

# &RB

## THE FORGE



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### Innovate

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### Five-point plan

For superior digital capability

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## WELCOME

### from Professor Jane Turner

Since I took up my position as Pro Vice-Chancellor (Enterprise and Business Engagement), the last 12 months have been extremely exciting. I am confident that the many new initiatives and projects I am leading are taking root and beginning to show a positive impact on our students, graduates and the regional economy.

Through the implementation of the enterprise and business engagement strategy, we are very focused upon how, as an academic institution, we can develop the economic landscape to achieve growth and prosperity, firmly positioning us an anchor institution.

In recent weeks we have unveiled our DigitalCity – Catalyst for Growth vision, which sets out an ambitious five-point plan for the region to become recognised for the superior digital capability of its businesses, which closely aligns with many of the pillars in the Industrial Strategy for the UK.

DigitalCity is a partnership between the University and the Tees Valley Combined Authority, and together we are building on the recommendations of Lord Heseltine's report to secure the future of the Tees Valley, identifying the five key areas which will offer us the opportunity for growth.

We are firmly placed to create a new generation of digital businesses, stimulating digital innovation in traditional businesses and transforming sectors with digital knowledge where we can provide research and expertise to improve their competitiveness. The final two areas are to prepare businesses for industry 4.0 where they need to prepare for things such as digital supply chains and growing digital talent to sustain these initiatives. We will build a world-leading digital cluster.

The University will play a leading role in the creation of 25,000 jobs by 2025 as outlined in the Tees Valley Strategic Economic Plan, ensuring our graduates are equipped with the relevant knowledge, skills and understanding, thus adding significant value to business, economic growth and productivity.

We are also placing our attention on the scale-up businesses in the Tees Valley. We have a higher than average number of scale-ups but they are not growing as fast as they could be. It is an important task for us, as a university, to adopt a convening role and work with key partners in the region to identify the companies with potential and devise a range of bespoke interventions such as mentoring, access to finance, support to export and leadership development to catalyse the growth process.

We have re-focused our Darlington campus as the Centre for Professional and Executive Development (CPED) to meet workforce development needs. We are excited about our plans moving ahead for a National Horizons Centre close to CPED which will deliver specialist education and training provision for the UK bioscience sector, utilising advances in biologics, informatics and big data, promoting innovation in biologics, health and digital health technologies.

As a university we have launched a bold new vision for our research and innovation addressing the grand challenges our society faces. I hope you will enjoy reading about all our work in this edition of R&B and I would personally be delighted to hear from anyone who would like to partner with us during these exciting times.

**Professor Jane Turner**  
Pro Vice-Chancellor  
(Enterprise and Business Engagement)



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# &RB

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# BUSINESS NEEDS TALENT

To drive business growth and success every company needs to attract, increase and manage the talent of its employees.

Year on year Teesside University's annual ExpoTees event has grown to become an annual shopping destination for businesses looking for top talent across the disciplines of computer science, digital media, web, animation, visual effects and computer games.

**This year's event takes place from 23-24 May**

It's an open opportunity for business leaders and owners to meet the School of Computing graduates joining the industry in 2017, a chance to view their portfolios, and listen to the ideas of tomorrow's talent to see how your business could benefit from a new hire.

Visitors can browse the interactive exhibition which showcases innovative work in design and development with the first day concentrating on computer science, digital media and web, and the second day on animation, visual effects and games.

Steven Mead, event director, says, 'It's a must-not-miss event for employers in the region who want to stay ahead in the fast-paced world of digital and ensure their company benefits from new thinking.'

[tees.ac.uk/expotees](http://tees.ac.uk/expotees)



# New start-up package for graduate entrepreneurs

By David Roberts

A new start-up package, worth thousands of pounds, is being offered by Teesside University to help graduate entrepreneurs grow their businesses.

The Launchpad FUEL programme offers Teesside University graduates who are in the early stages of developing a business idea up to £10,000 worth of grant funding to develop their product or concept.

The scheme also gives entrepreneurs up to £6,000 to cover their living costs, with up to £3,000 for a co-founder.

Fourteen teams of entrepreneurs have undergone a five-week development programme for their businesses and pitched their business models to a panel of judges to compete for a place on the FUEL programme.

The seven successful teams who have been awarded FUEL grants are:

**Big Nasty** – a mobile games design studio

**Health +** – an app to manage prescriptions and promote medical research

**Silhouette Wolf** – computer games developer

**Foxbyte** – a games design studio

**Cotilda's Fashion** – fashion design with African influence

**Hobgoblin 3D** – 3D-printed components for the board game industry

**SpaceBoss** – cosplay costume design



This can be absolutely essential to businesses, as it prevents them being burdened by debt in their infancy

In addition to the funding, they will receive dedicated office space for six months, along with a support package including specialist mentoring, business workshops, networking and access to finance and investment support.

The scheme is open to entrepreneurs who have graduated from Teesside University in the last five years and who can demonstrate that they have the potential for a viable scalable business in any sector.

The successful businesses will be based at Teesside Launchpad, Victoria Road, Middlesbrough, where students, graduates, alumni-entrepreneurs, SMEs and corporate partners all come together on campus in the University's unique start-up ecosystem.

Further FUEL programmes will be run by Teesside Launchpad over the next three years.

Steve Dougan, head of graduate enterprise at Teesside University, says, 'This is a unique

experience which we are able to offer to start-up companies.

'There are lots of loans out there for early stage businesses, but it's very rare to find a scheme which offers grant funding.

'This can be absolutely essential to businesses, as it prevents them being burdened by debt in their infancy.

'When you factor in the dedicated incubator space we have here at the University and our network of support, I honestly believe that what we are offering cannot be found anywhere else.

'Even those businesses which didn't go through to the FUEL programme will benefit immensely from the five-week development which they underwent.

'We want to demonstrate to our students that starting their own businesses is a viable career path, and this offers an excellent opportunity for them.'

Launchpad FUEL in numbers:

£10,000

TO DEVELOP A PRODUCT

£6,000

TO COVER LIVING COSTS

£3,000

FOR A CO-FOUNDER

Steve Dougan, head of graduate enterprise at Teesside University, at a mentoring session for entrepreneurs on the Launchpad FUEL development programme.



## Tees Valley innovation super network will help SMEs to grow

A multi-million pound project to create the first ever innovation super network in the Tees Valley has been launched by Teesside University.

The University is working alongside DigitalCity, the North East of England Process Industry Cluster (NEPIC) and the Materials Processing Institute (MPI) to help grow the number of innovative, high-performing small and medium-sized enterprises (SMEs) in the area.

Innovate Tees Valley has been made possible with a £3.8m grant from the European Regional Development Fund (ERDF). It aims to help SMEs overcome barriers to growth so they can bring in new products and services and reach new markets at home and abroad, by delivering tailor-made programmes of integrated, in-depth support.

Uniquely, qualifying companies will have access to the wide range of specialist expertise and the global networks of Innovate Tees Valley partners, making it possible to put together customised packages of support, part-funded by the ERDF grant.

Following an initial assessment of need, eligible businesses are allocated a dedicated account manager who puts together the intensive support programme.

### This could include:

- > market intelligence
- > technical support, including additive manufacturing, prototyping and piloting facilities for scale up
- > digital tech implementation
- > help with funding bids
- > technical mentoring through the innovation process
- > graduate/specialist placements to implement projects.

Laura Woods, director of The Forge, Teesside University's business hub, says, 'This is an exciting new approach to helping businesses to innovate.

'We wanted to get away from a one-size-fits-all formula, and make it as easy as possible for SMEs with ideas and ambitions to get exactly the help they need. That could be anything from support with a grant application to bringing in specialist technical expertise and talent, to embedding new techniques or delivering new processes or products.

'The beauty of this approach is that the partners are all working together on this. It means eligible SMEs have a straightforward route to the expertise and networks that can help them embed an innovation ethos, improve performance and productivity and compete in global markets.

