Introduction

This brand new collection of case studies highlights the value to the Welsh economy of innovation activity in our universities.

We present the case studies under four themes:

- **Creating / safeguarding jobs**
- **Attracting investment**
- **Skills and work-based learning**
- **Collaborative projects**

The impressive contribution that universities in Wales make outside academia was recognised by the first Research Excellence Framework (REF2014). REF judged that half of the submitted research activity was world-leading in terms of its impact on the world around us. We also know that the Welsh research base is highly productive and efficient, outranking many comparator countries of similar size. Welsh researchers are collaborating more internationally and receive more citations per one-million-dollar equivalent of research investment than any other comparator country.

Our universities make a vital contribution to ensuring that Welsh businesses and public sector organisations are staffed by highly skilled individuals. They also perform strongly in relation to the creation of spin-off and start-up companies. Graduates with an entrepreneurial flair are given the help they need to start their own businesses, be it through mentoring, consultancy support, dedicated incubator spaces, or signposting to specialist advice through the Welsh Government’s Business Wales website.

Wales is a small country, but we see knowledge exchange between universities and their external partners as the fuel for economic growth. Some of the activity presented in the case studies has been supported by European funding which has driven collaboration between universities and their partners to the benefit of our economy and wider society. The Welsh Government has recently called on the UK Government to uphold assurances that Wales would not lose funding as a result of the UK leaving the European Union. New funding mechanisms need to be explored and quickly established so that research and development (R&D) in Wales can continue to flourish and impact our economy. Our universities will have a central role to play in City Deals and regional partnerships, committing to boost the impact of their research activity through these highly valuable collaborations.
The Well-being of Future Generations (Wales) Act is innovative legislation put in place in 2015 to improve the social, economic, environmental and cultural well-being of the people of Wales. Each of the case studies in this collection is colour-coded to show how they contribute to one or more of the seven Well-being Goals:

- A prosperous Wales
- A resilient Wales
- A healthier Wales
- A more equal Wales
- A Wales of cohesive communities
- A Wales of vibrant culture and thriving Welsh language
- A globally responsible Wales

Through their wide-ranging R&D and training activities, universities are already demonstrating how they can bring real benefit to the Wales of the future. These case studies represent only a small sample, but they provide an insight into how our universities are working closely with their partners in the private, public and third sector to make a difference to all our lives.
CREATING / SAFEGUARDING JOBS
BEACON
Biorefining Centre of Excellence

Enhancing the 'green economy' and applying excellent science to stimulate new job creation

The BEACON Biorefining Centre of Excellence is led by Aberystwyth University in collaboration with partners at Bangor and Swansea Universities. It was established in 2011 with £10.6 million of EU funding support through the Welsh Government, and received the prestigious Regiostars Award in 2014.

BEACON supports Wales-based companies to develop renewable energy products and services, assisting in the transition to a low carbon economy and helping to mitigate the impact of climate change.

BEACON uses biorefining expertise at Aberystwyth, Bangor and Swansea Universities to support research and development at small and medium size companies. BEACON facilities are located at the three Universities and are used to create integrated supply chains involving growers, processors (industry and academia) and end users (industrial partners). Partners collaborate to form a network across the supply chain to improve knowledge transfer between the different groups. BEACON also supports the creation of highly skilled jobs by allowing SMEs to develop intellectual property into products and increase profitability.

New 'green jobs' have been created through BEACON by assisting Welsh companies to develop innovative products. It has already contributed to the creation of 52 jobs in Wales while assisting more than 140 companies and 50 collaborative and research and development projects. The BEACON company network is pan-Wales and continues to grow.

“In December 2015 BEACON+ was announced; a project, backed with nearly £8 million EU funding support through the Welsh Government, to continue developing the green economy in Wales through job creation until 2020.”

“BEACON has assisted MDF Recovery to test and optimise our novel technologies in such a short time frame, something no other organization could offer.”

Craig Bartlett, Director, MDF Recovery Ltd

“The results obtained from this [BEACON] separation project will play a vital role in helping Compton Group and our US partner companies progress the development towards commercialisation.”

Dr Ahmed Ali, Research Director, Compton Group
Centre for Entrepreneurship

Developing graduate skills and mind-sets for business

Cardiff Metropolitan University’s Centre for Entrepreneurship is part-funded by the Welsh Government under the Youth Entrepreneurship Strategy Big Ideas Wales scheme.

The Centre is dedicated to supporting and encouraging entrepreneurship, supports student and graduate start-up businesses and helps individuals to develop their entrepreneurial skills.

The Centre provides one-to-one support and activities including workshops, networking events, skills development programmes, funding competitions and test trading opportunities. The Centre also runs an accelerator programme which provides tailored support for graduate entrepreneurs. Funding from the Santander Universities scheme has been used to support graduate entrepreneurs who have successfully pitched at the Centre’s annual business start-up week Countdown to Launch.

The Centre’s start-up incubator provides a space for student and graduate entrepreneurs at Cardiff Met. The accelerator programme operates from the incubator and has been delivered in partnership with Simply Do Ideas, an educational technology and training company.

To date the Centre has supported 22 graduate start-ups, which already generate profit and are potential future employers. The Centre also continues to support more than 200 individuals in developing skills and mind-sets to help them grow successful, profitable businesses.
“The staff at the Centre for Entrepreneurship take a person-centred approach to supporting you with growing and developing your business. The face-to-face contact with the team and with the other incubator businesses is really beneficial to bounce ideas around and get instant feedback. The use of office space is also extremely valuable; it’s helped me to really focus on what needs to be done to take my business to the next step.”

Ali Mahoney, founder of sports psychology website iThinkSport and member of the accelerator programme

The Centre will continue to provide extensive support to graduate entrepreneurs and encourage and inspire those who are interested in entrepreneurship. It plans to contribute to job creation by developing employability skills through providing individuals with enhanced activities which develop entrepreneurial mind-sets, such as live projects and experiential learning opportunities.
Cardiff University has partnered with IQE, the global leader in the design and manufacture of advanced, compound semiconductor wafer products. The University’s Institute for Compound Semiconductors (ICS) provides the research expertise, while IQE enables the route to commercialisation, working through a for-profit joint venture - the Compound Semiconductor Centre (CSC). ICS receives substantial investment through a number of sources including the UK Research Partnership Investment Fund and the Welsh Government. The IQE - Cardiff University partnership will be further reinforced by the UK Government's decision in 2016 to locate a £50m Compound Semiconductor Applications Catapult in South East Wales.

