

# insider Spark

Working with universities on research projects can give your company a boost, finds **Nicola Porter**. But make sure you know exactly what you want before you ask for it

## Prepare for perfect partnerships

Think about how 3D films are transforming cinema... and then imagine how much better the experience could be without the daft glasses. Making film-going more fun is a long time ambition for John Jupe. The Cardiff-based inventor has found a way for cinema goers to experience more thrilling visual effects than ever before – without the glasses.

Jupe is chasing more private backers for his project, but says his work wouldn't have got off the ground without a knowledge transfer partnership (KTP) with Cardiff



### RESEARCH RULES

- Establish what your business needs
- Try a mix of approaches to universities
- Establish intellectual property rules
- Plan the research team on both sides
- Several funding sources are available
- Universities can advise on funding

Metropolitan University. KTPs are collaborative arrangements between commercial companies and academic departments at higher education institutions, or universities. For businesses, they can provide commercial returns. For universities, it means a chance to publish new research, increase their kudos and develop graduates' skills.

"I couldn't have got as far as I've come without the KTP," says Jupe, managing director of Perception Technologies. "It has opened up funding opportunities and made my life work possible."

Research and development projects with universities are happening across Wales. In alliance with Swansea University, Tata Steel is

"Partnership has opened up funding opportunities and made my life work possible." **John Jupe**

investigating how to transform homes into mini power stations capable of harnessing energy needed to meet household needs. The Specific (Sustainable Product Engineering Centre for Innovative Functional Industrial Coatings) project was awarded a £9.5m grant last year from EPSRC, the UK agency that funds research in engineering and physical sciences.

And Castell Howell Foods, based in Carmarthenshire, is researching ways to detect bacteria which cause food poisoning, in partnership with Aberystwyth University and others. The research could help the Welsh poultry industry.

But before getting into a partnership, it's best to be clear about what you want and be aware of some potential pitfalls. Although Jupe is positive about the benefits of his KTP, he warns business leaders to be clear on intellectual property – who owns the rights to a product or concept – from the beginning, and make sure it's written into the contract.

Most companies that *Insider* contacted say R&D relationships are more likely to fall apart if strategies are not well thought out or negotiated. Companies should be committed and have done their market research first. But there are other barriers that can encountered along the way.

# YOUR BUSINESS JUST GOT BRIGHTER

Newport **Business** Services

## DYFODOL GWELL I'CH BUSNES

Gwasanaethau **Busnes** Casnewydd



### Apprentice 2011 Finalist **Jim Eastwood** comes to **Newport**

Find out how the entrepreneur's life has changed since appearing on the show and how his experience and passion for business is helping others develop and achieve their potential.

**16 May, 8.30 - 10.30am**

**University of Wales, Newport, City Campus**  
**£10 per person**

**Book your place now / Archebwch eich lle nawr:**

[www.newport.ac.uk/brighterbusiness](http://www.newport.ac.uk/brighterbusiness) • [business@newport.ac.uk](mailto:business@newport.ac.uk)  
Business Support Line / Llinell Gymorth Busnes: 01633 432400

**University  
of Wales,  
Newport**

**Prifysgol  
Cymru,  
Casnewydd**

# insider Spark

In some ways, there has never been a better time for smaller companies to initiate research and development projects. University funding is becoming increasingly dependent on research. Until now, research standards at all UK universities have been judged by the Research Assessment Exercise. But in 2015/16, this will be replaced by The Research Excellence Framework and university public funding – via the Higher Education Funding Council for Wales – will become dependent on quality of its research for the first time.

So universities have had to be more proactive in reaching out to businesses. Companies do not necessarily have to sign to a KTP and universities are more than willing to work on smaller projects if it's in their remit and cost effective.

As part of the Astute Project, a project by Airbus and Glyndwr University, the Advanced Composite and Training Development Centre was set up in Hawarden, Flintshire, aimed at the aerospace and automatic industries. The project is designed to make smaller companies in Wales more competitive.

There is a policy push here. The Welsh Government is nearing the end of a ten-year drive to increase knowledge, research and innovation on the back of Winning Wales (2002). But experts say not enough Welsh companies are researching and developing to keep pace with competitors.

According to UK government figures, business expenditure on research and development in Wales was 2 per cent lower than in 2010, compared with 2009, despite the UK figure rising 1 per cent. Companies spent an estimated £244m in Wales – just 1.5 per cent of the £16.1bn spent on projects by UK business during the year.

## GETTING STARTED



The first point of contact for companies setting up a research and development (R&D) project is often through a university's business arm or technology transfer office. Mark Bowman, director of innovation at Cardiff Medicentre, says this is a good start, but also recommends companies "go on a fishing trip", network at outreach events advertised on university websites, and talk to researchers in academic departments with in-depth knowledge of the relevant topic.

He suggests that companies appoint someone with responsibility for R&D and make sure they are fully committed to the cause. He also advocates clarity from the outset on where the research will take place – at a university laboratory, on company

premises, or a combination. "By engaging with an academic you get access to the latest thinking in a particular area. By working with leading universities it is often possible to work with internationally recognised leaders and innovators."