'With a dedicated account manager, and the benefit of grant support, companies will be better supported than ever before to make the innovation leap.'

Dan Watson of DigitalCity added, 'DigitalCity has a fantastic track record of helping companies implement the latest technological innovations to enable their businesses to grow.

'Through Innovate Tees Valley we can offer a package of interventions to SMEs which will help them improve their performance through digital innovation.

NEPIC chief executive Dr Stan Higgins says, 'NEPIC's industry leadership team is driven to support the development of innovative service and manufacturing SMEs.

## innovate TEES VALLEY

'Our industry recognises that SME growth and supply chain diversity are key drivers of the local economy and vital for the sustainability of important clusters such as the chemical-process sector.

'By working across all industry and business sectors through the Innovate Tees Valley project we hope to help SMEs recognise that what they do is innovative, and assist them in developing products and services for sectors that they had potentially not yet considered.

'The Innovate Tees Valley partners can help such companies break down perceived commercial and technical barriers and bring new products and services to new and existing markets more quickly.'

Gerard Stephens, director of MPI's SME Technology Centre, says, 'The MPI has been at the forefront of innovation for over 70 years, helping companies to create new products, services and processes, and to improve existing ones.

'We are delighted to be working alongside our partners in Innovate Tees Valley, using our expertise to provide tailored packages of support to Tees Valley SMEs to enable them to innovate and grow.'

Innovate Tees Valley is available to qualifying companies who employ fewer than 250 staff and have an annual turnover no greater than £40m per year.

To learn more about how Teesside University can help your business visit [tees.ac.uk/theforge](https://tees.ac.uk/theforge), call 01642 384068 email [innovate@tees.ac.uk](mailto:innovate@tees.ac.uk).



THEFORGE

## Students excel in university challenge

A team of Teesside University students have achieved national recognition after impressing judges in a prestigious competition.

The five-strong team scooped second place in the Cisco University Challenge, an annual event that requires university students in the digital sector to compete against each other in a 24-hour competition.

Teesside's team included Thor Bunting and Darien Livermore (final year games programming students), Ryan Brown, (a final year computing student), Daniel Nouri (an MSc IT Project Management student), and Aidan Moore, (BEng Tech (Hons) Mechanical Engineering (Top-up) student).

Their submission, Visual Rescue, used virtual reality to track people's locations in an earthquake. The application, which can be adapted for disasters and unforeseen events, was supported by a business plan, presentation and a prototype.

'This was a really valuable experience and we are all happy with how we did in the competition,' says Daniel. 'This was the first time a team from Teesside University has entered so it is fantastic to have done so well.'

Ryan says, 'We received a lot of support from the University and really pushed ourselves hard. It is good to have the recognition and know that the work and ideas we have stand up in such a competitive environment.'

Siobhan Fenton, associate dean (enterprise and business engagement) in Teesside University's School of Computing, was proud of the students' achievement.

'The Cisco University Challenge is a rigorous process where students have to test themselves in quite a short space of time', she says. 'The judges were really impressed with the team and the feedback has been exceptional.'

'Having success like this helps to enthuse and inspire our students as they progress through their respective courses.'

From left – Darien Livermore, Daniel Nouri, Aidan Moore, Ryan Brown and Thor Bunting



# New skills centre on the horizon



By David Roberts

**A £22m learning and teaching centre which will develop cutting-edge skills for emerging industries is set to open its doors in 2019.**

The National Horizons Centre (NHC) in Darlington will deliver specialist education and training provision for the UK bioscience sector.

By taking advantage of the latest developments in biologics, informatics and big data it will promote innovation in biologics, health and digital health technologies.

Teesside University is leading the NHC project, working closely with stakeholders and industry partners.

Plans for the NHC are currently being developed. The centre will be an iconic building of national importance offering a high-quality, flexible, innovative teaching, learning and research environment, as well

as meeting extremely high environmental and efficiency standards.

From its base in Darlington's Central Park, the NHC will work closely with the University's Centre for Professional and Executive Development and the National Biologics Manufacturing Centre, both of which are also based at the business and innovation park.

The Centre for Professional and Executive Development (CPED) is the new name for the University's Darlington campus, marking an exclusive focus on working with businesses to develop high-level workforce talent, knowledge and skills.

'There is a natural synergy to the work that we are doing at CPED and to the aims and ambitions of the National Horizons Centre,'

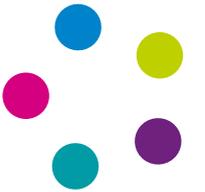
says Laura Woods – director of The Forge. 'Using quality, research-led programmes, we can meet the challenges that industry faces in the 21<sup>st</sup> century and provide solutions to enable businesses, not just in this region, but in the rest of the UK, to grow and prosper.'

By concentrating on skills provision for emerging sectors and on the innovation and management skills which are needed to embed them, the NHC will make a major contribution to economic growth nationally and in the Tees Valley.

[nationalhorizonscentre.org.uk](http://nationalhorizonscentre.org.uk)



## RESEARCH WHICH ADDRESSES GRAND CHALLENGES OF OUR TIME



**A bold new vision for research at Teesside University is taking a multi-disciplinary approach, with academics harnessing their expertise to address the grand challenges in society.**

**Professor Simon Hodgson, Pro Vice-Chancellor (Research and Innovation), says, 'Here at Teesside University, our focus is on externally-facing research that makes a real, practical difference to the lives of people and the success of businesses and economies. To achieve this, our researchers work with a range of organisations, from national governments to small businesses, and from multinational companies to the NHS, NGOs and charities.'**

With the majority of our University's research assessed as world-leading or internationally excellent in one of the world's most stringent evaluations of research excellence (REF 2014), and research of this quality found in each of our academic schools, we have considerable expertise to draw upon right across the institution in a broad range of disciplines from the arts and humanities, social sciences, human and health sciences, through the physical sciences, engineering and computer sciences research.

'We have some brilliant research already happening across the institution and in other universities. However the biggest problems that currently face our world such as sustaining a growing and ageing population, tackling climate change and providing a safe environment for our citizens have no

respect for traditional academic discipline and subject boundaries and their complexity requires fresh thinking and a multifaceted approach.

'For example, to address the global issues of environmental sustainability requires not just the development of great new engineering and technologies (important though that is), but combining this with a better understanding of why people and societies behave in ways that contribute to the problem via consumerism and waste, an appreciation of the business and economic drivers that

encourage this to ensure ongoing sales, the development of alternative new business models that combine profitability with sustainability, new approaches to design, and an understanding of national and global political issues needed to secure consensus for change both within individual democracies and between nation states with very different priorities. By approaching the challenge from all these different perspectives, our prospects of finding a practical way forwards that works are greatly increased.'

Professor Simon Hodgson



Our five grand challenge themes which simultaneously build on the existing research strengths of the University, facilitate new research opportunities, and are a statement of intent signalling our ambition to further expand and develop the reach and impact of our research on the global scale, are:



### Health and wellbeing



**This research theme is focused on addressing the challenge of how we can deliver our growing aspirations and expectations of improved health and wellbeing, quality of life and lifespan within the constraints of the finite resources of our health systems**

This is approached through a diverse range of perspectives that include disease treatment and prevention, human behaviour, the achievement, maintenance and promotion of good mental health and physical fitness and associated emotional, social and physical well-being.

The University's research in this area is already helping chronic pain sufferers, enhancing patient outcomes and quality of life following high risk surgery, developing a range of effective preventative health strategies and informing World Health Organization guidelines amongst many examples, and through interdisciplinary working and partnership. We are looking forward to expanding this into new areas such as improving the efficiency and reducing the costs of drug development and production, effectively influencing the behaviour of individuals, patients and practitioners, and learning from successful approaches in delivering healthcare in the most challenging conditions.