Compound semiconductors are essential components inside many modern devices, from smartphones to healthcare technologies. The collaboration takes product concepts from the development and innovation stages to pilot and full production.

"Providing cutting-edge facilities that help researchers and industry work together, the Compound Semiconductor Centre based in Wales will position Cardiff as the UK and European leader in compound semiconductors."

South West England and South East Wales Science and Innovation Audit

The CSC employs around 85 people. In turn, the ICS will house more than 100 researchers to test and fabricate compound semiconductor devices. A range of smaller companies, Government bodies and funders are also closely allied. The total initiative, including ICS and the Catapult, will create around 300 jobs. A study conducted by Cardiff University’s Business School predicted that a cluster of conductor semiconductor enabled companies could generate up to 5,000 high value jobs over 10 years.
Weqool

Celebrating Graduate Entrepreneurship

Swansea University graduate Alexander Bulley won £1k in a Santander pitch competition to kick start his proposed venture – Weqool – a fitness app incorporating real time communications.

The University provided Alexander with support through xénos, Wales’ Business Angel Network, who worked with him to create a detailed business report. Alexander then linked up with Xura partner, Blacc Spot Media, to develop a prototype that provides an interactive, user-friendly social platform designed to enable users to participate remotely in live fitness workouts with friends and professional trainers. At the same time the app facilitates positive social interactions amongst its users via video call, instant messaging and SMS.

Weqool reinvents the concept of online fitness, by facilitating positive interactions among users with common interests, to make exercising more fun, engaging and social. It is aimed at those with limited cash, spare time or ability to leave the house, eg. parents with young children or people with a disability.

Alexander has proven to be a strong ambassador for Wales and the vibrant technology community. Within months of graduating, a major US Technology company flew him to New York to demonstrate his technology solution at the Real Time Web Solutions Conference.

“It has been a very exciting journey to bring our proof of concept to life. The combination of Blacc Spot Media’s exceptional development expertise forged by Xura’s RTC capabilities, have helped get our product to market quickly, allowing us to validate our concept prior to an official launch.”

Alexander Bulley, Weqool

“I am delighted to see Alexander take his concept from strength to strength and am pleased that our relationship with xénos and Ashgrove has helped steer him along the way. Swansea University prides itself on nurturing such ambition and we all wish him and his company every success.”

Dr Gerry Ronan, Head of Commercial Services at Swansea University

StartUps are the backbone of the UK economy, and supporting individuals such as Alexander in taking innovative new ideas from concept to market will help fuel the UK economy for many more years to come. The Weqool team is now working to raise early stage funding to explore new skills and activities to bring users together in a socially collaborative and mutually beneficial way.
National Cyber Security Academy

Developing the next generation of cyber security experts

University of South Wales (USW) has established an international reputation in the areas of network security, computer forensics and threat analysis. The Information Security Research Group leads on the design and development of early warning systems that can detect and respond to a variety of cyber based attacks and on computer forensics.

Established at USW’s Newport City Centre Campus, the NCSA welcomed its first students in October 2016. The NCSA allows the industry to have direct access to a pool of graduates trained to the highest standards and with a clear understanding of cyber threats.

USW’s expertise was recognised in May 2016 when it received formal accreditation from GCHQ for its Masters course in computer forensics. The University collaborates with a wide range of partners such as the MoD, Airbus, BT, and Northrop Grumman. NCSA has a further range of partners including Wolfberry, Silox Information Security, and Westgate Cyber.

The NCSA also enables the University to offer high standard bespoke solutions to organisations such as the Police and other public and private bodies.

Providing a steady stream of trained cyber security professionals, USW is helping to make South Wales an attractive destination for potential partner companies, such as Alert Logic’s new security operations centre opened in Cardiff in 2014.

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ATTRACTING INVESTMENT
Knowledge Transfer Partnership

A partnership in sustainability and waste management

Stenor Environmental Services Ltd and University of Wales Trinity Saint David have been working in partnership to explore the future of large-scale construction waste removal and recycling.

Stenor, based in Swansea’s SA1, was established in 2003 and has become a leading construction/demolition waste removal and recycling service provider in the Swansea area.

The University has extensive research and expertise in the areas of sustainability, waste management, materials testing and the new technologies that are currently challenging the ‘norm’ in these fields.

Stenor participated in a Knowledge Transfer Partnership (KTP) with the University and was able to draw on the specialist expertise in the School of Built and Natural Environment, and further explore the development of a new testing facility. The KTP resulted in advice on the technical challenge of analysing aggregates in order to improve the company’s competitiveness, productivity and performance.

"Working with the University of Wales Trinity Saint David has made a huge difference to our company, giving us the confidence to innovate and go after new markets. We understand the importance of involving academics in the development and growth of our business."

Steve Norman, MD, Stenor Environmental Services

Stenor is working with the University not only to improve its business by carrying out its own in-house testing, but also to develop new product lines through research and testing. The company has plans to develop a centre of excellence as part of the University’s SA1 development.
Sustainable Environment Research Centre

Supporting a greener Wales

The Sustainable Environment Research Centre (SERC) conducts interdisciplinary internationally excellent R&D into fields related to Low Carbon, Water Treatment, Energy and Environment.

SERC has received funding from several UK research Councils, and has led large scale projects such as the EU funded CymruH2Wales and the Hydrogen Energy Systems theme of the Low Carbon Research Institute. The Centre is often called upon by international task forces to advise on significant environmental issues.

Through Innovate UK funding SERC has developed integrated hydrogen storage technology for vehicle refuelling. This was achieved in collaboration with ITM Power, by building and integrating hydrogen energy storage into a vehicle refuelling system based on the Isle of Wight. The Centre also partnered with NiTech Solutions to optimise a process for the production of Green Methane. This patented technology has potential to integrate gas, electricity and refuelling infrastructures, decarbonise energy supply and contribute towards energy security.

Other IP based funded projects include collaborating with GlassTech Recycling Ltd to commercialise a new process called HyGlass® resulting in the production of high value silica based products from low quality waste glass; and the Wales Centre of Excellence for Anaerobic Digestion providing a range of support and technical services industry and regulators.

SERC currently leads on Hydrogen Energy Systems for FLEXIS, a £24M consortium supported by EU funds through the Welsh Government to investigate how flexible energy systems can meet modern-day energy challenges.

SERC has also secured Horizon2020 funding for the optimisation of dark fermentation within the 2.6M€ urban biowaste biorefinery project RES-URBiS (RESources from URban Blo-waSte).

