire skills, knowledge and experience to fully develop their potential within their companies.'

'The flexible learning, delivered in short sessions over a two year programme, is supported by workplace mentors to ensure the benefits of the training don't just stay in the classroom, they get fully implemented in the business so everyone gets a great return on investment.'

'I firmly believe it stands out from the more traditional development programmes and will meet the needs of businesses across the manufacturing sector.'

Ten years of DigitalCity

As DigitalCity celebrates its tenth anniversary this year, David Roberts looks back over a decade helping fledgling businesses to succeed.

When the DigitalCity project first launched in Middlesbrough in 2004, the world of technology was very different.

It would be another three years before Apple's Steve Jobs would launch the iPhone; computer games on mobile phones generally consisted of chasing a snake around a monochrome screen and tablets were still something that the doctor prescribed.

While the last ten years has seen great changes in digital technology, what has remained constant is the quality of the companies being formed as part of the DigitalCity project.

By keeping abreast of these developments and looking at innovative ways to monetise them, hundreds of entrepreneurs have helped to create a supercluster of digital and technology companies which bring millions of pounds of investment into the Tees Valley.

This high-growth digital cluster capitalises on academic expertise coupled with industry know-how to provide a unique environment for the development of digital start-ups.

The DigitalCity project comprises DigitalCity Innovation and DigitalCity Business.

DigitalCity Innovation is housed at the aptly-named Phoenix Building on Teesside University's Middlesbrough campus and uses the University's world-renowned expertise and reputation in digital media and digital technology to help talented graduates turn innovative business ideas into reality.

Its success is well-documented and was one of the reasons cited for Teesside University receiving a Queen's Anniversary Prize (see page 3).

The DigitalCity project is also a cornerstone of the Local Enterprise Partnership's economic development strategy. Research carried out in 2012 by the KSA Partnership revealed that DigitalCity Innovation contributed £20m a year to the local economy and helped 250 graduates to create 216 companies.

A key part of DigitalCity Innovation is its Fellowships scheme which awards graduates up to £4,000 to cover living expenses while they develop a business idea or product.

'We're delighted at the impact DigitalCity has made in the Tees Valley over the last ten years,' says Laura Woods, Teesside University's Director of Academic Enterprise. 'Some of the region's most exciting new companies have developed through DigitalCity and its extremely rewarding to see those companies grow and become successful.'

'Through DigitalCity we have helped to make the Tees Valley one of the best places in the country to grow your business.'

One of the most successful businesses to have come through the DigitalCity Fellowships scheme is Bloom Studio.

Founded by Teesside University animation graduates Martin Davies and Albin Nilsen, the company is now housed on the top floor of the Phoenix Building and was initially based in the University's incubation premises on Victoria Road.

Bloom has now grown into one of the region's most respected animation and visual effects companies handling contracts from as far afield as Norway and China.

'We came out of university as artists, knowing nothing about business,' says Martin. 'But we have learnt about intellectual property law, funding and business planning. The support we have received from the University has been fantastic.'

The other strand of the DigitalCity project, DigitalCity Business, is based in Middlesbrough's Boho zone.

There, growing companies like visualisation studio Animmersion, which also grew out of a DigitalCity Fellowship, can work alongside other digital and technology business in a cooperative and vibrant atmosphere while accessing state-



The last ten years have demonstrated that at DigitalCity we have a real pipeline of quality from early start-ups accessing the Fellowship programme and growing to become established business in the Tees Valley



of-the-art facilities and advice from industry professionals.

David Jeffries, Head of DigitalCity, says, 'The last ten years have demonstrated that at DigitalCity we have a real pipeline of quality from early start-ups accessing the Fellowship programme and growing to become established businesses in the Tees Valley.

'The fact that six local authorities in the Tees Valley now see DigitalCity as an economic driver for the region is a testament to our success.

'As advances in technology continue, the next ten years promise to be even more exciting and I am confident that the DigitalCity project has laid the right foundations to successfully meet the challenges of the next decade.'

This project is part financed by the European Regional Development Fund (ERDF), managed by the Department for Communities and Local Government.

The ERDF Competitiveness Programme 2007-2013 is bringing over £300m into the North East to support innovation, enterprise and business support across the region.

Ten of the best – Some of the most successful companies to have grown out of the DigitalCity project

- 1 **Bloom Studio** has worked on animations for clients as far afield as China and Norway and attracted the support of Sir Richard Branson.
- 2 **Animmersion**, one of the region's leading visualisation studios, is based at DigitalCity Business in Middlesbrough Boho zone.
- 3 **Spearhead Interactive** uses games technology to provide online 3D services for a wide range of clients.
- 4 DigitalCity Fellows **Magali Pettier** and **Jan Cawood** are releasing a feature length documentary, *Addicted to Sheep*, later this year.
- 5 Jonny Edwards of **Thoughtful Technology** is attracting interest from across the world with his complex data analysis software.
- 6 Amjid Khazir's social enterprise, **Media Cultured**, makes short educational films as part of a groundbreaking counter-extremism programme.
- 7 Blair Stent, founder of film production company, **The Office Above**, was recruited to work on a multi-million pound feature film directed by Alex Garland, the screenwriter for films such as *28 Days Later*, *Sunshine* and *Dredd*.
- 8 Tyneside-based app developer **Gospelware**, founded by Michael Dunn, expects sales to reach £4million by 2016.
- 9 **Graphic.ly**, an e-publishing platform now based in Boulder, Colorado, was founded by Kevin Mann who was named one of the best Young Tech Entrepreneurs of 2010 by Bloomberg Businessweek.
- 10 **SockMonkey**, founded by Bob Makin and Darren Cuthbert in 2013, has just released its first mobile app, Wurdy, and has already hired two new staff.

Award for helping businesses to grow

By David Roberts

An organisation devoted to helping fledgling businesses to succeed has praised the work of a Teesside University employee.

Eileen Wicks, the University's Graduate Enterprise Manager, has been presented with an award for Outstanding Contribution to Business Incubation by UK Business Incubation (UKBI).

UKBI is the membership association of organisations and professionals actively involved in enterprise, innovation and sustainable economic growth and the award was presented to Eileen in recognition for her work managing Teesside University's business incubators.

In her nine years in the role, Eileen has helped hundreds of business start-ups and has transformed the University's business incubation service from simply offering accommodation and equipment to a holistic support network with industry-specific mentoring and advice.

Her efforts have ensured that survival rates for businesses supported by the University are in the top five nationally and, to date, the incubator has helped to create 268 new businesses and 451 jobs.