### Resilient and secure societies



**This challenge theme is concerned with understanding and developing novel and effective responses to the growing and complex range of inter-related global processes that create risk and vulnerability and threaten the physical and emotional security of individuals, communities and societies.**

This includes the growth of transnational crime, fraud and the illicit economy, poverty, inequalities, drug and alcohol misuse, protest, violence, extremism, radicalisation and hate.

Teesside's work to date has included tackling the online trade of fake medicines – in partnership with Interpol, the development of targeted alcohol screening and interventions with Public Health England, high profile research into the issues of radicalism, radicalisation and hate, and the development of new approaches to urban design and connected technologies to promote sustainable living and improve quality of life for communities.

Research within this theme is also examining how to break the link between poverty and long-term life chances, ways of increasing trust in policing and the criminal justice system, developing new tools and approaches for crime prevention, detection and resolution, and exploring approaches to effectively and humanely respond to the global migration and refugee crisis.



### Digital and creative economy

**This challenge is concerned with harnessing the power of data and digital technologies and the interaction between people, imagination and technology to transform business, economies and lives.**

The University has a long history of digital innovation and economic impact both in academic research and through the DigitalCity programme, generating more than 200 new businesses, and adding more than £170m annually to the Teesside economy alone, as well as impacts far beyond the region.

Our research in the digital arena has already included the development of digital tools for business intelligence and planning, enhanced building information modelling (BIM) systems with new functionality such as energy use prediction and optimisation, healthcare and behaviour support tools such as effective obesity management and fitness apps, architecture and design tools using virtual environments, and ground-breaking use of the digital arts to challenge perceptions of disability. New tools, methodologies and approaches in a diverse range of sectors including engineering, the creative arts, government, healthcare, energy, manufacturing, retail and more are being developed.



### Sustainable environments:



**This theme is focused on helping to address the global challenges of energy, food and resource sustainability, climate change and population growth, and on developing the technologies, policies and strategies, as well as the evidence, to drive individual and societal behaviour changes needed to make the world more sustainable.**

The broad scope of this challenge ranges from mitigation of the environmental impacts of industrialisation, development and population growth and the development of a new generation of cleaner technologies through to addressing the political, economic, societal and ethical challenges of implementing the necessary global changes.

The University's current research in this field covers a broad scope, including work to improve the efficiency and reduce emissions from power stations, the development of planning and

management tools to reduce waste, and projects around the development of new technologies to facilitate cleaner and more fuel efficient aircraft, energy demand management and integrated smart grids to reduce the environmental impact of electricity production. Our sustainability related research is carried out in partnership with some of the world's largest companies including IBM, Siemens, ABB, and Rolls-Royce, and collaborating with a range of universities in the UK, Europe and beyond.



### Learning for the 21<sup>st</sup> century

**This research theme is concerned with responding to the challenge of how we meet the future needs of developing an educated workforce, which is able to understand and work creatively with complex concepts to generate new ideas, new theories, new products and new knowledge.**

It is focused on developing, facilitating and delivering the diverse and new ways of learning needed for individuals, businesses, and societies to develop and thrive in today's knowledge-based economies, supported through new agile and flexible, learner centric and individually tailored, approaches to learning and engagement. Research being explored includes what the future education system will look like, the role of education in a future of artificial intelligence and instant access to information and the place of creativity within learning.

Teesside University is recognised for our innovative approach to education and including groundbreaking work in the use of technology and e-learning to deliver specialist teaching in areas ranging from forensic radiography and medical imaging to creative writing, and this challenge provides an exciting opportunity to bring together the learning and teaching and research agendas of the University.



# CURES FOR DEBILITATING ILLNESS FOUND IN TEES VALLEY

When a debilitating or fatal illness strikes there isn't much people won't do in their search for a miracle cure – so it is probably both heartening and not surprising that many new cures are being born right here on Teesside. Alison Ferst discovers the science behind the technology from Fujifilm Diosynth Biotechnologies chief executive officer Steve Bagshaw.



Where will you find the biggest collection of bio-scientists outside of the golden triangle that is Oxford, Cambridge and London? It's no joke – the answer is here at Billingham on Teesside.

It is where Fujifilm Diosynth Biotechnologies is based and currently expanding its bio-campus which, along with the Centre for Process Innovation's National Biologics Manufacturing Centre at Darlington and the development of Teesside University's National Horizons Centre (NHC) for training and development also on Central Park in Darlington, will put the region at the forefront of the world's bio-industry.

Steve Bagshaw, CEO of Fujifilm, opened the National Biologics Manufacturing Centre alongside Jo Johnson, minister of state for universities and science, demonstrating the company's dedication to ensuring the Tees Valley is at the heart of the global market in biologic medicines.

It's an expanding industry with a major supply chain which will make a significant contribution to economic growth in the region. And there is a need to fill a skills gap with education, training and development to equip a UK workforce with the skills necessary to be world-leading in this sector.

'We have to be able to train the people to create a sustainable workforce that will take us into the 2020s and beyond,' Steve explains.

'This is a really exciting industry with major career possibilities, it's not just bio-chemists but engineers, project specialists, quality professionals, analysts – to give just a few examples.'

It's also something of a mystery to many, wrapped up in technology and jargon, but Steve explains it well, 'It's the most exciting drug development science which has grown over the last 30 years. What we do is help a company that discovers a new drug and manufacture it for clinical trial by creating drugs which mimic the proteins in the body.



“

It's an expanding industry with a major supply chain which will make a significant contribution to regeneration in the region

'We essentially make the proteins by growing cells in the lab and feeding them, which makes the proteins that we can harvest and then the finished product can be injected straight into the blood.

'Very few new drugs come to market but in the last five to ten years, the top ten drugs in the world have been made this way, meeting unmet clinical treatments in rheumatoid arthritis, cancer and diabetes.'

In a route familiar to many in the North East, Steve began his career with ICI, albeit in Huddersfield where he is from, before working in the USA, then 12 years ago he started with the company that was then Avecia. 'I came to help grow the company from 100 employees – now we have almost 600. I took over as head of the business nine years ago and it was bought by Fujifilm six years ago.

'We are benefiting from long term investment – in 2013 the team invented a new cell line we call Apollo and by 2015 the amount of clients we have using it means technically we are full.' In fact they have posted their best profit year ever for 2015 – £7.7m – and Steve confirms 2016 will improve further.

'These are really exciting times for us. The future will be personalised medicine and cure – a bespoke drug just for you that works exclusively for you based on the bio-indicators of each individual patient. And it is the swift manufacture of vaccines for pandemics. No-one had heard of Zika virus but the world quickly needed a vaccine for it – how can we create a vaccine now for the next thing no one has heard of?'

Steve is also passionate about education and ensuring the bio-industry is on the radar

of young people. He has three grown-up sons, the eldest of whom teaches physics.

'I regularly do talks to his students so they know this is an industry with exciting career options,' he smiles. 'We need to start with children in primary schools to educate them on the possibilities so they make the right choices when they need to. The higher degree apprenticeships are a fantastic opportunity for us because we can take on 18-year-olds and teach them what we need while they complete their university degree at the same time.

'This area needs to know about this because this biocluster is really taking off now.'

To find out more about higher and degree apprenticeships visit [tees.ac.uk/apprenticeships](http://tees.ac.uk/apprenticeships)



## Joining up the innovation dots

By Laura Woods, director, The Forge

**At Teesside University, we know that innovation is the lifeblood of high-performing businesses. The most successful businesses thrive on new ideas, build partnerships and networks, develop skills and know-how, and make good use of advice and support to keep on creating value.**

That mix of ambition, leadership and entrepreneurialism, combined with access to knowledge, is the best recipe for company growth.

We share your ambitions for growth. That's why, through The Forge, our unique front door for business, we work to help organisations like yours get the access you need to the research expertise, skills and talent that drive performance.

It's also why, as well as joining things up inside the University, we put such a strong emphasis on working with partners, not just to combine resources and knowledge, but to ensure a coordinated and meaningful offer.