SERC’s partners include Welsh Government, Cardiff University, Swansea University, Bangor University, Oxford University, UCL, University of Rome, Osaka University. Industrial partners include ITM Power, TATA, WWU, Welsh Water, Rhondda Cynon Taf, Chrysler, China State Grid, NiTech Solutions, GlassTech Recycling Ltd., IMSPEX Ltd. HyET, AZKO Nobel.

Contact: Dr Lucy Meredith  E: lucy.meredith@southwales.ac.uk  T: 01443 482336
Around 7 million people in the UK live with cardiovascular disease. The cholesterol lowering effects of oat beta-glucans on heart health are one of the very few EU-approved health claims for food ingredients. Oat varieties are being developed by IBERS that contain high levels of beta-glucan, offering enhanced health benefits.

One in four people in the UK eat oats daily and IBERS’ oat varieties account for approximately 65% of the oats sold in the UK. These varieties may therefore have a significant impact on health and welfare. Due to the work of IBERS, Aberystwyth University was a recipient of The Queen’s Anniversary Prize for Higher and Further Education for public good plant breeding. IBERS now has a substantial number of commercial oat varieties registered under UK Plant Breeders’ Rights and Community Plant Variety Rights and available for marketing by Senova.

Through Senova’s marketing activities, IBERS’ contribution to the oat market generates around £123 million each year. Additionally, its oat varieties generate £19 million in gross value added for the UK economy and support around 800 jobs in the UK supply chain (2014 figures).

In continued partnership with Senova, IBERS is developing new varieties of oats with further health properties, are adapted to environmental and climate change, and have the characteristics that ensure they are economically viable for farmers to grow and manufacturers to process.
Cardiff Metropolitan University’s International Centre for Product Design and Research (PDR) is a world-leading design consultancy and applied research centre. It holds a Queen’s Anniversary Prize for the use of design and related 3D digital scanning technologies applied to maxillofacial reconstructive surgery following disease or trauma.

PDR has worked with 84 hospitals since 2008. Over 2000 individuals have directly benefitted, as NHS services exploit processes and techniques pioneered by the group. In 2012 alone, PDR provided 550 custom medical models, primarily for the NHS but also for other research organisations, charities and museums.

"By using these devices, surgery is now quicker and more accurate, patient outcomes are improved, and patients typically require fewer surgical interventions. This is because the research undertaken [by PDR] has negated much investigatory surgery, as planning and implant development now happens in a digital environment based on medical imaging data."

Mr Satyajeet Bhatia – Consultant Oral & Maxillofacial Surgeon
University Hospital of Wales

Build on close clinical collaborations, PDR continues to innovate in areas related to maxillofacial surgery and broader applications such as improved prosthetic limb design and production.

PDR’s approach has been adopted into mainstream activity widely used by the NHS. It has two key targets: further reduction in cost and lead time of surgical devices and prostheses, and increased capacity for their manufacture.
Cardiff Partnership Fund and Fusion IP

Commercialising biomedical research

Independent studies show that a strong biomedical research base, experienced technology transfer functions, access to long-term capital and specialist management can help new ventures grow.

Building on Cardiff University’s previous experience in this area, recent support has come from the introduction of Impact Acceleration Account funding from the UK Research Councils, and the Life Science Bridging Fund in Wales. These sources help commercialise university intellectual property for the benefit of everyone.

The Cardiff Partnership Fund (CPF) has helped turn scientific discoveries into commercially viable projects, improved university business awareness, and brought new products to market (primarily through spin-out companies). The Fund has made 85 investments, supporting 58 research development projects and 16 spinouts companies and raised >£75M in co-investment, creating more than 100 high-value jobs in the Cardiff-city region.

The CPF has underpinned the University’s ten-year partnership with Fusion IP Plc, which in turn provided more than £50M of patient capital investment and experienced management. This enabled four University spinouts to list on the Alternative Investment Market (AIM) with a market capitalisation of more than £230M.

One of their successes is the ultrasound education and training provider Medaphor,

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founded with a £60k CPF investment in 2005. Flourishing under Fusion’s management, it now employs 30 people and has over 200 scan training systems installed worldwide.

Converting the outcomes of research into viable business opportunities is a long-term and challenging process for universities. They will continue to need effective future mechanisms that help turn research outputs into impact for the benefit of the wider economy.

“We have worked with Cardiff University over the last 10 years to create a number of new businesses from their IP, a number of which are now listed on AIM. The most recent, Diurnal, has just received phase iii approval for its first drug, which should start selling on a patient names basis next year. It seems clear to us that such university IP is vital to the future of the technology sector in the U.K.”

David Baynes, Chief Operating Officer, IP Group Plc and former CEO and co-founder of Fusion IP Plc.
Advanced Sustainable Manufacturing Technologies (ASTUTE 2020)

Embedding Advanced & Sustainable Technologies into Welsh Manufacturing

The ASTUTE 2020 operation has been part-funded by the EU through the Welsh Government. The five-year operation (2015 – 2020), led by Swansea University in partnership with Cardiff University, Aberystwyth University and University of Wales Trinity Saint David, will support industrial research, development and innovation (RD&I) through world-class academics and a team of highly qualified technical experts and project managers.

ASTUTE 2020 is designed to stimulate growth in West Wales and the Valleys (WWV) by applying advanced engineering technologies to manufacturing challenges, driving cutting-edge RD&I.

ASTUTE 2020 will collaborate with the high-value manufacturing industry in WWV to stimulate transformational and sustainable growth by facilitating and de-risking the development and adoption of advanced technologies, increasing competitiveness and future proofing.

Demand-led by industry, ASTUTE 2020’s focus is on collaborative industrial projects with a research challenge that will bring economic benefit to WWV. ASTUTE 2020 will focus only on those areas where it can specifically contribute established world-leading and internationally excellent expertise found across the Welsh Universities’ partnership to address the industrial RD&I needs:

- Advanced Materials Technology
- Computational Engineering Modelling
- Manufacturing Systems Engineering

ASTUTE 2020 builds on the most successful aspects of the previous ASTUTE project from 2010 to 2015. ASTUTE has successfully demonstrated that it is in an excellent position to support companies via knowledge exchange and intensive collaborative RD&I projects in manufacturing technology. Over 250 Welsh SMEs benefited from ASTUTE’s assistance helping generate more than £9 million in increased manufacturing investment for Wales, stimulated the creation of 174 new jobs and initiated the set-up of ten new enterprises.
“I’m delighted that EU funds are helping Welsh businesses to improve productivity by exploiting the expertise within our highly acclaimed academic institutions and adopting leading-edge technologies to achieve commercial success and growth in our economy.”