Eileen says, 'I'm absolutely delighted to have received this award, it's a real honour to have been recognised. However, it really is due to the fantastic team I have at graduate enterprise – we wouldn't have been able to achieve this without them. It also reflects the hard work and entrepreneurial spirit of the businesses themselves.'

Kieron Broadbent, the membership manager of UKBI visited the University to present Eileen with a glass plaque to commemorate her achievement.

He says, 'We're very pleased to present this award for Outstanding Contribution to Business Incubation to Eileen. It recognises the hard work done by her and her team to support small and growing businesses in the Teesside area.'



Eileen Wicks is presented with her award by UKBI membership manager Kieron Broadbent



I'm absolutely delighted to have received this award, it's a real honour to have been recognised

The University is currently supporting nearly 70 new businesses, including:

- > 32 in its residential incubator in the Victoria Building in Middlesbrough
- > 19 virtually incubated businesses
- > 7 businesses hot-desking at the Darlington campus
- > 9 businesses at 'follow-on' accommodation at the Phoenix Building in Middlesbrough.

Successful businesses incubated at Teesside University include animation company Bloom Studio, visualisation studio Animmersion and Graphic.ly – an e-publishing platform now based in Boulder, Colorado.

For more information about how Teesside University can help your business, visit tees.ac.uk/business.

A career forged in steel

In business circles the name of Graham Honeyman CBE is renowned as the man who saved Sheffield Forgemasters from closure.

The former Teesside University graduate and now honorary graduate is looking forward to renewing his links with the University and inspiring the next generation of graduates.

Dr Graham Honeyman rose from engineer at NEI Parsons to chief executive of Sheffield Forgemasters by way of a PhD at Teesside University, and he remains a Teessider at heart.

'My time on Teesside is very important to me. We are a special kind of people, a combination of friendly but tough. It was my PhD at Teesside that gave me skills in research as well as the practical side of the course.'

Graham was born in Northallerton, before moving to Hutton Rudby where he spent his formative years. After his PhD he went to work for Parsons Turbine Engineers in Byker, Newcastle as a research metallurgist before eventually becoming a principal engineer.

In 1987 he won the Winston Churchill Medal. 'That was life-changing. It allowed me to travel the world studying supercritical power stations in Japan for three months and in the US for three months.'

Soon after that Graham was offered a job as technical director in Sheffield Forgemasters, then in 1998 he won a silver medal from the Royal Academy for outstanding performance in British engineering. He left technical behind and went into a management role.

He moved up through the ranks until 1998 when the group was sold to an American company and he came into conflict with them – ten weeks after being



appointed managing director he was fired.

'I was gutted. I had to pick myself up and find another job.' But in 2002, with Sheffield Forgemasters losing money and facing closure, Graham was asked to return. 'I was able to persuade the banks to back me and at one point we were just three hours from closure. Because I am from Teesside, I have a strong character, they believed in me and I delivered.'

Graham forged a new path for the company in high technology products, 'We had competitors around the world with lower cost bases, cheaper electricity and lower wages. You can't compete with that, producing standard components. In our field it has to be technically based and that's the route I took. By Christmas we had made a small profit instead of losses.'

He then went on to lead the company in a buyout to separate from the American owners – Sheffield Forgemasters is now

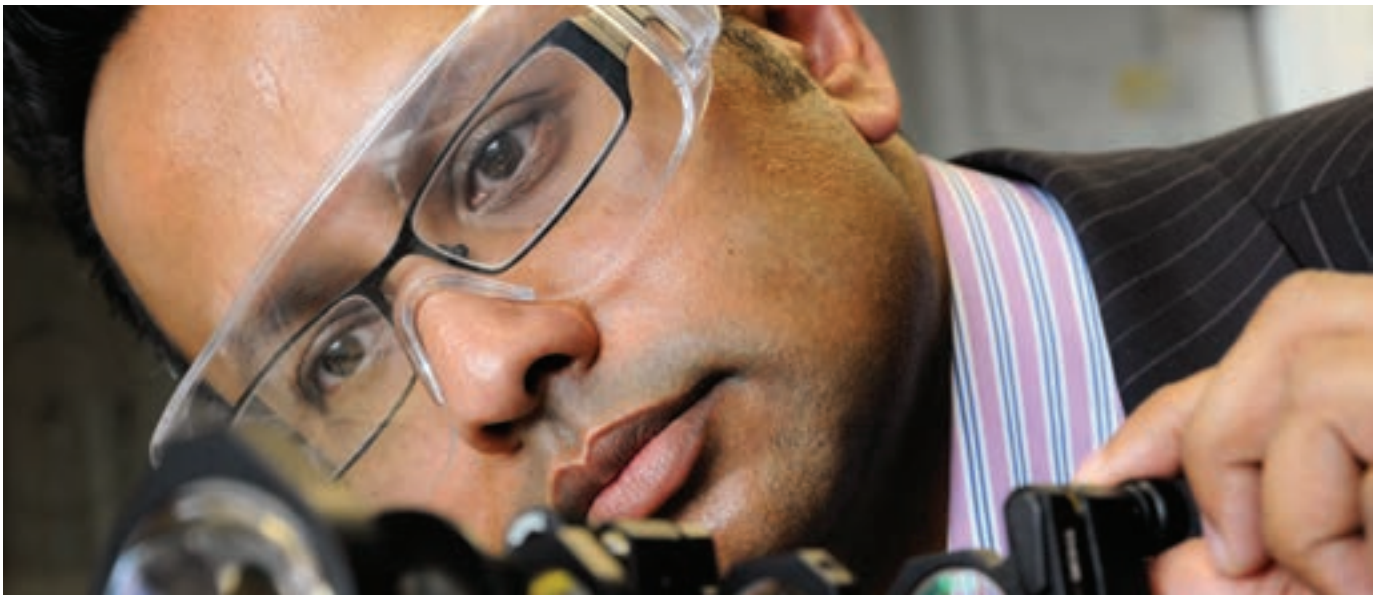
the only British owned steel company left in the UK.

Graham says he was 'over the moon' when he was awarded an Honorary Doctor of Business Administration at Teesside University.

'I have watched over the years as the University has grown and expanded both physically and by gaining a first-class reputation across a host of different subjects. I am very proud that I attended the University to do my PhD.'

As someone who, despite his position, still walks the shop floor and believes in offering opportunities to young people, Graham is looking forward to returning to Teesside University more regularly.