December's Innovation Festival, sponsored by Innovate Tees Valley, demonstrated the value of this approach. The first of its kind in the area, it brought businesses together specifically to seek out innovation opportunities through contacts and partnerships with each other, and with regional and national innovation agencies.

Innovate Tees Valley, the partnership between the University, DigitalCity, North East of England Process Industry Cluster (NEPIC) and the Materials Processing Institute (MPI), is committed to helping deliver those connections for businesses, giving them access to resources for product and service innovation across a wide network.

On education and skills, a vital component of innovation and economic growth, we're working in partnership again – this time with employers, on a raft of higher and degree apprenticeships. These programmes train on the job and directly address skills demand and shortages, giving your employees high-level skills and qualifications to help increase your organisation's capacity for growth.

Our first five apprenticeship programmes, in chartered management, health, science, engineering and digital technologies, are now live and recruiting, and we can give you information and advice on apprenticeship funding.

Similarly, all our professional development programmes are designed with and for employers. Our Centre for Professional and Executive Development (CPED) in Darlington focuses exclusively on working with businesses across sectors to develop workforce talent, knowledge and skills.

Finally, working together with business organisations and support providers, including Tees Valley's Business Growth Hub, we're making sure we join up the dots to provide the best possible innovation support for ambitious businesses like yours.

**Get in touch to find out for yourself.**

Find out more:

**T: 01642 384068**

**E: [theforge@tees.ac.uk](mailto:theforge@tees.ac.uk)**

**📍 [tees.ac.uk/theforge](http://tees.ac.uk/theforge)**

## SUCCESS FOR BUSINESSES AT FUSION HIVE

By David Roberts



Teesside University's business and innovation centre is helping digital companies to thrive as it celebrates its first full year of operation.

When Fusion Hive on Stockton's Northshore was opened by local MP James Wharton in October 2015, he described it as a 'driver for growth'.

The state-of-the-art workspace, which is managed by Teesside University, has quickly established itself as a hub for ambitious SMEs looking to grow their business.

Already, more than 20 companies have moved into Fusion Hive to take advantage of its modern offices and meeting spaces, superfast broadband, and high-tech facilities.

Software engineering company Industrial Asset Management Technology Ltd (IAMTech) provides software development for the oil, gas, power and chemical industries, and moved into Fusion Hive shortly after it opened.

The company develops and sells a wide range of software packages ranging from risk management to maintenance and completion packages, together with a variety of intrinsically safe tablets and smartphones certified for use in hazardous areas.

Managing director Ross Coulman says, 'Fusion Hive is not only an aesthetically beautiful building but has the latest

technological advances, which helps reinforce to our visiting clients IAMTech's position as a technology leader.

'The University is a very

amenable landlord who have been incredibly helpful at every stage of our move, combine this with the synergy we've found with our neighbours here and I now firmly believe I have found the right home for my company to develop.'

Fusion Hive is designed to offer the ideal environment for business collaboration by bringing together like-minded tenants and giving them the opportunity to network, collaborate and capitalise on opportunities for growth.

Companies get access to Teesside University's significant business networks, expertise and training provision and the help it provides in sourcing potential funding.

Karen Race, deputy director of The Forge, Teesside University's business hub, adds, 'This has been a fantastic 12 months and we are delighted that so many businesses have chosen to make Fusion Hive their home.'

'At Teesside University, we want to work with companies to help them grow and fulfil their potential and Fusion Hive is the perfect place to do this.'



# UNIVERSITY RESEARCH PARTNERSHIP HELPS BUSINESS TO TAKE OFF

A research partnership with Teesside University helped a North East SME develop technology for aerospace.

Newcastle-based Photon Fire Ltd manufactures electronic equipment and sensors for a range of industries, particularly offshore and energy.

Thanks to its work with the University, the company has been able to develop new intellectual property (IP) which has attracted interest from a major multinational company which works in the aerospace industry.

Photon Fire worked with cable manufacturer Leigh Cables to develop fire detection sensors which could be incorporated in aerospace systems made by Meggitt PLC, a FTSE-250 engineering group with manufacturing facilities across the globe.

The work was also supported by the National Aerospace Technology Exploitation Programme (NATEP) which helps SMEs develop innovative new products.



From left - Steve Parker, director of engineering at Meggitt; Bill Shepherd, managing director of Photon Fire; Professor Simon Hodgson, Pro Vice-Chancellor (Research and Innovation) and Paul Talbot, NATEP technology manager.



It is an extremely innovative project and the technology could make a big difference to the business involved and people's lives, particularly by improving the safety of air travel

Photon Fire was initially given assistance by Omar Al-Janabi at The Forge, Teesside University's business hub, to access innovation vouchers which provide up to £5,000 worth of funding to companies to pay for an external expert to help their business grow.

He then helped Photon Fire to connect with two of the University's leading engineering academics, Professor Simon Hodgson and Dr David Hughes, to develop new IP for the company while supporting Photon Fire draw up an application to NATEP helping the partnership develop the crucial IP further.

As a result of this work, Photon Fire went on to work with Meggitt to look at ways in which the new technology can be used in fire detection equipment onboard aircraft.

Bill Shepherd, the managing director of Photon Fire, says, 'Using the different skills and experience of our partners we've been able to create a technology which hasn't been done anywhere else and can hopefully be taken forward to create much safer aircraft.'

Steve Parker, the director of engineering at Meggitt, adds, 'Aircraft fire detection is a significant part of our business and we're very keen to take this technology forward.'

Professor Hodgson, Pro Vice-Chancellor (Research and Innovation), says, 'From the University's perspective, this is exactly the kind of application-oriented research and innovation we like to focus on.'

'It is an extremely innovative project and the technology could make a big difference to the business involved and people's lives, particularly by improving the safety of air travel.'

Paul Talbot, NATEP technology manager, says, 'This sort of collaboration is precisely the sort of work which we like to develop. It is a fantastic example of an SME working together with a university to develop new technology for a major end user in the aerospace industry.'



## Making a mark in the world of fashion

Fashion designer and Teesside University graduate Cotilda Makhumula-Nkhoma is making her mark in the style stakes as her business goes from strength to strength.

Cotilda, 24, who graduated from the MA Future Design course in 2015, set up her fashion design business Cotilda while completing her studies.

Originally from Malawi in Africa, Cotilda and her family moved to Middlesbrough when she was aged nine after her mum Nellie took up a nursing role in the town.

'We settled in Middlesbrough and I studied fashion at college,' she explains, 'My mum used to do some sewing when I was much younger and I think my interest came from her. She really supports me in my plans for the future.'

Now working from Launchpad – Teesside University's business incubation premises on Victoria Road in Middlesbrough, Cotilda says her time at university provided her with the vital business knowledge to launch her venture.

'The course definitely helped to prepare me. I already had the creativity and passion for fashion, but was able to learn more about the enterprise side and the whole process of setting up a business while studying at Teesside.'

'The other students were pursuing different professional routes in design, enabling us to collaborate and share ideas for potential business ventures.'

'Through Launchpad I was able to become involved in schemes which provided access to mentors who offered advice on everything from looking at accounts to creating a business plan.'



Cotilda took part in business workshops while at University, which provided opportunities to collaborate with other students and entrepreneurs.

In addition, she has been accepted onto the Launchpad FUEL programme which provides funding for entrepreneurs.

Cotilda also took part in Africa Fashion Week London 2016, which she says helped her to develop networking skills and establish contacts for collaboration.

'I made important contacts who I can collaborate with, from other designers, manufacturers, models, photographers among others.'

Cotilda's business offers a bespoke design service, enabling customers to customise their chosen garment to make it unique to them. She is also developing her ready to wear line.

'My design inspiration comes from my background as I combine the two cultures through fabric, representing a mix of European and African fabrics and styles. I take inspiration from everyday things, from nature to the surfaces patterns of everyday objects.'