Mark Drakeford AM

“We were happy with the expertise provided by ASTUTE and felt their expertise was complementing our practical knowledge and indeed proving our methods of manufacture were fairly efficient. ASTUTE always emphasised that our practical knowledge was something they could not match, which changed our perception of working with academia for the better.”

Stephen Noakes, Production Director, Consort Precision Diamond Co.

Advanced Sustainable Manufacturing Technologies (ASTUTE) through its five-year project created an economic impact of over £200 million in West Wales and the Valleys.
SKILLS AND WORK-BASED LEARNING
Construction Wales Innovation Centre (CWIC)

World class training for construction companies

CWIC is the result of a £6.5m investment by the Construction Industry Training Board (CITB) to establish Wales’ first purpose-built innovative construction training facility in Wales.

The University has formed a pan-Wales partnership with four FE colleges, the Building Research Establishment (BRE) and Tidal Lagoon Swansea Bay. The partnership has established a hub and spoke model to deliver coherent, seamless provision throughout Wales of specialist and bespoke training from levels 1-7.

The CWIC’s “Hub” will be based at the University’s SA1 Swansea Waterfront and will work closely with the new School of Architecture. The “Spokes” will be located at colleges across Wales, including Coleg Sir Gâr, Coleg Ceredigion, Coleg Cambria in North Wales and Coleg y Cymoedd in South East Wales.

CWIC offers state of the art facilities and world-class training for individuals and construction companies. It will ensure that Wales has the right skills in place to meet the construction industry’s current and future needs. This will help the sector in Wales to become a leader in digital and modern construction, and the repair of traditional buildings and heritage sites.

“Congratulations, it’s really great to hear about this Centre. The Welsh Government is committed to supporting the construction sector and our joint investment program with CITB, Construction Futures Wales, which is targeted at facilitating the growth and development of companies has been, and continues to be, a success.”

Welsh Government Leader of the House and Chief Whip Jane Hutt AM

“CWIC will be a major step forward for the construction industry in Wales.”

Mark Bodger, Strategic Partnerships Director, CITB Cymru Wales

“The level of private sector investment reflects the importance of a skilled workforce and CWIC is responding to demand with an innovative framework that will have a significant impact on skills development in the construction industry.”

Gerald Naylor, Director Construction Wales Innovation Centre

CWIC is already making strong connections between employers and the collaborative partnership established to deliver specialist training courses and engagement events.
Growing Workforces through Learning and Development (GWLAD)

Innovation in care provision

GWLAD is an innovative £3.7 million project supported by EU Funds through the Welsh Government that aims to develop the skills of employees across South West Wales. GWLAD provides enterprises with practical, flexible and achievable ongoing staff development in the form of qualifications in Professional Practice.

GWLAD collaborates with businesses to identify needs, and has partnered with Fieldbay Ltd on the development of a Leadership Academy to support its staff into leadership and management roles. Fieldbay Ltd provides high quality care services for people who have complex needs associated with mental illness, learning disabilities, challenging behavior, dementia and long term conditions such as Huntingdon’s disease.

The collaboration between GWLAD and Fieldbay has been recognised with an award for outstanding training and development from the CIPD, the professional body for HR and people development. This was celebrated during the South West Wales CIPD Branch annual awards ceremony at the Marriott Hotel in Swansea in October 2016.

“"The programme has increased self-awareness of employees, improved leadership of teams, these skills will transfer as new care facilities and services open. This gives the business greater confidence for the future.”

Aldo Picek, Training Manager at Fieldbay

The programme is transferable and is now running for a wholesale food supplier in Carmarthenshire. GWLAD is similarly collaborating with a large Housing Association in Swansea by developing a collaborative programme that responds to recent changes in housing sector legislation and can also be offered to the Social Housing sector in the region.
Continued Professional Development Partnership

Skills for working professionals

In 2015 Aberystwyth University launched a new postgraduate-level training course ‘The Facilitation for Organisational Leadership’. The course is a Level 7, 20 credit module delivered by Menter a Busnes and accredited by Aberystwyth University. All students enrolled on the course become postgraduate students of Aberystwyth Business School.

The course is designed to help facilitators and team leaders understand a range of facilitation techniques and models as well as to plan and structure innovative bespoke facilitation sessions. The course can be delivered bilingually and the students have the option to submit their assessments in Welsh or English.

Menter a Busnes, headquartered in Aberystwyth, focus on supporting new businesses, business growth, and skills development in Welsh sectors such as food and drink, and agriculture. Aberystwyth University and Menter a Busnes have now forged a strategic partnership to deliver this module in response to market demand. The relationship offers an excellent example of university teaching being developed for working professionals in a specific sector. The module has been successfully running with cohorts of a maximum of 12 students and the first two cohorts were delivered to Menter a Busnes staff from the Farming Connect programme. Most recently the course has been delivered to a group of agricultural consultants in Northern Ireland.

“Working closely with Aberystwyth University we’ve managed to design a module that acknowledges and develops the skills associated with effective facilitation.”

Wyn Owen, Associate of Menter a Busnes and module leader

The aim is to continue to grow this strategic partnership. A new module in ‘Coaching and Mentoring’ is planned for development in 2017.

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In October 2014 the Welsh Ambulance Service Trust approached Cardiff Metropolitan University’s Centre for Work Based Learning (CWBL), to help develop and deliver a short course, Introduction to Reflective Practice. The course employed a range of delivery strategies including workshops, work based learning and reflection.

The course helped practitioners to continue their professional development through a process of self-reflection and planning. This allowed them to review and reflect on past and current learning experiences and to develop reflection skills through the creation of a portfolio of evidence.

The training was delivered to ambulance staff across South West Wales at the Trust’s National Ambulance Training College in Swansea. Operational Paramedics, Clinical Team Leaders, Urgent Care Service staff, Control Room and Resources Centre staff completed an intensive two day programme in Reflective Practice.

On completion of the course participants gained a range of reflective practice knowledge to help them improve their techniques and practices. Participants were awarded 20 HE credits at level 4.

“We aim to make access to higher education both accessible and flexible and this project offered a clear progression route into Higher Education.”

Fiona Argent – CWBL Manager

The programme is aimed at qualified practitioners who have not previously studied at degree level, giving them the opportunity to develop skills for progression into degree level study.

“We training programme delivered by Cardiff Met is perfect for staff in the Ambulance Service who have an immense amount of knowledge relating to their specific areas of work, but in some cases do not have the (FE/HE) academic qualifications to underpin that knowledge.”