'I will be returning to give lectures and will have the opportunity to talk to staff and students. It's something I am really looking forward to, to be able to give back to somewhere that gave so much to me.'



Researchers reach ‘holy grail’ of bloodstain examination

By Gary Martin

A team of experts at Teesside University are set to revolutionise forensic science after developing a unique method of not only detecting and identifying bloodstains, but also accurately estimating their age.

Visible wavelength hyperspectral imaging allows for the positive identification of blood which may be confused with other red coloured substances, hard to see on dark backgrounds or not visible to the naked eye. It also enables investigators to pinpoint the age of a one-month-old bloodstain to within one day – something that has so far eluded forensic scientists.

Dr Meez Islam, pictured, a physical chemist and Reader in the University’s School of Science & Engineering, is one of the academics behind the forensic breakthrough, which also involved his colleagues Dr Liam O’Hare, Peter Beveridge and the work of their PhD student Bo Li.

The failure to locate traces of blood during the original forensic examinations

meant that the killers of both Stephen Lawrence and Damilola Taylor evaded justice for years until the forensic evidence was reviewed.

Researchers hope that their new high-tech blood detection technique will help investigators avoid these mistakes in the future.

Dr Islam says, ‘We have developed a hyperspectral imaging technique which is a non-contact, non-destructive way of detecting and identifying blood. We use a camera with a liquid crystal tuneable filter which takes a series of pictures at different wavelength bands and can identify bloodstains through its unique absorption spectrum.

‘It can quickly differentiate between what is blood and what isn’t and it can locate bloodstains on problematic areas such as



Our technique can distinguish between overlapping blood spatter patterns of different ages and could be used to determine the timeline for a violent crime

red clothing or dark backgrounds and at diluted amounts. What this does is provide fast, at the scene identification of blood and speeds up the investigative process as items do not need to go back to a laboratory to be examined.

'To use hyperspectral imaging in a way that scans the crime scene for blood also means that the chances of missing a bloodstain are vastly reduced.'

Dr Islam and his team unveiled their research to coincide with Teesside celebrating its 21st anniversary of teaching forensic science.

Another 'game-changing' development of hyperspectral imaging is that it can estimate the age of a bloodstain – something that Dr Islam described as one of the 'holy grails' of forensic science. Bloodstains change from bright red to a dark reddish-brown as they age. Hyperspectral reflectance imaging and spectral pre-processing can use that colour change to determine the age of bloodstains.

'Current methods for age determination of blood stains are neither accurate, reliable, robust nor useable at a crime scene,' explains Dr Islam.

'Our method is able to accurately estimate the age of a one month old bloodstain to within a day under controlled conditions. It is potentially a huge step forward for forensic science. Again it speeds up the investigative process. At crime scenes bloodstains can be from different time periods. Our technique can distinguish between overlapping blood spatter patterns of different ages and could be used to determine the timeline for a violent crime.'

Dr Islam and his team currently have a prototype instrument and are in the process of setting up a spin out company to develop a commercial instrument, while police forces have expressed interest in using hyperspectral imaging for bloodstain detection.

Their research has been presented at the national Forensic Science Society conference in Manchester and at an invited talk at the Netherlands Forensics Institute.

Teesside Celebrates 21 years of forensic science

Teesside University is a founding father of forensic science and was the first university in the country to offer forensic and crime scene courses.

A celebratory event was held to mark the 21st anniversary of forensics at Teesside. Forensic science – past, present and future – reflected on past achievements and looked forward to new developments in this highly specialised field.

Bestselling crime writer Val McDermid, famous for her *Wire in the Blood* series, was the guest speaker and talked about how scientific fact is now informing fiction.

Brian Rankin, Head of the Centre for Forensic Investigation at Teesside, says, '21 years ago nobody was teaching forensics and crime scene courses. To look back on all that we have achieved and to know we were the first university to offer such courses is something worth celebrating.'



Fifteenth Animex festival hailed a huge success

Animex, the international festival of animation and computer games returned to the University in February with another star line-up featuring some of the industry's biggest names.

Feedback from this year's Animex festival has been extremely positive with many illustrious speakers saying it was the best event they have ever attended.

Animex was spread over five days and featured representatives from international companies including Disney, DreamWorks and Naughty Dog.

The annual festival is the largest and longest- running of its kind in the UK and brings together a range of industry professionals from the worlds of animation, computer games and comics.

Among the speakers this year was Dan Lund, an effects animator who worked

on Disney's new film *Frozen*, international comics writer Gail Simone, who has written for titles such as *Wonder Woman* and Ashraf Ismail, game director for *Assassin's Creed: Black Flag*.

The event saw hundreds of enthusiasts attend a unique mix of talks, masterclasses, film screenings and exhibitions which promoted an ethos of collaboration and sharing.

Gabrielle Kent, Animex Festival Director, says, 'This year was absolutely incredible. The speakers were inspirational and engaging and said that it was the best event they had ever attended.'



Funding to provide more opportunities for postgraduate students

By Gary Martin

Teesside University has secured funding to provide 40 postgraduate scholarships in courses relating to science, technology, engineering and maths (STEM).

The scholarships for the 2014/15 academic year will cover both full-time and part-time courses. Teesside University is also part of a collaborative research project investigating the expectations and attitudes of students, universities and employers towards postgraduate programmes taught in these subject areas.

The University is part of a consortium, led by Kingston University and including

Manchester Metropolitan, Plymouth, Portsmouth, Brighton, Coventry, Wolverhampton and Lincoln. The consortium was one of 20 successful bids to the Higher Education Funding Council for England (HEFCE) Postgraduate Support Scheme.

This is a £25m programme that will provide work placements and financial and pastoral support to thousands of postgraduate students.

Teesside University and each partner will receive £2.7m for the project, with 40 scholarships offered at each of the nine universities.

The initiative will encourage students to continue on to postgraduate study in STEM and then track how they fare after graduation.

Professor Eileen Martin, Teesside University's Deputy Vice-Chancellor (Academic), says, 'Not only will this funding provide postgraduate scholarships here at Teesside, but the collaborative research will allow us to find out more about the expectations and experiences of students, universities and employers who support and engage in postgraduate study.'

LEADING THE WAY IN THE MANUFACTURING REVOLUTION

A Teesside University academic is part of a European project which is developing a roadmap that aims to revolutionise the future of manufacturing.

Professor Zulfiqur Ali, Dean of the University's Graduate Research School, is a specialist in micro and nanofabrication.