Find out more:  
[www.cotilda.com](http://www.cotilda.com)

## International interest in new medical device

A Teesside University lecturer has been working with a biomedical test technology company to design an innovative new piece of hospital equipment.

The new PatSim200 patient simulator has been developed by Peterlee-based Rigel Medical (part of the Seaward Group) with the help of Mark Beckwith, a senior lecturer in industrial design in the University's School of Design, Culture & the Arts.

Only a few weeks after being launched, the device is already attracting interest from markets in the Far East, USA, Germany and the UK.

The PatSim200 is Rigel's simplest, fastest and most cost-effective patient simulator yet. It puts medical equipment through its paces by mimicking the most common vital signs of patients, such as body temperature, blood pressure, heart-rate and respiration.

These tests are vital for highlighting faults with medical equipment in hospitals and healthcare facilities, ensuring that the monitors are accurate in real patient situations.

Mark has more than 25 years' experience in new product development and has previously collaborated with Rigel to design a number of different medical products.

From agreeing the project parameters and brief with Rigel Medical this latest project involved six months of design, development, and prototyping work.

Mark says, 'Once I was given the technology, I looked at the design to ensure that it was saleable and aesthetically pleasing.'

'The second part of the project was ensuring that it could be manufactured economically and easily assembled in the factory.'

'I'm very pleased with the final design. It is already proving popular with the NHS. Rigel has received interest in the product from the USA and Malaysia only two weeks after the initial launch.'

'Working on live projects like this really helps inform my teaching, as it is very important to keep abreast of changes in the industry and real-life experience is the best way to do that.'



I'm very pleased with the final design. It is already proving popular with the NHS



## RESEARCH ROUND-UP

From corruption in football, to treatments for childhood obesity, or even documenting the region's industrial heritage – researchers at Teesside University are committed to work which has a significant impact on society. Some will even down tools for the pub shortly for an international event designed to make research more accessible.



## ANALYSING THE HISTORY OF CORRUPTION IN FOOTBALL

*Studying Football* is the first book designed to approach the sport as a serious academic subject and support the study of football on degree-level courses.

Published by Routledge and edited by Ellis Cashmore, visiting professor of sociology at Aston University, and Dr Kevin Dixon (pictured), a senior lecturer in sport and exercise at Teesside University, it looks at what it is about football that has captivated us for the last 150 years and what motivates people to spend so much time and money to support a multi-billion pound international industry.

The book's 12 chapters, written by an array of leading academics, each look at a different topic related to football including racism, globalisation, consumption and fandom.

The final chapter, which has been written by Professor Cashmore and Dr Dixon, investigates corruption within the game and is the most up-to-date and analytical account of corruption in football.

It finds that, far from being a recent development, corruption has been endemic since 1885 when professionalism was first allowed.

The book concludes that corruption in football is impossible to eliminate and future scandals will surprise only children and the unwary as changing personnel does little to prevent corruption, other than presenting a new face to the public.

Dr Dixon conceived the idea of the book when teaching his module, Football Culture and Society at Teesside University. He says, 'Football is a business like no other. Despite all of this the fans keep coming back, they can't help it.'

'Many of them know that they are being exploited and are aware of the corruption within the game, but they are not like traditional consumers. They are wedded to their team.'

## HERITAGE PARTNERSHIP TO DOCUMENT TEES VALLEY'S INDUSTRIAL HISTORY

The changing nature of the Tees Valley's industrial heritage is to be documented and promoted thanks to a new partnership.

Teesside University is working with Kirkleatham Museum on the partnership entitled Landscape of Rapid Change, which has been developed in response to the closure of the SSI (UK) steelworks at Redcar.

The project will begin with an oral history project, called Steel Stories, which will safeguard the oral memories of the steel industry and capture the reaction to the closure of the Redcar plant and the subsequent contraction of the sector.

These memories will help inform a year-long exhibition, developed by the partnership and hosted at Kirkleatham Museum, from the summer of 2017 to represent the global and local significance of the iron and steel industry.

The project is being led on behalf of the University by Professor Natasha Vall, associate dean (research and innovation), in the School of Design, Culture & the Arts, and Dr Joan Heggie, research fellow in the School of Social Sciences, Business & Law and formerly the project manager of the British Steel Archive.

The academics are working with students, museum staff and members of the public to draft the framework for the oral history project and begin interviewing people from across the community.

Professor Vall says, 'This is a fantastic opportunity for collaboration. The University will be able to offer strong support to the museum while, at the same time, enhancing our own student learning experience with the opportunity to work on a live project.'

'Eventually, we want to be able to create a public history resource that will be available for future researchers and accessible by the public.'



**Councillor Carl Quartermain, cabinet member for jobs, skills and leisure; Amanda Skelton, chair of the SSI task force and chief executive of Redcar & Cleveland Borough Council, Dr Joan Heggie, research fellow in the School of Social Sciences, Business & Law; Professor Natasha Vall, associate dean (research and innovation), School of Design Culture & the Arts, and Malcolm Armstrong, cultural services manager at Redcar & Cleveland Borough Council**

## TEEGENE BIOTECH PROJECT GAINS NATIONAL RECOGNITION

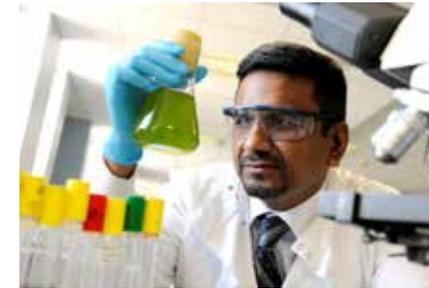
A research and development project by spin-out company TeeGene Biotech has received national recognition from a prestigious funding body.

The collaborative bio-refinery project, which focused on the viability of removing phosphate contamination from waste water while producing viable quantities of high value lipids and biochar using a suitable microalgae strain, was selected for use as a case study by the Biotechnology and Biological Sciences Research Council (BBSRC).

TeeGene's project, which was led by Teesside University academics, was funded by a Business Interaction grant awarded through the High Value Chemicals from Plants Network, a BBSRC-funded network in industrial biotechnology and bioenergy.

Dr Pattanathu Rahman (pictured), TeeGene's director, says, 'We are delighted and very proud that our work has been highlighted as a case study.'

'The support from BBSRC plays a major role in the development of next generation biological systems and novel bio-processes towards improved manufacturing in industries.'



## MORE RESEARCH NEEDED TO DETERMINE BEST TREATMENT FOR CHILDHOOD OBESITY

Researchers at Teesside University have been examining drug interventions for the treatment of childhood obesity and found that, although drugs have been found to aid weight reduction in older children, more work is needed to determine their efficiency and safety.

The team are completing a series of reviews to examine the effectiveness of different treatments for childhood obesity.

They found pharmacological interventions such as metformin, sibutramine, orlistat and fluoxetine may have small effects in reduction in BMI and body weight in obese older children and adolescents. Although many of the drugs reviewed are not licensed for the treatment of obesity in children or have been withdrawn in the UK.

Academics at Teesside say there was insufficient evidence to inform future guidelines. However the findings support The National Institute for Health and Care Excellence recommendations in that there is little evidence to support the use of drugs to treat obesity in children under the age of 12, and that drugs have side effects and

therefore should only be considered in exceptional circumstances.

The latest study is a continuation of the University's expertise in obesity. Academics at Teesside have also worked with Public Health England on a report which helped inform the government's proposed introduction of sugar tax.

Dr Louisa Eills, a reader in Teesside University's School of Health & Social Care, leads the obesity research programme at Teesside.

She says: 'Drug interventions may help children achieve a small reduction in BMI and weight, but current evidence is not sufficient to make any conclusive recommendations.'

'We need to be 100% clear and the evidence from this review doesn't determine whether obesity drugs are safe and effective in younger children, or whether the effects seen in older children will last. There is a lack of information about the side effects of the drugs. It is imperative that further studies are carried out to address these questions before any future recommendations about drug treatment for childhood obesity are made.'