Amanda Williams, Paramedic; Project Manager at Welsh Ambulance

There is a target for all paramedics to be educated to degree level. Better collaboration with higher education providers throughout Wales will give all paramedics access to clinical and academic development opportunities.
Horizon Nuclear Power Ltd, a wholly owned subsidiary of Hitachi, is currently planning to invest of the order of £10bn in a new nuclear power station, Wylfa Newydd, on Anglesey. Once operational, the site will employ around 850 people for at least 60 years.

Bangor University and Horizon have signed a Memorandum of Understanding for joint working on student work and study placements; collaboration for research and use of facilities; and educational engagement with local young people to raise awareness of STEM subjects.

Horizon has been pro-actively supporting the implementation of this agenda in collaboration with the National Skills Academy for Nuclear (NSAN), the Nuclear Graduates Programme and Hitachi-GE.

Horizon now runs annual workshops for students from disciplines ranging from engineering and chemistry to psychology and law. As well as emphasising the diversity of disciplines needed to develop and run a new, modern nuclear facility, Horizon has worked with students on the ‘softer’ employability skills and competencies needed to secure good graduate roles in business and industry.

Groups of staff and students from Bangor have also undertaken NSAN Triple Bar accreditation, an assessed course that provides the induction and safety training required to work unsupervised on existing nuclear sites. Other students have taken advantage of the working partnership to undertake placement opportunities on Hitachi-GE’s Internship Programme in Japan.

The University is now also collaborating with the Centre for Nuclear Engineering at Imperial College London and Hitachi-GE on a newly formed “Boiling Water Reactor Research Hub and Network”. Joint appointments, the recruitment of new academic expertise at Bangor and the use of other university assets, such as its new Science Park, MSparc, will further drive forward this agenda.
Further investment in this area will mean that Bangor University’s researchers and students become central to supporting Welsh and British nuclear expertise.

“This agreement furthers our ongoing commitment to supporting skills development and training across North Wales, creating long term career opportunities for the region’s young people. We look forward to working with the University as the Wylfa Newydd project moves forward, utilising the first class research and development facilities and expertise it has developed over many years.”

Sasha Davies, Head of Strategic Development Wales, Horizon Nuclear Power Ltd.
In partnership with Welsh Government, the Alacrity Foundation and industry leaders, the National Software Academy (NSA) is tackling the shortage of skilled programming and software engineering graduates in Wales.

Based at The Platform in Newport, the Academy delivers a three-year BSc Applied Software Engineering degree focused on the knowledge and hands-on experience needed to work as a commercial software engineer. It developed the course in collaboration with industry partners.

The Newport Business Development Task Force had highlighted the low supply of skilled software engineering and programming graduates, despite their being in high demand. In its first year, the NSA enrolled 23 students, with 7 taking up industry placements. A further 64 students enrolled in the second intake of the degree.

The BSc is taught by academics and industrial practitioners. Students deliver real-life software projects, teaming with other students and lecturers in a vibrant start-up atmosphere, applying cloud, mobile and web technologies.

NSA students work with companies across the UK. They have tested iBeacon technology for solar tech manufacturer GCell; prototyped a visitor experience app for Newport City Council; and helped develop a web application for SmileNotes. Placements have been hosted by companies such as GCell and Admiral, and currently Cardiff University students are working alongside the Welsh Rugby Union, medical technology company Medivation, and the Newport Business Improvement District.

www.cardiff.ac.uk/software-academy | Contact: Dr Matthew Turner E: comsc-ug@cf.ac.uk T: 029 2087 4812
**“We were keen to get a new, eager bunch of developers working with iBeacons. Having 25 new pairs of eyes working with a new technology and giving their feedback was important to us. Experiencing that energy and seeing the projects develop was a real pleasure.”**

David Pugh, Systems Engineering Manager, GCell

**NSA is keen to team with additional partners across a range of fields to inspire and challenge tomorrow’s software engineers. Opportunities for industrial partners include projects for students to develop and acquire skills; face-to-face and distance mentoring of students; guest seminars and skill sessions; and student summer placements.**

**“Laing O’Rourke has worked closely with the National Software Academy. Together we have developed a prototype barcode scanner with a potential use in tracking our building materials from source, to installation and beyond. We’ve enjoyed working with the students who have done a great job approaching a real world application and client. We are looking forward to further engagements with the Academy in future years and believe this to be a good model for training the software engineers of the future.”**

Laing O’Rourke
Welsh Financial Services Graduate Programme

Building the financial services sector in Wales

The University of South Wales is collaborating with a consortium of key financial services employers to run a two-year full-time programme of work, training and academic study that is unique to Wales. The Welsh Financial Services Graduate Programme has been designed to tackle high staff turnover and talent retention – issues raised as concerns within the sector.

The Programme combines studying for a MSc in Financial Services Management with invaluable on-the-job training with some of Wales' biggest employers in the Financial Services sector.

The programme is supported by EU Funds through the Welsh Government and is managed by the Welsh Contact Centre Forum on behalf of the ten participating employers, including Admiral, Atradius, GM Financial, Julian Hodge Bank, Principality BS and the BBC Finance Centre of Excellence.

This highly innovative MSc course has a substantial element of work-based learning associated with four periods of work experience – with six months' work experience at each employer. The consortium of employers works with the University to ensure that the course is relevant, topical and meets the skills requirements of the sector.

Employers recognise the way in which the development of quality commercial experience can support an organisation's performance and productivity. The unique blend of academic expertise and professional understanding has increased students' employment prospects: of the 20 graduates on the pilot phase, 17 secured permanent employment with a financial services company in south-east Wales, including Finance Wales, Julian Hodge Bank and Atradius. One of the student course projects – the development of an innovative insurance product – has been launched on the market.

The programme will continue to build on the success of the pilot and current phases. It has been widely recognised as good practice in employer/university provision, and the University is currently exploring how the concept can be extended to other key industry sectors.

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Increasing Counselling Provision

Counselling support for vulnerable groups and deprived communities

The University of South Wales (USW) delivers counselling provision in a range of settings in the local community. Its partners include Newport City Council, Aneurin Bevan University Health Board, Hafal, Welsh Refugee Council, and Cadwyn Housing. Since 2009 the University has been contracted by Newport City Council to deliver an Independent Children and Young People counselling service for primary and secondary school age children.

The University of South Wales has delivered a range of vital community and schools-based counselling provision within Newport and surrounding areas. These contracts have been invaluable in allowing exposure of student counsellors to real life situations (under qualified supervision) whilst contributing to community wellbeing and building networks across SE Wales.