He is part of the Innovation for Digital Fabrication (DIGINOVA) project which is examining how digital fabrication will transform the nature of global manufacturing with an increasing influence on a wide range of areas, including positive benefits for health.

Digital fabrication uses computer-controlled tools and novel processes to transform digital designs directly into useful physical products.

Using digital data, 3D printers print multiple thin layers of materials such as polymer or metal which are then fused by lasers to form solid objects. Traditional mass manufacturing will move towards global distribution of digital design and specification files that will form the basis of local production. This will reduce manufacturing costs, allowing a higher level of customisation, geometric freedom for manufacturing and design, a simpler supply chain and on-demand production.

'This is a really exciting time for a number of sectors, including medical, consumer goods, food, electronics and vehicles', explains Professor Ali.

'The goal is to be able to create products that can be produced locally, at lower cost, with higher functionality, in a more sustainable way and help to bring manufacturing back into Europe.'

The DIGINOVA project is being led by OCE TECHNOLOGIES B.V. in

The Netherlands, part of the Canon Group, and is being funded under the European Commission's Framework Programme 7 under the Nanosciences, Nanotechnologies Materials and New Production Technologies theme. The DIGINOVA consortium consists of four large companies, seven small and medium-sized enterprises and nine research institutes. Other participants in the UK include the Centre for Process Innovation Limited (CPI) and the Universities of Cambridge, Manchester, Newcastle and Nottingham.



This is a really exciting time for a number of sectors, including medical, consumer goods, food, electronics and vehicles



HITACHI'S PLANS ARE RIGHT ON TRACK IN NORTH EAST

You could say Darren Cumner was 'chuffed' at the chance to run Hitachi's new train manufacturing and assembly plant in the North East – so much so that he left his secure job in his native South West for a future with his family in the North East.

Alison Ferst discovers that the head of Hitachi Rail Europe in the region intends to build much more than a factory – he intends to create a new manufacturing culture.

Darren Cumner is not unaware of the weight of expectation upon him as the manager of Hitachi's new train manufacturing plant in the North East.

It is an £82m investment in the region. It is offering over 700 jobs in the new factory. By 2018 iconic new high-speed trains manufactured here will be running through our stations along the East Coast Main Line.

And all of this is in the cradle of rail development – the birthplace of the world's first railway between Stockton and Darlington.

It has generated a huge amount of interest on so many fronts – not least the investment in the region, the economic impact, and the jobs to be created – but also a frisson of excitement among those for whom rail and trains are a lifetime passion.

Darren is careful to point out, 'This will be very new. We are using the latest technology to build new and modern rail carriages and the area was chosen for clear business reasons.'

But, he smiles, 'That said I am sure we will have widespread interest and many visitors when we are up and running. Rail is one of those professions where even those who have retired remain passionate and committed.'

Darren's role now is to oversee the building of Hitachi Rail Europe's new manufacturing plant at Merchant Park where work has now started with the main contract awarded to local construction company Shepherd.

His emphasis is particularly on recruitment at the moment. 'Hitachi makes world class trains. We want to be able to make trains to the same standard here in the North East and to do that we need to recruit the right people, people with extra skills and the right mindset. There will be no repetitive tasks that have to be completed in seconds. It is a craft to be able to manufacture these trains so work content will be over much longer periods. 'That will do' is not a phrase that is in our vocabulary.

'We are very aware that what we are doing here builds on a legacy and it will be a legacy in itself. These trains will be iconic.'

Hitachi is the main shareholder of Agility Trains which has been awarded a £5.8bn contract to construct and maintain the next generation of Intercity carriages for the UK. The Newton Aycliffe plant will support the Department for Transport-led Intercity Express Programme to replace Britain's fleet of Intercity 125 high-speed trains which were deployed by British Rail in the 1970s and 80s.

The plant itself will be the size of six premier league football stadiums. If you were to walk the full production line, it would be over 7km. The trains themselves are up to 234 metres long.

Darren is committed to recruiting the right people and is also keen to invest in skills in the region. 'We really need more engineers. Engineering as a profession seems to me to be undervalued in the UK yet they are much sought after. I don't think young people always realise that you rarely find engineers out of work and it is a highly paid profession.

'At Hitachi we also believe in progression. So we will have apprentices as well as a graduate programme. Apprentices may well go on to university courses too. We need to develop these skills in the region because for Hitachi this is a huge permanent investment. The plant we are building will have tracks for the trains so it is not a factory that can be reconfigured into building something else in the future – it is here to stay as a train manufacturing plant.'

And Darren too is here to stay. He has moved from his native Bristol with his wife of 20 years and their three-year-old daughter. They have bought a new home in nearby Darlington and are considering schools.



**This will be very new.
We are using the latest
technology to build new
and modern rail carriages
and the area was chosen
for clear business reasons**



'I feel very at home here and I have lived all over the world during my career.'

The 43-year-old has lived in Hungary, Japan and China as well as working in Russia, although that was a commute – 'an interesting one', Darren smiles. He is currently beginning to build his new team and 40 staff are scheduled to be on board by the end of 2014 with large scale recruitment beginning in 2015. The first of the recruitment drives has started with a focus on manufacturing and quality engineers who will help scope the plant.

Part of his role is to educate them in the Japanese work and business culture. Darren spent three years living there as part of his 20 years working for brake system manufacturer Knorr Bremse. 'I lived very much as part of the Japanese community where it was quite rural next to the rice fields so you really do absorb the culture and it can be a different way of doing business.

'To the outsider, Japanese business methods can appear slow as there is a lot more employee engagement and discussion about decisions. But then when the decision is made it will be

implemented quickly and professionally as one team. There is a need to give people time to absorb things and in meetings this sometimes means silence. It is hard to imagine silent moments in a typical UK business meeting.

'The key to being successful is to adapt your style and ensure there is engagement. It is a respectful style and this is the kind of leadership we will need to be successful.

'At Hitachi Rail Europe the chief executive and managing director sit in an open plan office and anyone can approach their desks at any time. Team is really

important and empowering people to be responsible.

'I am really looking forward to making this happen. 'I know how iconic this is for the North East and for me it is a privilege to be involved.'