## MAKE MINE A PINT... OF SCIENCE

The University is again taking part in the Pint of Science festival.



The international event aims to make scientific research more accessible by delivering fun, interesting and relevant talks on the latest research in relaxing environments such as pubs and cafes.

Last year's event broached subjects ranging from crime scene investigation and forensic science, to chronic pain and comic representations.

**Pint of Science 2017 takes place from 15-17 May 2017.**

## PARTNERSHIP HELPING BUSINESS EXPLORE NEW TECHNOLOGIES

A firm of architects is embracing new technologies and working practices thanks to a research partnership with Teesside University.

DKS Architects in Stokesley is using a Knowledge Transfer Partnership (KTP) to look at different ways of implementing building information modelling (BIM) into its business and in particular for the retrofit industry.

KTP associate David Craggs, an architectural technology graduate, began working at DKS to look at different ways of incorporating BIM into the firm's practices.

In particular, he has been investigating ways in which BIM can be used to measure energy usage in a building and find different ways to reduce it.

Dave Knudsen, a partner at DKS, says, 'The research is highly relevant to the work that we are doing and in the long term this will be of enormous benefit to our business.'

**Professor Nash Dawood, Dave Knudsen and David Craggs**



# Five-point plan for superior digital capability

Teesside University has published a blueprint for boosting business and employment in the Tees Valley.

DigitalCity – Catalyst for Growth is a vision which sets out a five-point plan for the region to become recognised for the superior digital capability of its businesses.

The report from DigitalCity builds on the recommendations in Lord Heseltine's *Tees Valley: Opportunity Unlimited* report to secure a strong and sustainable economic future for the Tees Valley. It demonstrates the University's clear plan of action for supporting economic growth and inward investment.



Through DigitalCity, the University will focus on five key areas as a catalyst for growth within the Tees Valley:

1

Creating a new generation of digital businesses – nurturing digital start-ups and providing hubs where they can grow

2

Supporting the growth of businesses through digital – unlocking the growth potential of traditional businesses through digital innovation

3

Transforming sectors with digital knowledge – providing businesses with research and expertise to improve their competitiveness

4

Preparing businesses for Industry 4.0 – helping businesses get ready for the influence of automation and digital supply chains

5

Growing digital skills and talent – giving people and businesses the digital know-how they need for the future.

DigitalCity is a partnership between the University and the Tees Valley Combined Authority which works with both digital and non-digital business to stimulate digital innovation and investment.

Professor Jane Turner, the University's Pro Vice-Chancellor (Enterprise and Business Engagement) believes the report provides an opportunity for the Tees Valley to put real power behind its ambitious plans for the economy. This would include directly supporting Tees Valley targets to increase start-ups by 25% and creating 25,000 jobs by 2025, and helping to close the regional and national digital skills gap which costs the UK £63bn a year in lost GDP.

'Digital defines the way we do business today,' Professor Turner explains. 'For traditional industries, the extent to which they adapt to digital change is a major factor in deciding whether they succeed, stall or fail in the future. At the same time, digital is the driving force powering the growth of new businesses and new sectors.'

DigitalCity – Catalyst for Growth highlights the impact of the University's digital work and Professor Turner wants to inspire more individuals and businesses to see DigitalCity as their partner for a digital future.

'If we ensure the people who work in the Tees Valley have the digital skills we need for the future, we can grow employment through creating new digital businesses and high-value jobs. If we support businesses in building their digital capability, we can help them evolve so they can support the growth of the existing and emerging sectors we need for a strong and productive Tees Valley economy.

'And if we do each of those things well, we have the opportunity to secure a national and international reputation for a Tees Valley digital cluster with cutting-edge digital skills, attracting more businesses to come here and work with us in their supply chains.

We are already working hard to seize that opportunity by helping businesses prepare for a digital future. DigitalCity is the way we are making that happen.'

DigitalCity supports digital start-ups, helps small and medium-sized enterprises who want to use digital to grow, and works with bigger companies to help put digital at the heart of their business. It is also ramping up efforts to tackle the wider digital challenges that have the potential to hold the UK back regionally and nationally, revealed Professor Turner.

'For example, women are under-represented in digital businesses in the UK. We're bridging that gap by encouraging more women to come on our courses and to actively consider a career in digital, so that ultimately half of digital businesses in the Tees Valley have female leaders.

'There's a risk that the rise of digital undermines the high streets which play such an important role in building attractive communities where people want to come and work, and DigitalCity will harness the thinking within the University to show smaller businesses how they can use digital to thrive and grow.'

'This approach will ensure that both new and old industries can benefit from digital innovation', she adds.

Business leaders within the Tees Valley and wider region have praised the University's approach to redefining the

region. 'Teesside University is a driving force behind the digital transformation of the Tees Valley's economy, playing a vital role in connecting our region to new opportunities and networks,' says Andrew Lewis, managing director of the Tees Valley Combined Authority.

'It is clear that Teesside University understands the digital challenge facing businesses in the region and, through DigitalCity, the kind of support they need,' concurs James Ramsbotham, chief executive of the North East Chamber of Commerce. 'It's important that businesses look to the University as a partner who can help them make the changes they need and build the capability for the future.'

Sarah Glendinning, Confederation of British Industry North East regional director, adds, 'Effective collaboration between the higher education sector and business has a crucial contribution to make, not only to individual firms' competitiveness but also to UK regional and national economic growth. For Tees Valley businesses to thrive it is critical that they tap into the proven skills and expertise at Teesside University so they can prepare for a digital future.'

Professor Turner concludes, 'We believe that it is only by working together – with government, partners and businesses – that we can really fulfil the potential we see for the Tees Valley. This must be a team effort.'



Effective collaboration between the higher education sector and business has a crucial contribution to make

# New board to drive digital strategy

A team of digital leaders has been chosen to help put technology at the heart of Tees Valley's industrial strategy.

Led by DigitalCity, the members of the newly-formed Tees Valley Digital Strategy Board will help to drive forward the region's technology industries.

Each of the region's five local authorities has one male and one female representative on the board which will work alongside the Tees Valley Combined Authority to develop policies and initiatives to push the digital agenda within the region.

The board will look at ways to strengthen the digital cluster within the regional and develop digital skills.

The Tees Valley already has an outstanding reputation for its technology industries. Middlesbrough and Stockton are ranked at number 16 in a list of the UK's digital hotspots by the National Institute of Economic and Social Research, the only hotspot north of Birmingham.

Laura Woods, director of The Forge, says, 'There is a fantastic array of talent on the board and we're really looking forward to working with them all.'

'One of the first things we're doing is setting up a series of working groups to look at topics such as apprenticeships and women in digital and then report back to the full board.'

'We want to create a talent pool for technology businesses and look at the ways to drive digital companies to the area.'

Mark South says, 'I want to see more businesses come to the area and ensure they get the necessary support.'

'When I set up my first business in 2003, I learnt the hard way. I want to help people overcome those hurdles and be given the best chance to succeed.'

Joanna Wake adds, 'Here on Teesside we've got some amazing companies doing some fantastic things.'

'I want to help raise our profile nationally and help attract investment and create more opportunities for young people.'

The members of the board are:

**John Adams**, Director of BIM Strategy in Darlington

**Mark South**, Chief Operating Officer games company Double Eleven in Middlesbrough

**Paul Sheperia**, who runs software company Evil Technology in Middlesbrough

**Niel Bushnell**, an animation producer and technical consultant based in Hartlepool

**Lisa Holt**, managing director of Middlesbrough creative agency the Creative Alchemist

**Helen Kerr**, a digital marketer at Redcar-based Inner City Digital

**Steve Cole**, a freelance consultant, based in Billingham

**Joanna Wake**, managing director of RAW Digital in Stockton

**Natalie Woods**, a Teesside University business management student from Middlesbrough who sits on the DigitalCity Student Board

**Janice Webster**, founder of DigitalCity representing Darlington

**Keith Wilson**, Tees Valley combined authority

**Simon Stobart**, Teesside University, Dean of the School of Computing

**Dan Watson**, DigitalCity cluster manager

# Students to help more women find careers in digital

A group of Teesside University students are developing a strategy to encourage more women into the digital industries.