Companies can start by looking at the Welsh Government's Expertise Wales website to identify the right university, department or expert, says Matthew Taylor (above), head of enterprise at Cardiff Metropolitan University. Like Bowman, he's a fan of clarity: "It's essential to define what your company wishes to achieve as a result of the research, and to identify regular milestones with targets that can be used to monitor the research as it develops. For collaborative research there must be clear objectives for each party, balanced with resources (financial, human or otherwise) being committed."

In many cases, projects in Wales are undertaken by companies spun out from universities rather than established private sector companies. Experts say smaller companies often want to develop KTPs, but find the process too daunting.

To improve communication with business, Welsh universities have commercial arms, in

some cases led by people with private sector who can talk business language. But some commercial arms contacted by *Insider* and asked for examples of collaboration said the majority of their business is from outside Wales. John Oliver is sales and marketing manager at precision engineering design company Optic, a subsidiary of Glyndwr University. "Most of our business is outside Wales," he says. "Over the past couple of years we have had one probably a handful of enquiries from Welsh companies."

While his team is working on thousands of intricate mirrors that will make up a telescope for the Southern Observatory, one of Optic's most recent commissions was to restore a single mirror to its original glory, completed in a week for £500. "We might not be able to do every job, but if it's cost effective and in our remit we will take on work worth up to £5m or more," says Oliver.

Healthcare Learning Company, a healthcare and education training business, did its homework before starting a research project. The company's Patrick Cannon says: "We did our market research, with the Ministry of Defence, fire and police services.

Glyndwr's subsidiary Optic works mostly outside Wales



# insider Spark

We knew this system had a market, would be big in the US, and global." The result was a KTP with Cardiff University to develop a software system to help post-traumatic stress disorder sufferers.

SPTS Technologies, based in Newport, set up a partnership with Swansea University's School of Engineering and Medicine and the UK Technology Strategy Board in 2010 to commercialise tiny (micro and nano) devices in healthcare, communications and solar projects. Huma Ashraf, process manager of research and development accounts at SPTS, says: "A project like this gives us exposure to new markets, technologists and other industries, such as pharmaceuticals. It also



"Our project with Swansea University exposes us to new markets, technologists and other industries, such as pharmaceuticals."

## Huma Ashraf

encourages technology companies to explore commercialisation of blue-sky concepts."

Ashraf cites talent spotting and development as two further benefits. She says a big factor in project success is dedicated time from a senior technical manager, to ensure researchers get the right guidance.

The people you work with could make or break a project. As a rule, your team will include graduate students or post-doctoral researchers led by an academic managing the collaboration. Cannon has a good working relationship with a postgraduate student who works in-house and is the right candidate for his company's goals.

It was a bit trickier for Time for Medicine, a company working on a system to identify when patients need to see a consultant. A student on one research project, says director Clive Minihan, was more interested in the academic side of the research than the commercial aspect.

Minihan's main source of frustration has been in what he sees as big differences between the public and private sectors. He says delays and indecision along the way, and red tape, have made collaboration more difficult and drawn out than first envisaged.

But Minihan is positive about KTPs as a whole, and says plenty of academics are interested in real world issues. For companies on the cutting edge of technology, he says research and development should be a business priority to keep ahead of the game. Most of the barriers have come further down the chain of command, and he's been impressed by the commitment of Welsh Government officials and the heads of departments to partnership.

So why might projects not work? The greatest barriers to collaboration are a lack of understanding of cultures and priorities, says Mark Bowman, director of innovation at Cardiff Medicentre. There have also been examples when universities do not deliver contractually, due to other academic or research distractions: "A lack of understanding and respect for differing cultures and priorities can result in serious problems arising during collaborative research, especially when companies embark on its first such project."

According to Matthew Taylor, head of enterprise at Cardiff Metropolitan University, projects involving commissioned research are more likely to fail if there is not a specific brief covering objectives, timescales, budgets and people involved from the outset.

## SHOW US THE MONEY

There are many sources of funds for research projects. The Knowledge Transfer Partnership scheme, the Technology Strategy Board and individual UK research councils can provide cash.

One place to start is the Welsh Government's business support teams. They should be able to advise on the £70m Academic Expertise for Business programme and the Business Innovation Scheme. Companies can sponsor research projects through a consultancy agreement or through a funded research studentship. University research and enterprise offices can help find funding and ease the headache of applying, which is often a long drawn-out and difficult process.

## INNOVATION FOR THE CAPITAL

Cardiff Council and Cardiff University are setting up an innovation centre at Cardiff Business Technology Centre in Senghennydd Road. The council has committed £5m towards the project, with the university providing the land on which the centre will be developed. The aim is to promote a joint approach to innovation across the city, increasing the number of graduate start-ups and young businesses with growth potential. Hywel Thomas, Cardiff University's pro vice-chancellor, said: "We are fostering a culture of entrepreneurship among staff and students, and creating the ideal environment for their ideas to take flight."

## GRASS FUEL SCHEME LAUNCHES

Aberystwyth University will on 29 March unveil machinery for turning rye grass into alcohol fuel. The pilot plant grass juicer is part of the £20m Beacon biorefining project, which aims to establish Wales as a "bio-refining centre of excellence" by developing biorefining knowledge, capability and expertise. It will focus on non-food crops that can be grown on marginal land across Wales, which could provide sources of fuel, energy, materials and chemicals as an alternative to fossil fuels. The project is run by Aberystwyth University in partnership with Bangor and Swansea universities. It is backed with £10.6m from the European Regional Development Fund through the Welsh Government.