For more information about the Newton Aycliffe plant visit www.hitachirail-eu.com

For anyone who wants to join the Hitachi team or is interested in apprenticeships and graduate schemes visit www.hitachirail-eu.com/careers

FACTS

- > £82 million invested by Hitachi Rail Europe
- > 730 new jobs created
- > 35 vehicles can be manufactured each month – high speed trains, commuter trains and metro trains
- > research and development facility
- > test track on-site

SCHEDULE

- > 2013-2015 – factory build and completion
- > 2015 – large scale recruitment begins
- > 2016 – rolling stock for Intercity Express Programme begins
- > 2017 – first units for the Intercity Express Programme enter service in South West
- > 2018 – trains begin to run on the East Coast Main Line

APPLIED INTEGRATION

A business based on a Stokesley industrial estate is playing a vital role in assisting the defence of the nation through its work on control systems for Royal Navy submarines.



Lee Raywood, Graham King and Garry Lofthouse

Michelle Ruane meets the team behind Applied Integration, which is specialising in providing cutting-edge solutions to a vast array of industries.

Set up in 2005 by engineers and Teesside University graduates Garry Lofthouse, Lee Raywood, Graham King and Roy Coleman, Applied Integration has fast become one of the UK's leading independent systems integrators providing complete industrial and safety automation.

They recently secured a multi-million pound contract to design and develop systems for one of the world's most sophisticated nuclear submarines. The company, which already designs software for HMS Audacious and HMS Anson submarines, went on to secure a multi-

million pound deal to design and develop control systems for HMS Agamemnon and HMS Ajax.

Automation and control systems being devised by Applied Integration's team of engineers will help Royal Navy operators and sailors manage conditions on the UK's largest and most powerful fleet of submarines.

Along with the Royal Navy contract, they've also worked on automating systems for a range of other industries, including established companies closer to home including SSI, Tata and KP Foods.

Director Garry Lofthouse, says, 'When we set up, our area of expertise was in offshore safety systems for the oil, gas and petrochemical fields – industries we had all worked in.'

'The defence of the nation was far from our minds, but our move into the defence sector has become a key part of our ongoing growth strategy. We're unbelievably proud to be designing and developing systems for what is said to be the most complex build in the world today.'

Applied Integration was able to benefit from the defence industry's need to streamline and respond to budgetary constraints by moving from bespoke methods to more economical off-the-shelf systems.

Garry adds, 'We were a young company at the time, just a few years old, but we put a technical bid together which outshone bids put forward by some really major, well-established companies.'

Managing Director Lee Raywood says, 'The beauty of what we do is that we can provide systems for all manner of needs. There are no limitations to the areas we can work within.'

'We've built our reputation on delivering world-class results to the Ministry of Defence and Royal Navy and the experience we have gained means we're in a perfect position to continue to meet the highest standards every time the bar is raised.'

Hailing from the North-East, the Applied Integration team strives to play a part in nurturing and retaining local talent, while highlighting the vast opportunities available to engineers across the region.

Lee explains, 'Our aim has always been to create an ethos and environment where

National approval for Teesside to teach policing qualification

By David Roberts



The College of Policing has approved Teesside University to be a provider of the Certificate in Knowledge of Policing (CKP).

It is the first North East University to be approved to teach this important qualification.

An increasing number of police forces across the country, including the Metropolitan Police Service request the CKP qualification before someone applies to join the service.

Teesside University now offer the CKP embedded as a module within its BSc (Hons) Crime and Investigation degree programme and from September within a BSc (Hons) Policing degree. There are also plans to offer it as a stand-alone qualification in the future.

The CKP was introduced in April 2012 and is a nationally recognised official qualification for students who want a career in the police. It also contributes to the Diploma in Policing which is a requirement for all new police constables.

The certificate gives an understanding of policing and police law and demonstrates the critical decision-making skills required for the job.

The Approved Provider status for the CKP boosts Teesside University's credentials as an internationally-renowned centre for teaching and research related to crime, policing and forensic science.

Teesside boasts state-of-the-art facilities for its crime, policing and forensic disciplines including a crime scene house and mock court room.

Dr Ian Pepper, Principal Lecturer in Policing, pictured, says, 'It's a great honour to receive this approved provider status and a fantastic opportunity to teach this exciting course. It further enhances our credibility as a University that supports and drives employability.

'We want to be seen as not only meeting the needs of our students but also of the employers in the workplace by providing the sort of qualifications they want for their employees.'

For more information on degrees at Teesside University visit tees.ac.uk/crime.

people want to work. We provide the tools for our staff to grow and we support them, always putting our staff at the forefront.'

Garry says, 'We now have a team of 29 people and we invest in the graduates and apprentices we take on. One of the first graduates we took on is now leading a testing team.'

Lee adds, 'We want to invest in young people and help to keep talented engineers in the area, while promoting that there are so many opportunities available here in our region.'

The firm's website also has its own Gradzone section, offering a knowledge base for those seeking a career in engineering. Run by graduate engineers employed by Applied Integration, it provides an opportunity to ask them about their own career path or advice on study opportunities.

And, as Teesside University graduates, the company's directors maintain close links through summer placements offered for students on electronics or engineering degrees. They also provide kit sponsorship to the FA Girls' Centre of Excellence, hosted at the University, which provides female footballers with access to coaching expertise and fitness support.

Applied Integration was a finalist in two categories – Company of the Year and the Manufacturing Award – in the North East Business Awards, which were presented in April.

RESEARCH HAS AN INTERNATIONAL IMPACT

Teesside University has a worldwide reputation for applied research. Work by our academics has contributed to discussion and debate in specialist areas across the globe. Whether it is NASA investigating conditions for astronauts, or delegates from the Middle East examining new building technologies, researchers at Teesside University have the knowledge and expertise to make a significant contribution to a wide range of developments.

NASA references Teesside finding

By Gary Martin

A study by Teesside University academic Daniel Eaves has been referenced by NASA as part of an investigation into how astronauts adapt to the change between gravity and weightlessness.

Daniel's research focused on whether looking at different visual images during exercise influenced the physical demands of the exercise.

Now NASA have used his findings as part of their work to investigate how astronauts adapt to different conditions.

Daniel, Senior Lecturer in Sport and Exercise Science, says, 'When astronauts switch from normal to distorted sensory conditions, such as from gravity to weightlessness or vice-versa, their metabolic demands rise due to the extra effort of getting used to the new conditions.'

'It is interesting and inspiring to see that the research we do here at Teesside University can be applied to many different walks of life.'

'NASA referenced our paper as we showed higher metabolic, cognitive and movement demands from distorted sensory conditions during treadmill running, compared to running in front of a normal mirror image.'



Daniel Eaves



It is interesting and inspiring to see that the research we do here at Teesside University can be applied to many different walks of life

Sewage sludge under the spotlight

Experts at the University are part of a two-year international research project to help local and regional governments across Europe turn sewage sludge into re-usable charcoal and gas.