The four students are members of the newly-formed DigitalCity student board and one of their objectives is to increase the number of women studying and working in digital in the Tees Valley.

The board will also help staff at DigitalCity to formulate an overarching digital strategy for the region.

One of the DigitalCity's key missions is to encourage more women into the digital sector and Cheryl Evans, DigitalCity programme manager, believes the student board will play a major role in achieving this.

She says, 'The technology industry is traditionally male dominated and it needs to be more diverse.'

'We want this region to be the most proactive in the country when it comes to encouraging women into digital and look at ways in which we can demonstrate good practice.'

'We'll be looking at everything from speaking to young people right through to trying to change the behaviour of large businesses.'

'We've been extremely impressed with the four members of the board and they are already coming up with some excellent ideas about how we might tackle the issue.'

Members of the group have already been invited to Westminster to present their initial findings to national politicians and members of the House of Lords.

They will also work closely with the Department for Culture, Media and Sport to look at ways to influence changes in behaviour to encourage more women into digital.

Alexandra says, 'We want to challenge the perceptions that this is an industry for men and give women a voice and show that they can succeed in it as well.'

Natalie adds, 'If we can target women when they're younger – maybe just before they take their GCSE options – we can help make them aware of the opportunities that are available to them in the digital industries.'



From left – Alexandra Moylan-Jones, Scarlett Reeves, Natalie Woods and Jack Mason

The members of the DigitalCity student board are:

**Scarlett Reeves**, BA (Hons) Marketing

**Alexandra Moylan-Jones**, BA (Hons) Business Management

**Jack Mason**, BA (Hons) Sports Management and Marketing

**Natalie Woods**, BA (Hons) Business Management

## University expertise helps Army community group

Teesside University has recently worked with an organisation which helps the families of serving soldiers to modernise its systems and processes.

Catterick Garrison Community Group, based within the Army Welfare Service at Catterick Garrison in North Yorkshire, provides a programme of activities and social events for the families of service personnel and their dependants.

Catterick Garrison provides a base for Headquarters 4<sup>th</sup> Infantry Brigade and Headquarters North East. There are more than 13,000 personnel, military, civilian and their dependants, living and working in the area.

The group approached Teesside University's School of Computing to ask for advice on how it could digitise its booking and registration system.

The group uses a paper-based booking system meaning anyone wanting to take part in an event must fill out a lengthy booking form and then deliver it to the group's offices during working hours.

Neil Brimer, a community support development worker at Catterick Garrison, wanted a system where people could register for activities online and then book on to events without having to fill out multiple forms at various points across the year.

However, because of security considerations, a bespoke system needed to be designed to meet exacting specifications of the Ministry of Defence.

School of Computing students initially worked with the group to look at the problems and devise potential solutions. Senior lecturers Barry Hebborn and Myriam Mallet then worked on a consultancy basis to design a web-based application which would meet all the requirements of the group.



From left - Neil Brimer, Colonel Andrew Hadfield and Dr Geoff Archer

They devised a proof of concept system which has been submitted to the Ministry of Defence for approval. If approved, the system could be rolled out to similar organisations across British Army sites around the world.

Barry says, 'This was a very demanding brief. Because this is a system which will be used exclusively by the families of serving military personnel it would naturally contain a great deal of sensitive information and security was paramount.'

'Building a run-of-the-mill booking system was not an option, we had to design a bespoke system which would conform exactly to the specifications laid out.'

Neil adds, 'What the University developed is totally unique and bespoke. The University has a reputation as having some of the country's leading technology experts. Teesside University was

excellent to work with. This was something which would never have got started without the support of the staff at the University.'

To celebrate the success of the project, deputy brigade commander Colonel Andrew Hadfield presented a commemorative plaque which was received on behalf of the University by head of knowledge exchange Dr Geoff Archer.



## Tipping the scales in the region's favour

By David Roberts



**Teesside University is to work with business leaders in the Tees Valley to help high-growth companies realise their potential.**

The University recently hosted a visit to the region by the chair of the ScaleUp Institute, Sherry Coutu CBE. The institute is a private sector, not-for-profit company focused on making the UK the best place in the world to scale-up a business.

A scale-up is defined as an enterprise which has more than ten employees and an average annual increase in employees or turnover of more than 20%.

In 2016, the institute published its ScaleUp Review on Economic Growth which reveals that the Tees Valley has a higher than average number of scale-up businesses. However, many of those businesses are not

growing at the rate at which they could.

Teesside University Pro Vice-Chancellor (Enterprise and Business Engagement) Professor Jane Turner will now work with key partners across the region to identify companies with scale-up potential and devise a range of interventions such as mentoring, access to finance and markets, leadership programmes and skills training designed specifically to help them grow.

Professor Turner says, 'This is an exciting opportunity as businesses that scale-up have a significant impact upon a region's economy.'

'If we can help scale-up companies to realise their potential, the benefits to the Tees Valley and beyond will be phenomenal.'

'Research shows that scale-ups are extremely productive and create high-quality, diverse jobs across all sectors.'

'From the University's perspective, they create access to employment for our graduates as well as opportunities for research, internships and knowledge exchange.'

Sherry Coutu adds, 'I was thrilled to visit Teesside University, especially since the ScaleUp Institute's 2016 review revealed that the efforts of the Tees Valley community were increasing their scale-up stock at more than twice the national rate.'

'I'd like to understand what it is that they are doing so that we can share that with leaders of other communities around the UK who are seeking to close their scale-up gap and I'm excited with the leadership displayed by Professor Jane Turner and Teesside University in this regard.'

## with Steve Dougan

Steve Dougan is Teesside University's head of graduate enterprise. He coaches and supports graduate entrepreneurs and leads a team of people helping students, graduates and staff to start up in business.



### How are co-working spaces changing the way entrepreneurs work?

There was a time when micro-businesses, consultants, freelancers and early stage start-ups were stuck alone in small home offices or fighting for space at the local coffee shop. Thanks to the growth of free WiFi, cheap cloud storage and a proliferation of lightweight laptops, tablets and netbooks, all that has changed – it's called co-working and it's changing the way we work for the better.

A shared workspace, sometimes free, more often charging a small fee is more than just an open plan shared space to do business. It's an entrepreneurial community where the office as we know it is redundant.

Co-working spaces have increased by over 300% in the UK in the last two years because they offer what many entrepreneurs are looking for – community and collaboration.

### What is the main benefit of co-working?

The real value of co-working is in the relationships. The first time you step into a co-working space you realise you are not alone. You meet people that are just as passionate and driven as you are. In short you have a network of people that you can instantly ask advice from – about almost anything. Not only are you mixing with other inspiring independent business owners, but you could be rubbing shoulders with your next customer, your future business partner or a potential investor.

### Will co-working make me more efficient?

Time is precious when you are an entrepreneur. Luckily, co-working can introduce you to people who have the answers that you may be looking for. I like to call it accelerated serendipity – and I've experienced it firsthand. At a recent Teesside Launchpad co-working event a new micro-business owner shared her frustration with social media marketing. Within two seconds a fellow co-worker, the founder of a multi-national blogging and content creation business, offered exactly the advice she was looking for. Job done.

And it's not limited to people to work with or buy from. You can save time by learning about new funding opportunities, apps, best practices and more from the people that you co-work with.

### Is co-working just for start-ups and freelancers?

Although co-working communities were originally developed to provide an alternative to coffee shops or working at home, we are learning that co-working spaces are reaching diverse segments of the workforce. Co-working also helps people keep good jobs with conventional employers in cases when, for example, they are forced to move for a partner's job change, or a new job role requires home working.