Big Lottery Funding supported for three years a free and high quality peripatetic counselling service in deprived, marginalised and disadvantaged communities around Newport. This led to the creation of the USW Counselling Clinic, which offers a range of clinical services including Art and Music Therapy.

Another success of the University has led to the Independent Children and Young People Service utilising qualified and student counsellors. These are counsellors undertaking further study in the specialist area of children and young people. They have been located at both primary and secondary schools, working to British Association for Counselling and Psychotherapy Ethical guidelines.

A partnership with Newport East and West GP Neighbourhood Care Networks, South Wales Counselling and Psychotherapy (SWCAP) was created to provide community based access to counselling services to residents of Newport. The Newport GP Neighbourhood Care Networks project is aimed at improving the emotional and psychological well-being of the people of Newport.

The projects support some of the most vulnerable groups in society – children, young people, deprived communities and those with mental health support needs, and is already helping Public Bodies in Wales to meet their goals under the Wellbeing of Future Generations Act.
Supporting workforce transformation in Welsh Public Services

A partnership with social and healthcare professionals

The Open University in Wales has worked with public sector employers and workforces across Wales to support major ‘skills-mix’ and role transformations as part of service reconfiguration to better meet needs of citizens of Wales. In the health and social work sectors this has been by co-developing the skills and knowledge of higher level support workers to augment the work of registered professionals in nursing and social work.

Over 3,000 higher-level nursing and social work support workers in Wales have benefited from the OU’s flexible, blended learning approaches and range of sub-degree qualifications over the last ten years. This is helping to achieve system-wide change.

As well as working with all NHS Wales Health Boards and Trusts to deliver programmes for nursing-focused clinical Health Care Support Workers, Care Council Wales has funded pilots within all 22 Welsh local authorities to develop a new role of Social Work Practitioner to augment registered social workers. This is being achieved via a flexible Certificate in Higher Education programme that blends academic and practice based learning. All sub-degree pathways offer progression to full degree qualifications.

The wider partnership approach has used long-term relationships with Unison and the Royal College of Nursing to ensure transformation is not imposed on the workforce. The approach has been successful in widening access to HE across Wales. The work in this area was nationally recognised for its innovation via a Times Higher Education Award, and has also been awarded Wales TUC Quality Awards for its workplace focused advice and guidance and provision of free taster and diagnostic materials.

The OU has used its unique pan-Wales reach to support system-wide change in the public services, address workforce recruitment and retention challenges and deliver more flexible services.
Developing School Support Staff

A trade union partnership approach

The Welsh Government’s decision to formally regulate all school support staff directly involved with learners and learning from April 2016 has highlighted the lack of availability of high quality learning opportunities for the 31,000 new support staff registrants across Wales. The Open University in Wales (OU) has moved very quickly to work with its trade union partner Unison to improve practice, and build confidence and self-esteem amongst this traditionally neglected element of the school workforce.

The OU co-created with Unison a series of Saturday workshops for support staff. These are delivered across Wales to develop classroom practice in the short term and highlight longer term development opportunities via the OU or other providers.

In 2016 over 800 school support staff workshop attendees engaged with sessions around improving classroom management; closing the attainment gap for disadvantaged pupils and making literacy fun. The evaluations of attendees were very positive and a number of schools requested delivery of further workshops as part of INSET days.

As many school support staff are not able to be released by schools to attend development activities, the OU has worked with Unison to deliver workshops at non-school venues at weekends using OU workshop facilitators.

The OU has highlighted its suite of four Certificate in Higher Education pathways for support workers working in Foundation Phase, Primary Years and Secondary School settings, and for those working closely with children and families facing particular challenges. The OU has also signposted staff to local FE providers who can tackle essential skills deficits and lower level vocational needs.

The initial workshop engagement has brought in significant numbers of potential HE learners from non-traditional backgrounds in some of the most disadvantaged communities in Wales.

The OU in Wales workshop facilitators are now working with OU and Unison colleagues in England, Scotland and Northern Ireland to use the engagement model developed in Wales as part of a UK wide model.
COLLABORATIVE PROJECTS
To infinity and beyond...

Cutting edge knowledge and skills to boost the Welsh space sector

Aberystwyth University is working in partnership with the UK Space Agency (UKSA) and the Satellite Applications Catapult (SAC) to identify space sector business needs across Wales and the opportunities available for collaboration. SAC is an organisation established by Innovate UK to foster growth across the economy through the exploitation of space.

A UKSA and SAC sponsored Knowledge Exchange Fellow has used the expertise and knowledge from the Aberystwyth Centre for Space and Earth Monitoring and the Wales Academic Space Partnership to connect with the Welsh space sector businesses and encourage the sector’s growth potential.

Events were hosted in both North and South Wales in 2016 with further events planned in 2017 in Mid Wales. Companies already utilising satellite applications and those wishing to expand their capabilities to include satellite applications in the future are encouraged to collaborate under the initiative.

In less than a year, 46 companies and organisations involved have created a buzz of excitement around the use and repurposing of space technologies and data. From these events many connections have been made between companies, policy makers and academia.
As a result, collaborative research projects and partnerships are currently evolving with a view to upskilling the businesses involved and policy makers have an updated understanding of the sector with all improving capabilities for future business development and growth within this sector in Wales.

"Attending an event organised by the Satellite Applications Knowledge Exchange Fellow resulted in some key contacts for the business especially Welsh Government support for small businesses."

Dr Crona Hodges, GeoSmart Decisions Ltd

“The ‘Catapult’ team and the Aberystwyth coordination of events have changed my perception of MI’s full range of capabilities and market integration that can be brought to bear for Welsh Space market ambitions.”

Dr Raymond Davies, European Union Agent, Machinists Inc.

The Aberystwyth Centre for Space and Earth Monitoring aims to continue to provide cutting edge knowledge and support to the Wales Space sector, increasing skills, jobs and growth and providing a focal point for continued, pan-Wales activity. An updated Space Sector Business Directory will be launched in 2017.
Knowledge Innovation Technology Exchange (KITE)

Investment in Knowledge Exchange reinvigorates Welsh Food Industry

Cardiff Metropolitan University’s Food Industry Centre found that there were no sector specific mechanisms to support the large number of Welsh food SMEs to access the knowledge held within the University to improve their businesses. The £3.9M KITE (Knowledge Innovation Technology Exchange) programme was established in 2009 in response to this identified market need. It was supported by EU Funds through the Welsh Government.