The PYROCHAR project is supported by a consortium of SMEs and research centres dedicated to the design and development of a process to convert sewage sludge into useful biochar and synthetic gas.

The Technology Futures Institute is one of just three research centres – and the only centre in the UK – selected to contribute to the project, along with a range of organisations from countries including Spain, France and Turkey.

Professor Maria Olea and Dr Chris Ennis are leading the Teesside team looking specifically at biomass, biochar and gas clean-up techniques.

'We are delighted to be involved in this exciting and innovative international project. We have a strong international reputation and are looking forward to contributing to a project which could result in huge economic and environmental benefits' explains Professor Olea.



Dr Chris Ennis and Professor Maria Olea



University and hospital examine obstructive sleep apnoea

Professor Greg Atkinson from the Health & Social Care Institute is leading a project in collaboration with sleep experts at James Cook University Hospital.

Professor Atkinson, pictured, has researched the body clock for over 25 years and has joined forces with Professor Gerry Danjoux who heads up the Sleep Medicine Unit at the James Cook University Hospital (JCUH).

Teesside University has provided three years of funding for PhD student Sophie Suri to research the links between physical activity, obesity and obstructive sleep apnoea.

Obstructive sleep apnoea is the name of the syndrome where the upper airways partially or completely collapse during

sleep, leading to the person waking up, sometimes more than 30 times per hour. People with sleep apnoea are at an increased risk of developing a high blood pressure and having a stroke or heart attack. They also find it very difficult to stay alert during the daytime because of the sleep disruption.

Diagnosis of obstructive sleep apnoea is difficult and can involve costly overnight monitoring in a sleep medicine laboratory. Part of the project focuses on other ways of diagnosing obstructive sleep apnoea and exploring whether physical inactivity and/or being unfit makes the symptoms worse.

Ultimately, the project team wants to see if a supervised exercise programme can make symptoms of obstructive sleep apnoea better.

Can insoles improve balance and walking in people with multiple sclerosis?

Researchers are leading a pioneering project to see if wearing specially textured insoles can improve the balance and walking ability of people with multiple sclerosis (MS).

Walking difficulties are amongst the most common mobility limitations for people with MS, and two thirds of sufferers eventually need some kind of mobility device, such as a cane, walker or scooter.

Dr John Dixon, a Reader in the School of Health & Social Care, together with PhD student Jenny Baron and Professor Denis Martin, are leading the three-year project after securing a £96,000 research grant from the Multiple Sclerosis Society.

It is hoped the research will lead to people with MS becoming more active and help to improve their quality of life. The team will monitor 100 MS sufferers – of

varying ages and mobility – using three different kinds of textured insoles. They will be asked to wear the insoles for three months and keep a diary of their activities.

Their walking patterns are tested throughout the trial using a GAITRite system, which provides detailed analysis of all aspects of a participant's walking technique.

Dr Dixon says, 'People with MS have to deal with balance and gait problems, which often prevent them from being as active as they would like. They also have difficulties detecting sensations and that is where we are hoping the textured insoles could help.'



Dr John Dixon with PhD student Jenny Baron

Oral health gets South American check up



An academic whose work aims to improve the oral health of young children and babies has taken her research to Brazil.

Dr Vida Zohoori, a Reader in Oral Public Health and Nutrition, is researching the intake, extraction and retention of fluoride in young children and babies to gain a better understanding of how to improve their oral health.

In March she helped to run a four-day workshop in Brazil, working with the British Council and partner universities to address priority research questions in fluoride metabolism research. The aim was to find out more about both the benefits and side effects of fluoride intake to improve

international public health.

Dr Zohoori is also working on a collaborative project with Harbin Commerce University in China to measure fluoride contents of drink in the country.

'The research I am undertaking here and the work I am carrying out abroad is driven by a desire to improve oral health, especially in young children,' explains Dr Zohoori.

'Tooth decay is still one of the most globally prevalent chronic diseases of childhood and can have a detrimental effect on quality of life by affecting normal social roles, self-esteem, nutrition, communication and general health, causing pain, discomfort and loss of function.'

Creative conference celebrates work of acclaimed author

Artists, writers, researchers and enthusiasts came together to celebrate the work of one of the 20th century's most experimental authors.

Georges Perec is a French author who found fame through his playful and experimental approach to writing. His most celebrated novel was written entirely without the use of the letter 'e'.

Species of Spaces: Transdisciplinary Approaches to the Work of Georges Perec was an international conference held on Teesside.

Speakers at the conference included Canadian sound poet Christian Bök, Dr Kate Briggs, The American University of Paris and Dr Victoria Hunter, University of Chichester.

The conference, sponsored by the Modern Humanities Research Association (MHRA), was a collaboration between researchers in English, dance, design and fine art at the University's Institute of Design, Culture and the Arts.

Rachel Carroll, Principal Lecturer in English, says, 'Perec has been a creative inspiration to so many and this was a unique opportunity to explore his legacy.'

Georges Perec's collection of essays entitled *Species of Spaces* has inspired new creative work from Teesside students, ranging from graphic design pieces to dance performances.

Dr Mohamad Kassem and Professor Nashwan Dawood



International delegates discuss new building technologies

Delegates from around the world have discussed cutting-edge developments in building technology at a conference organised by Teesside University academics from the Technology Futures Institute.

More than 100 leading academics and industry experts from 23 countries took part in the 13th International Conference on Construction Applications of Virtual Reality (ConVR).

70 papers were presented at the event which discussed the latest applications of virtual reality, augmented reality and Building Information Modelling in the construction industry.

Professor Nashwan Dawood, Director of the Technology Futures Institute, organised the first ConVR conference at Teesside University in 2000 and since then it has been held in Taiwan, Japan, Malaysia and the Middle East.

He says, 'This conference has helped to develop a community of research in this area and one of the highlights each year is to see the new research which has emerged out of this community.'

'Without this platform it would be difficult to communicate with each other as it helps to create an environment to discuss, publish and collaborate with people round the world. It also helps us to understand new issues and look at how we can move forward and has been a tremendous way to test research.'



Without this platform it would be difficult to communicate with each other

Enterprise Clinic



WITH STEVE DOUGAN

Steve Dougan is Teesside University's Graduate Business Consultant. Steve coaches and supports graduate entrepreneurs as part of an award-winning business incubation project funded by the European Regional Development Fund.

If you have any questions for Steve, email s.dougan@tees.ac.uk with your name, your query and the name of your business (if you have one). Please include your contact details.