So take advantage of a co-working space near you, whether you work for yourself or a multinational you may find the experience changes the way you see the workplace.

Co-working space is available here on campus at Teesside Launchpad, offering free WiFi, print and access to a range of community workshops.

Contact Lizzie Dixon for more information  
l.dixon@tees.ac.uk

### Got a question for Steve?

Email [s.dougan@tees.ac.uk](mailto:s.dougan@tees.ac.uk) and remember to include your contact details.

If you need help implementing social media in your business there are a range of training and consultancy solutions available in the Tees Valley.

Contact The Forge to find out more:

01642 384068  
[theforge@tees.ac.uk](mailto:theforge@tees.ac.uk)

# Partnership to address challenges in the medical sector

Teesside University has partnered with one of the world's leading independent research and technology organisations to establish a new Healthcare Technologies Innovation Centre.

The partnership between the University and TWI will create a centre that will build on the extensive medical device and engineering experience within TWI and the digital, health, science and engineering research at the University to address some of the challenges in the medical sector.

Working closely with the South Tees Hospitals NHS Foundation Trust and industry, including TWI's 700 international industrial member companies, the Teesside University-led centre will identify key challenges in the sector and look to apply its digital and engineering expertise to develop innovative solutions and support companies in the development and commercialisation of new devices and services. The new Healthcare Technologies Innovation Centre will have full access to TWI facilities in Middlesbrough and across the UK.

Initial projects will extend existing work within Teesside University and at TWI, around device prototyping, microfluidics, sensors, implant surfaces and additive manufacturing technology (3D printing). Work will also focus on how digital advances can be used to support the delivery of future healthcare provision.

The Centre will follow the innovation centre model developed at TWI, which co-locates academic and industrial researchers to identify and address industrial challenges and will become the eighth such centre to be established by TWI.



Professor Simon Hodgson, Dr Mike Russell and Lord Hestletine Cllr



Together we aim to work with healthcare professionals and medical industries to try and develop innovative technological solutions to some of the challenges faced by clinicians, practitioners and patients

All centres focus on industrially-related research and position academic staff alongside industrial researchers and industry. This will be the first addressing the medical sector.

Professor Simon Hodgson, Pro Vice-Chancellor (Research and Innovation) at Teesside University says, 'We are really excited by this new partnership which brings together some of our best research in the University in health, biomedical and analytical sciences, applied biology, mechanical, materials and electronic engineering, computer and data science and design, and combines this with TWI's

35-year history of helping medical companies to meet their technology challenges and to manufacture cost-effective products.

'Together we aim to work with healthcare professionals and medical industries to try and develop innovative technological solutions to some of the challenges faced by clinicians, practitioners and patients.'

TWI and Teesside University signed the agreement for the new centre in the company of Lord Heseltine CH at the opening of the new £10m TWI Technology and Training Centre – North East at Teesside Advanced Manufacturing Park.

# Helping businesses manage data

By Yfeng Zeng, reader in the School of Computing

With growing volumes and varieties of available data, businesses are increasingly keen to extract valuable information so they can use that knowledge to make predictions, optimise decisions and develop policies.

This is particularly the case in the customer service industry, including call or contact centres, where organisations are seeking to improve the customer experience by investigating what and how their behaviour influences customer evaluations on their business.

The technology behind these data extraction innovations is known as machine learning, which I've been researching for the past ten years. Machine learning has been used to develop driverless cars and effective web search among many other innovations, and is the science of getting computers to act without being explicitly programmed. It is believed by many researchers to be the best way to make progress towards human-level artificial intelligence.

Extracting valuable information from data often resorts to machine learning techniques. Machine learning algorithms can automate the data analysis process by applying complex mathematical models to discover hidden insights from the data, and are core elements in big data analytics.

Customer experience is an important measurement of service provided by the organisation. This is said to be a transformation from customer-organisation interactions to customers' personal feelings on the interactions. However, it is not easy to establish the rationale for such links given the limited numbers of interactions that

often don't come with a label of customers' evaluation. More seriously, customer evaluation is often context-sensitive and the interaction data doesn't record all relevant factors or features.

With a wealth of data available in call or contact centres, SMS message and short-chats in existing social networking platforms, we aim to find a set of informative features that fully capture the quality of interactions, and then develop predictive models for customer experience improvement.

We expect that the models could explicitly articulate associations between the identified features and the customer evaluation on the interactions – organisations could find key features that impact customer experience, and react accordingly.

And this expertise is in high demand from businesses. I am currently involved in a Knowledge Transfer Partnership, funded by Innovate UK, with a company that specialises in recording calls from businesses' contact centres, providing clients with the ability to retrieve, score and analyse performance, to find ways to improve the customer experience of the service they deliver.

By applying these principles to the customer experience market, we are looking to transform call-recording functionality via software that will help businesses to record and score every element of a call – from the agent's tone of voice to time waiting on hold

while a call is re-routed. That data will then be available for automatic retrieval and analysis.

The project will first fuse data from different types of communication channels that record interactions between agents and customers in different time intervals. Then we will identify a set of features that are most relevant to customer evaluations on the interactions. Subsequently we can develop a predictive model that relates the features to the customer evaluations. The creation of this model is a backbone of this project and will be incrementally refined upon new data and additional business knowledge.

Our work will implement a customer experience evaluation component and ultimately have it embedded in a commercial product whose customers include many major banks and high-technology traders. With more data retrieved from various channels, the project will incrementally improve the product on precisely scoring the customer experience therefore resulting in delivering a high quality service to the clients.

More and more of this type of work is expected in call or contact centres, with companies able to achieve new insights and learnings that would formerly have been invisible to the human eye. We believe that machine learning techniques will play more and more important roles in analysing customer interaction data that have been



We expect that machine learning techniques will lead to a new generation of service software-agents who will interact with customers in a smart way

accumulated in call centres over years. They will not only facilitate customer experience improvement, but gain more insights about customers' behaviour in a wide range of contexts. Meanwhile, the techniques may provide guidelines on how the interaction data should be recorded, maintained and fused, which is often limited by physical, computational resources.

We expect that machine learning techniques will lead to a new generation of service software-agents who will interact with customers in a smart way. More importantly, these techniques may help personalise the agents who will show human-like social behaviours in the interactions. There will be un-manned call centres that seamlessly link customers with services, and immediately bring economical and social benefits to businesses adopting them.



## New role will strengthen links between Teesside University and the business community

A new initiative has been launched at Teesside University to build stronger links between students and employers.



By David Roberts

Leading entrepreneur and networker Meryl Levington has been appointed as the new head of student futures and will work with the business community to find out how the University can help to meet its needs with graduate talent.

She will develop programmes for students at the University to ensure that they are ready for the world of work when they graduate.

Meryl will also work alongside the University's award-winning graduate enterprise initiative to encourage entrepreneurship amongst students and grow the number of business start-ups coming from the University.

Meryl, who has an MA in Entrepreneurship from Durham University, joins Teesside having spent 16 years working in the private sector as a business consultant and mentor.

She says, 'My first degree was in modern languages and living and working abroad really taught me how to network and get to know people.

'I have always had a hunger to work with business and I've spent a lot of my career working with entrepreneurs helping them to set up their own companies.

'I'm really looking forward to transferring these skills to my role at Teesside University.'

A key aspect of Meryl's job will be engaging with employers and the business community to promote the benefits of working with the University and developing opportunities for graduate employment and student placements.

She adds, 'We will be working with students to develop key skills for employment so they are better equipped for work, and help raise aspirations for graduates.

'We will work alongside employers to understand the changing needs of their businesses and respond to them by developing our programmes and modules accordingly.

'Particularly for SMEs, recruiting a graduate can be a relatively inexpensive way to bring in extra skills and talent into your company and as a university, we can help with the recruitment process.

'I really want to create strong industrial links and showcase all the fantastic expertise there is here at Teesside and demonstrate that the University is not just about endowing academic qualifications on students but also works to create valuable future employees.'



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