The two Centres have successfully delivered over 40 projects with 37 Welsh SMEs in the food and drink sector, all benefitting from knowledge exchange. By 2015, KITE had enabled companies to increase sales of Welsh produce by £80m. In November 2014 KITE won the ‘Economic Impact Award’ at the Insider Business and Education Partnership Awards; in August 2015 it was shortlisted by RCUK & Praxis Unico for a prestigious Impact award.

With the aim of increasing the sales of Welsh-based food products by £10 million, KITE facilitates a partnership between SME food businesses, graduates and two Welsh Food Centres – Cardiff Metropolitan University’s Zero2Five Food Industry Centre, and the Food Technology Centre, Coleg Menai.

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Amongst KITE’s many achievements is the creation of more than 400 manufacturing jobs and the safeguarding of a further 800 existing jobs. The programme has also achieved 25 British Retail Consortium accreditations (enabling suppliers to sell their products in supermarkets and access international sales), and nearly 600 products have been launched by Welsh food and drink SMEs.

KITE has helped reverse the migration of food technologist skills away from Wales, strengthening the technical and economic projection of Welsh food processors.

“...without the Food Industry Centre as the driving force, there is no way we would have been able to achieve these results. We just wouldn’t have had the resources for this. I do hope that there is a future for us with the KITE scheme, as it is a win–win situation for all of us. And I for one, will recommend the KITE scheme to all and sundry!”

Ian Stone, Compliance Manager, Castell Howell Foods Ltd
Mobile Analysis and Support Companion for Occupational Therapy (MASCOT)

Using app-based technology to help people with acquired brain injuries live more independently

MASCOT is being developed by SymlConnect Ltd, with support from Wrexham Glyndŵr University. Working in collaboration with occupational therapists from the North Wales Brain Injury Service, SymlConnect responded to a call issued on behalf of Betsi Cadwaladr Health Board to "Promote independence in cooking tasks". MASCOT is funded through the Welsh Government’s Small Business Research Initiative Challenge.

MASCOT was designed by experts from the University’s Computer Science and Occupational Therapy Departments, in collaboration and consultation with practising NHS Occupational Therapists and their service users. The aim of the design is to be as simple and user friendly as possible, with the software tailored to meet the needs and preferences of service users. MASCOT also aims to increase the efficiency of occupational therapists, enabling them to identify and tackle priority cases through a self-rating facility upon completion of each recipe.

The Welsh Government recognises the need to use technology effectively to support
clinical roles and promote a greater integration between health and social care. Within the consultation process on the MASCOT prototype, service users have noted the potential of their reduced risk levels; assistance provided during rehabilitation stages; increased confidence with everyday tasks; and promoting and enabling independent living.

As an example of collaboration between higher education and both the private and public sectors, MASCOT addresses a challenge which impacts not only on service delivery and efficiency, but on the lives of individual service users. The involvement of professionals from all sectors exemplifies the impact that innovation and collaboration can have on individuals in Wales.
Endeavr Wales

Accelerating the Welsh economy by helping innovative ideas become a commercial reality

Successful innovation brings together new ideas, open collaboration, and a real focus on users to boost the growth of regional economies. Airbus Group’s Endeavr initiative with Cardiff University and Welsh Government aims to boost innovation across Wales.

The partnership brings together companies, academia and government to bridge the gap from early stage research to the development of commercial value. It focuses on research and development in Digital Economy and Advanced Engineering & Manufacturing.

Through Endeavr small and medium-sized enterprises (SMEs) and academia can pitch for up to 100% funding to address challenges identified by Airbus and other large organisations. Applications are assessed by technical experts and Endeavr’s committee members who identify projects that can benefit the Welsh economy and ‘fit’ with Airbus road maps. Successful pitches have business scalability, job creation potential in Wales, and peer endorsement or academic backing.

The initiative has helped SMEs within the Airbus supply chain and has led to the incorporation of novel technologies in the next generation of Airbus products. The collaboration has yielded significant results, with £10m distributed in funding, supporting over 50 projects across Wales, many involving SMEs. The programme has supported projects at Aberystwyth, Cardiff and Swansea Universities and developed an effective partnership between Welsh academia and one of the UK’s leading technology companies. Project outcomes have influenced UK Government policy on Cyber Security.

“Endeavr has enabled me to realise the potential of my innovation. It is not just about financial assistance but about connection to a wider network, which might otherwise have been closed to me. This collaboration with Endeavr has enabled me to get where I am today”.

Greg Wood, GSW Connections

Wales must continue to invest in three-way collaborations where public sector funding, private sector business acumen and the research knowledge of academic institutions can create economic and social prosperity.
The Strategic Insight Programme (SIP), a HEFCW funded initiative, ran between 2008 and 2015. The initial pilot phase focussed on universities in South East Wales, with a second phase, led by University of South Wales (USW), expanding to all nine Welsh universities. The programme saw engagement with a variety of company partners across public, private and third sectors including Siemens, BBC, Welsh Rugby Union, Chwarae Teg, and NHS Health Boards.

The programme facilitated strategic placements (Classic SIP) from universities into partner organisations in the public, private and voluntary sectors. Reverse SIP placements were facilitated from industry into higher education.

The second phase of the programme achieved 690 placements and one in six of these successfully secured follow-on funding. In total, the placements generated income in excess of £12 million. SIP also enabled academics to bring ‘real world’ examples into the learning experience for students by informing curriculum development. It was invaluable in creating a focus for relationships to be formed and information to be exchanged.

SIP’s legacy has seen several universities develop follow-on programmes. These include USW, where over 30 projects aimed at collaborative research or commercialising ideas have received internal investment; Cardiff Met where two new programmes ‘Get Started’ and ‘Accelerator’ have been developed; and Cardiff University where funding has been secured under the MRC’s Proximity to Discovery: Industry Engagement Fund, which aims to help researchers in life sciences and industry work together.

All SIP partner universities have significantly benefitted from participation in the programme, and many have gone on to promote and invest in similar programmes of their own to further encourage industry–academic knowledge exchange.
SPECIFIC

The Active Classroom Building Demonstrator

SPECIFIC is a UK National Innovation and Knowledge Centre (IKC) led by Swansea University; its aim is to transform buildings into power stations that will generate, store and release energy at point of use. SPECIFIC’s strategic partners are Tata Steel, BASF and NSG Group and Cardiff University; it is funded by the EU through the Welsh Government, Innovate UK and EPSRC. Currently SPECIFIC has a portfolio of over 50 research and industry partners.

SPECIFIC is the only UK centre that is developing building integrated solutions combining solar thermal and heat storage in conjunction with PV and electrical storage.