Q How has the internet changed the way businesses are formed and structured?

A I think one answer is that the internet has started a structural decline.

The internet has changed the way we communicate, shop, educate and do business. In fact it is difficult to think of an aspect of our lives left untouched by the web. For generation flex – that online generation born in the 90s – it is impossible to imagine the world pre-internet, pre-mobile. They are the most empowered generation, able to communicate 24/7 without boundaries, functional or geographical. They have access to platforms where they can work, share, collaborate, network and play anywhere, anytime.

At a recent Human Resources Directors Symposium, the global talent vice-president for a multi-national telecoms giant described the challenge of attracting and hiring the very best of generation flex. He told us they don't want to work nine to five, they don't want to work from a fixed location, they want to deliver results and not conform to norms established a century ago.

The video games industry, already generating more income than the movie business, and which by recent estimates is due to exceed \$80bn in global revenue by 2016, is a breeding ground for new ways to work together, to innovate and to build amazing products. We are seeing new, temporary, talent structures appear, gathering together to complete a project and then dispersing with a share of the spoils. No company formed, no studio rented, no organisation chart started. Just contribution and collaboration in short bursts.

People often ask how to get that entrepreneurial spirit, that drive back into a business. Maybe the answer for young entrepreneurs is, don't start a business, build a community.

Q How can my business benefit from this collaboration revolution?

A All the tools you need to start sharing, communicating and collaborating are already there. It can be useful to use three headings:

- 1 Share** – what key information do we need to have access to wherever we are? Who needs what?
- 2 Communicate** – what messages do we need to communicate up, down and across the organisational structure? How do we communicate with our customers and stakeholders?
- 3 Collaborate** – when do we need to come together to work in small teams on short projects or initiatives, internally and with customers or partners?

Now start to experiment with a few platforms, one area at a time. Learn from your experiments, what works, what doesn't.

Here are some suggestions to get you started. Just Google the platforms that you see in bold.

- 1 Share information** – using a cloud based storage platform like **DropBox**.
- 2 Try communicating** within teams using a meetings tool like **GoToMeeting.co.uk**
- 3 Create** a small productivity or quality improvement project and have team members collaborate and work together using **Huddle.com**

To speak to someone regarding your business's digital future, get in touch with Teesside University's Business Team at business@tees.ac.uk or visit tees.ac.uk/business.

Leading the way to business growth

Small businesses in the region will have the chance to benefit from thousands of pounds worth of business support from Teesside University over the next 18 months.

The University has been successful in leveraging £400,000 of European funding to support 40 small to medium-sized enterprises.

Each business will benefit from £10,000 worth of support as part of the new Leading Growth scheme run by Teesside University Business School, supported by the European Regional Development Fund (ERDF).

Sue Smith, Assistant Dean in Teesside University Business School, explains: 'This is a really exciting opportunity for small to medium-sized enterprises to benefit from funding that will have a direct impact on their business.'

'We will be able to make a real impact on the companies that are selected to take part, to grow and expand their business.'

The first cohort will start in May and the second in September with 20 business leaders on each. They will undergo ten months of leadership training, master classes and one-to-one coaching which includes a residential session and peer supported learning.

The programme has been carefully developed by University experts to ensure there is a rigorous approach to development and rich content which includes input from inspirational industry leaders.

Expressions of interest are invited from established small businesses that have been trading for three years and have a minimum of four employees and fewer than 250. For more information email leadinggrowth@tees.ac.uk



Creative Teesside

The University's week of celebration of the creative arts begins on 27 May. It is a fantastic opportunity to see the creativity of students from the School of Arts & Media and to spot the talent of the future.

There is an art and design degree show with a mix of work from all creative specialisms, including graphic design, illustration, multimedia and motion graphics, product design, furniture, interior architecture and interior design. There are also events for performing arts, English, history and media.

For more information about any of our Creative Teesside events, or to book your place, please email arts@tees.ac.uk.

Igniting perceptions of disability

By Gary Martin

Displaying his work as part of the London 2012 festival was a career highlight for internationally renowned artist Simon McKeown. But since then he has continued to take his Motion Disabled Unlimited exhibition around the world. Simon is now set to ignite even more debate as a central figure in Ireland's largest ever investment in the arts and disability sector.

For inspirational artist Simon McKeown, creating work around the cultural perception of disability is the cornerstone of his work.

The Reader in Post-Production and Animation at Teesside University is himself disabled and has travelled the world, exhibiting in renowned museums, galleries and events.

In September this year Simon will lead a project as part of Ireland's international Ignite initiative which will see three major art commissions representing the country's largest ever investment in the arts and disability sector. All three commissions will showcase the work of people with disabilities.

Simon is working on a live art project which will form the culminating event of Cork's Culture Night, Ireland's largest national cultural festival. Simon will use live projections and potentially a large inflatable structure – building on his acclaimed Motion Disabled Unlimited work.

'My aim is to create, with my partners National Sculpture Factory and Create Ireland, a hugely exciting body of work in Cork and for this work to be seen as a fundamental stepping stone in the perception and production of art which touches on, or considers, disability,' explains Simon.

Simon's previous work, Motion Disabled Unlimited, is a stunning digital installation



which uses animation to show how disabled athletes move.

Viewers are given the opportunity to watch a series of motion capture-based work featuring paralympians demonstrating their sport. It gives people the chance to reflect and see what it is like to walk and jump without legs or sail with one arm. A large inflatable thalidomide sculpture also forms an eye-catching part of the exhibition.

Simon has shown his work at the DOX Centre for Contemporary Art in Prague, the largest contemporary arts centre in the Czech Republic in an exhibition entitled Disabled by Normality. It was also exhibited

at the Deutsches Hygiene-Museum in Dresden, Germany, as part of a nine month exhibition exploring the social and cultural impact of dance in a large exhibition entitled Tanz. His work was also exhibited at the Mayor of London's Liberty Festival in 2013 which took place as part of National Paralympic Day at the Queen Elizabeth Olympic Park in London.

Ignite is managed by a unique partnership involving the Arts Council (Ireland), Arts & Disability Ireland, Cork City Council, Galway City and County Councils, and Mayo County Council.

Teesside University rewarded for putting the business customer first

By David Roberts

The commitment of staff at Teesside University to meeting the demands of business clients has been recognised with a prestigious award.

Teesside is one of only a few universities in the country to receive the nationally recognised Customer First accreditation for its services to business.

Staff underwent a rigorous assessment to determine how well the University meets client needs, through relationship building, market awareness and people development.