The active classroom, designed to be energy positive, was developed at Swansea University’s Bay Campus. It showcases and integrates new building integrated products and technologies developed both at SPECIFIC and with its industrial partners. It will enable data to be gathered to inform research and the construction industry as to the design of cost effective energy efficient buildings of the future.

It was constructed by a novel construction method from lightweight, steel-framed interlocking panels that comprised walls, floors and roof (Matrix). The superstructure alone comprises 16 tonnes of steel and the building showcases new cladding colours; magnetic Coretinium® wall panels internally and two transpired solar collectors (TSCs) integrated into the south façade (Tata Steel). The latest energy efficient windows (NSG Pilkington) were used throughout whilst a living wall promotes biodiversity consistent with the adjacent Crymlyn Burrows SSSI.

The roof comprises Building Integrated PV (BIPVC – a spin-out of Swansea University) and can generate 17kWp electricity. Storage, i.e. the design and installation from solar collection to storage connectivity, was undertaken in collaboration with Solar Plants (a local SME), and utilised two aqueous hybrid ion batteries capable of 40kWh storage using a 24kVA AC Inverter system. This has
the capability to power the classroom for two days from the batteries alone and uses ~ 1.5x Energy Consumption of a typical family home. Energy release was achieved using SPECIFIC’s own 10kW novel underfloor heating system. This has the advantages of being fast, zoneable and controllable. A comprehensive metering and monitoring system was designed and installed throughout the classroom.

The design of the Active Classroom involved collaboration with 20+ companies, and took 14 weeks to build. The classroom can be controlled via an app, and incorporates new building techniques and products used for the first time. All the major components are 100% recyclable and there is no plasterboard or concrete used; steel screw piles have replaced traditional foundations, reducing the carbon footprint.

It is only by working together on real projects with real companies, by bringing together those in the construction, energy and systems industries, that our vision of a more sustainable, more prosperous environment can be achieved.

“At SPECIFIC we’ve created a dynamic environment where people and ideas thrive. We’re very good at what we do, but we can’t do everything ourselves. That’s why we’re actively looking to collaborate with innovative organisations that share our vision and can work with us to commercialise smart coatings.”

Janet Bell, Business Development Director
AgorIP

Throwing open the doors to innovation in the Welsh NHS

With increasing pressure on the Welsh National Health Service, delivering an effective and sustainable service is vital. Launched in November 2016, AgorIP is a £13.5m scheme supported by EU funding through the Welsh Government. It brings together academics, clinicians, and businesses to pioneer research into cutting-edge healthcare technologies.

Led by Swansea University, AgorIP will work with the NHS and industrial collaborators across Wales to turn innovative research into new products, processes and services.

As part of the pan-Wales project, commercial sector experts will help progress new ideas through experimental and industrial development, demonstrating proof of concept to potential funders and attracting further research investment. AgorIP builds on the success of a previous Welsh Government initiative InvestorG8, which yielded a number of substantial offers of investment into new businesses, and delivered a ten-fold return on the public funding received.

AgorIP will speed up the number of new healthcare innovations getting into the hands of clinicians and healthcare workers within the NHS service in Wales, improving the lives of patients within Wales and beyond. Highly skilled jobs will be generated as a result of the commercialisation of healthcare technologies that received investment, giving a major boost to the Welsh economy.

Supported by AgorIP, technology based on pioneering research at Swansea University’s Medical School is now at the clinical trial stage. It is being taken forward commercially through the recently formed spin-out company PulmonIR Ltd, which was awarded ‘Start Up of the Year’ in 2016, at the MediWales Innovation Awards. It will give clinicians the ability to quickly and easily diagnose and monitor Chronic Obstructive Pulmonary Disease, one of the most common lung diseases in the UK.

“We are truly delighted to have been selected to offer Swansea University commercialisation activities to NHS Bodies across Wales. Clinical innovation in terms of new products or delivery of service offers immediate benefit not just to the health and wellbeing of the population, but can also be a significant driver for the economy.”

Dr Gerry Ronan, AgorIP Project Director and Head of Commercial Services at Swansea University

AgorIP is already well on the way to creating a high technology cluster in Wales, that has been supported by substantial private sector investment.
“This is an important project that will deliver an all-Wales approach to turning the ideas and invention of NHS staff into new products and services. With the backing of EU funds, these projects will help us to develop opportunities that will deliver on Welsh Government health improvement priorities, and our ambitions for economic development.”

Welsh Government Health Secretary Vaughan Gething
Knowledge Economy Skills Scholarships 2 (KESS 2)

Developing and retaining the R&D skills needed to strengthen the knowledge economy in Wales

KESS 2 is a major pan-Wales programme supported by EU Funding through the Welsh Government. It will enable over 500 businesses to work with academics and postgraduate research students on innovative research projects aimed at driving business growth. KESS 2 will provide scholarships for the participating research students and, over a six-year period, is expected to support a total of 645 collaborative PhD and Research Masters opportunities.

KESS 2 aims to increase the number of individuals with higher level skills in research and innovation working within knowledge based businesses in Wales.

KESS 2 projects keep the needs of the participating businesses at their heart. The programme offers a low cost means by which a company can engage in a research project, together with the opportunity to develop a long term relationship with a University. KESS 2 also provides a platform to access the latest academic developments and a chance to develop in-house R&D activities.

KESS 2 is part of a transnational network. Students benefit from dynamic interactions with other research students and their industrial partners at some of Europe’s leading universities. Collaborations between businesses and universities contribute significantly to the future employability of students, and the students value the experience of the company context. The majority of KESS graduates are now working in industry.


“’If we are going to go on being successful in having that ‘open door international sense’ of what it means to be Welsh and in Wales, then offering the sort of opportunities that the KESS 2 programme offers, seems to me to be absolutely pivotal in achieving that ambition.’”

Mark Drakeford AM

“’The KESS 2 scheme has been an amazing opportunity for Tenovus Cancer Care. It has given us the opportunity to be a much more active partner in the research and really make sure that the outcomes of it are implemented and widely disseminated.’”

Dr Ian Lewis
Tenovus Cancer Care

www.bangor.ac.uk/doctoral-school/kess/index.php.en | Contact: Dr Penny Dowdney E: p.j.dowdney@bangor.ac.uk T: 01248 382266
The project started in May 2015, and to date 157 projects are live, linked with 120 companies / organisations across Wales.

“I realised that KESS catalysed the perfect relationship between me, the academic environment and the industrial needs of the real world. I learnt that the work that I am doing is not about me anymore or just for knowledge expansion purposes but that it contributes to the development of industry in a real setting.”

Adrian Mironas – KESS 2 PhD student at Aberystwyth University