This is the third time that Teesside has received the award and on each occasion the University must show how it has improved. Particular attention was given to the consistency of the University's approach to business, given that it deals with hundreds of organisations every year.

This was necessary due to the huge numbers of businesses that the University works with. And for the first time, the business services offered by Teesside University Darlington were included in the scope of the award.

Karen Race, Deputy Director of Academic Enterprise, says, 'We're delighted to have received this accreditation.

'As a business-facing university, this external recognition is very important to us. It demonstrates our commitment to being customer focused and to meeting business needs and shows that universities like Teesside can and do work very effectively with business.'

The University's business services include consultancy, graduate recruitment,

joint research and bespoke training courses. It supports new company creation and development through a comprehensive enterprise programme, while DigitalCity Fellowships provide digital start-up companies with mentoring and funding to develop their ideas.

A third of the University's business-facing staff were interviewed to see how well their work met 30 rigorous customer experience criteria.

Michael Wildey, Customer First Practitioner, says, 'Teesside University is one of the first organisations I would choose on my list of exemplars of the Customer First standard.

'They have used the standard to support their business engagement strategy over the last five years, and achieved measurable improvements in the way they support and deliver services to the business community.'



As a business-facing University, this external recognition is very important to us



Laura Woods, Director of Academic Enterprise; Michael Wildey, Customer First Practitioner and Lisa McKeown, Quality Manager

New research centre will help manufacturers improve efficiency

By David Roberts

A specialist research centre dedicated to finding ways to help businesses improve manufacturing has been set up as a collaborative partnership between Teesside University, the Institute for Manufacturing at Cambridge University and the Centre for Process Innovation.

The Centre for Resource Efficient Manufacturing Systems (REMS), is based at Teesside University and will research and investigate manufacturing processes and supply chains to help companies improve production processes by reducing emissions, saving time, reducing cost and minimising the resources they use.

The centre has a unique approach that combines the business-facing expertise of Teesside University, the research skills of the Institute for Manufacturing and the manufacturing innovation abilities of the Centre for Process Innovation at Wilton in Redcar.

A number of UK-based companies have already expressed an interest in working with the centre to understand their supply chains and investigate ways they can improve their whole manufacturing system to increase efficiency and reduce resource consumption.

The REMS Centre's director is Dr Graham Hillier, (also the Director of Strategy and Futures at CPI), who will work with recent appointments Dr Richard Court and Callum Campbell.

'There is a finite amount of raw materials in the world and at some point in the future some of the most important could start to run out,' says Dr Hillier. 'The challenge is to use the resources we have as efficiently as possible. The REMS centre will work with

companies to help them to understand how to make better products with lower environmental impact while still making enough money to succeed economically – in short to become more resource efficient.

'Many companies are aware of what needs changing but are afraid of making that change. At the centre we want to do the research that will give them the models to demonstrate the real improvements that can be made and convince them to make the change.

'We want to link together a lot of different disciplines to demonstrate how whole manufacturing systems work. Even if a company is only a small part of a system, it can do things to make its operations run smoother and to make the whole supply chain run better.'

Dr Court adds, 'As well as using traditional engineering research methods we'll also be utilising the University's IT and digital expertise to build models and help us to explain what is happening in a manufacturing process.'

Callum Campbell says, 'This is a very complicated area and in the past, much of the research has been very qualitative with a lot of people talking around the subject but with nothing solid or quantitative for evidence.

'We want to provide robust data to show industry what is happening in their manufacturing processes and how they can be improved.'

The Centre for Resource Efficient Manufacturing builds upon Teesside's strong reputation for supporting business.



Mangesh Gharfalkar, Dr Graham Hillier, Dr Richard Court and Callum Campbell

Partnership expertise brings millions to regional businesses

Businesses working with Teesside University through Knowledge Transfer Partnerships (KTPs) are generating hundreds of thousands of pounds worth of increased profit each year.

The University is recognised as a national example of excellence in working with businesses and has recently held the UK KTP conference.

More than £3m in five years is projected to be put into regional industry profits as a result of KTPs, which involve graduate delivery of a strategic change within a business with support from an academic expert. These partnerships are designed to inject innovation into industry and deliver a big impact on business profitability.

The success of Teesside University KTPs is demonstrated by independent assessors who in the last five years have given 82% of the University's KTPs 'outstanding' or 'very good' grades, compared with a national average of 55%

Geoff Archer, Knowledge Transfer and Commercialisation Manager, says, 'At Teesside University we value the fact that many of our KTPs, and the regional model Knowledge Exchange Internships (funded by ERDF) create jobs and implement innovation within businesses.'

'KTPs recruit talented people to spearhead new projects, give businesses access to experts who can help take their business forward and develop innovative solutions to help their business grow.'

'The expertise skilled graduates offer, and the support they receive from their academic experts, makes a big impact on businesses. 'It can really help them to increase their competitive advantage to improve their performance and increase profitability.'



Professor Nashwan Dawood (left) with Peter Barker, Ryder Architecture

Ryder Architecture, based in Newcastle, is onto its second KTP with Teesside University. Following on from a Grade A rated KTP for a Building Information Modelling (BIM) project that ended in 2011, the firm is now working with graduate Graham Kelly on a new KTP, to model and incorporate information and knowledge of building operations at the design stage to make it easier to manage a build once it is underway.

This information at building design stage helps with cost efficiencies and helps reduce costs later down the line associated with building refurbishments and renovations.

Architectural Director Peter Barker says, 'We are delighted to build on the success of our first KTP with Teesside University which was awarded 'outstanding' status upon its completion in 2011.'

'Our latest KTP is allowing our organisation to acquire a significant competitive edge at this exciting time for the development of digital engineering to support facilities throughout the life

cycle and to export our skills to emerging international markets.'

Professor Nashwan Dawood is supporting Graham to deliver the Ryder Architecture KTP through the Technology Futures Institute at Teesside University. He has delivered three KTPs in total and is currently involved in a further three.

He states, 'The key to delivering a successful KTP is understanding what a business needs and how a graduate can deliver that, supported by academic staff. Often I will approach a business once I've seen what they're doing and I think 'we can improve that'.'

'KTPs inject new life into a business and new thinking that can really revolutionise how they work. The impact of a KTP on a smaller business can be nothing short of phenomenal.'

KTPs are part-funded by the Technology Strategy Board. An SME is expected to contribute 33% of the costs involved in the project and large companies are expected to contribute 50%.

Conference, seminar and meeting rooms

Teesside University Darlington

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