

THE UNIVERSITY OF NOTTINGHAM ENTERPRISE ZONE

Helping to create the next generation of science and technology entrepreneurs



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In September 2013, Sir Andrew Witty, Chief Executive of GlaxoSmithKline and Chancellor of The University of Nottingham, published his independent review, entitled 'Encouraging a British Invention Revolution' which investigated how universities could drive economic growth, benefiting both their local areas and the wider UK.

The Witty Review called for stronger incentives for universities to realise their potential to enhance national and local economic growth. It highlighted the need for universities to work with local partners to seek out small and medium enterprises (SMEs) with the potential to innovate, and to support such businesses with technology, expertise, talent and know-how.

In response to the Witty Review and previous reports on the subject of business-university collaboration, in 2014 the government announced that

four new University Enterprise Zones were to be created in Nottingham, Liverpool, Bradford and Bristol.

University Enterprise Zones (UEZs) are specific geographical areas where universities and businesses can work together to increase local growth and innovation. Each UEZ will be supported by a partnership between a university and Local Enterprise Partnerships (LEPs).

As part of our plans for the University of Nottingham Enterprise Zone, we are developing a new Technology Entrepreneurship Centre (TEC). The £2.6m we have received from government for the UEZ is being matched pound-for-pound to develop a £5.2m state-of-the-art business incubation facility.



A new Technology Entrepreneurship Centre for technology entrepreneurs will be at the heart of Nottingham's University Enterprise Zone

The new 2,000m² building will provide office-based accommodation for small businesses, and will be designed to facilitate interaction between occupants, with the

flexibility to host individuals in both seminar and idea-generation modes. Within the Centre, technology-based entrepreneurs will be able to engage with our expertise in key sectoral technologies and enterprise education, and link with its significant international connections through its campuses in China and Malaysia.

STIMULATING TECHNOLOGY-DRIVEN BUSINESSES

The University of Nottingham's Technology Entrepreneurship Centre will provide space and incubation support for 50 technology-driven start-up businesses, (including student enterprises) from the local

development and Intellectual Property Commercialisation.

One of the key advantages for businesses which will be based in the Technology Entrepreneurship Centre is the linkage with the local escalator of finance, which includes Nottingham City Council's Regional Growth Fund grants for



Enterprising Nottingham students developed a pathogen diagnosis kit for the agri-food industry

technology development, the University's Angel Network and the City Council's Foresight Fund for high-growth businesses, providing the opportunity to tap into a unique package of financial support.

SUPPORTING STUDENT SCIENTISTS TO BE ENTREPRENEURS

University students are a rich source of innovative business ideas and creativity. However, these skills are often untapped, under-supported and under-utilised while they are at university. The University of Nottingham recognises the need to develop the entrepreneurial potential of science students so that when they leave university

they are given the tools to launch successful new ventures, creating jobs and wealth. One way in which the University is helping to develop the next generation of entrepreneurs is through joint MSc courses, where students are able to combine studying science subjects with entrepreneurship, where they can learn about the practical aspects of business development and build their entrepreneurial skills.

Student entrepreneurship at The University of Nottingham is supported through the Haydn Green Institute for Innovation and Entrepreneurship, which hosts an Ingenuity Lab where students are able to come and get support to develop their ideas and set up their own businesses. The Haydn Green Institute also provides competitions with financial prizes to help students get their ventures off the ground. One such competition is the Biotechnology Young Entrepreneurs Scheme (YES) – an annual business plan competition, designed to raise awareness of commercialisation among young researchers. Topics covered in the Biotechnology YES competition include business plan writing, understanding intellectual property and patents, raising finance, marketing strategies and regulatory affairs.

DETECTING FOODBORNE DISEASES

One of the innovative student ideas that came through the Biotechnology YES scheme was from a group of University of Nottingham MSc Crop Biotechnology and Entrepreneurship graduates. The students have developed a mobile diagnostic service for pathogen detection – an idea developed for their master's dissertation. Their method can be used to detect foodborne diseases such as *Campylobacter*, *Listeria* and *Salmonella*, which

cause hundreds of deaths in the UK per annum. The mobile kit enables testing to take place in the field, producing results within just two hours, compared with up to several weeks in lab-based tests.

The three students have now formed a company, called DiagMole, and believe that it is the combination of an academic subject combined with the study of entrepreneurship which has given them the skills and confidence to go into business. They are all positive that their business will become their employment for the foreseeable future and has the potential for high growth.



Rt Hon Greg Clark meeting the University of Nottingham students who designed the Freefall Camera

THE FREEFALL CAMERA

The Freefall Camera is an example of a University of Nottingham student-led research and development project which has led to the development of a product with real commercial potential.

The starting point for this venture was a team of Mechanical Engineering masters students, who are also skydiving enthusiasts. They wanted to see if it was possible to solve the problems around autonomously filming skydivers in freefall without jeopardising safety. They set themselves the challenge of creating a fully working robot prototype designed with four vertical aerofoils which adjust to affect its terminal velocity. To ensure the camera kept locked on its target, a state-of-the-art vision sensor and glove were used to develop the camera's tracking systems. A steerable parachute and robust casing was

also developed to improve further the functionality and reusability of the product.

The device will enable skydivers to be filmed at any time they choose instead of being bound by camera flyer availability. Tested in the windtunnel at Airkix in Manchester, the prototype is now progressing towards becoming a fully developed marketable product.

COMMERCIALISING NEW TECHNOLOGIES

Each year, a number of exciting new technologies are developed by universities across the country and Nottingham is no exception. Most famous for developing Magnetic Resonance Imaging, The University of Nottingham is still commercialising many exciting and innovative technologies.

In recent years we have had a number of successful exits of spin-out businesses. One of these, Molecular Profiles, which provides innovative services to the pharmaceutical industry, such as formulation, manufacturing and expert consultation for Intellectual Property issues, was sold to an



Professor Ted Cocking has developed a technology which has the potential to enable crops to fix nitrogen atmospherically

American pharmaceutical business for £16m in 2013. In addition, the University's pre-clinical oncology research company, PRECOS, which focuses on providing unique patient relevant and predictive cancer models to international biotech and pharmaceutical companies, was also sold in a multi-million dollar deal.

Other Nottingham spin-out businesses in the medical sector are gaining worldwide interest. Scancell has developed a therapeutic DNA vaccine which stimulates the body's immune system to make T-cells which then seek out and kill tumour cells that would otherwise be hidden. The company has secured £17m funding to date.

NuVision is a spin-out that has developed a biological wound dressing which aids the regeneration and healing of the surface of the eye. The dressing, known as Omnigen, can be used as a graft, or an innovative emergency dressing to help regenerate damaged or diseased corneal tissue. The technology has been backed by £2 million research funding including support from the UK MOD.

In the agricultural sector, Azotic Technologies is commercialising a new technology developed by the University called N-Fix. N-Fix has the potential to enable crops to fix half their nitrogen needs from the atmosphere. This could transform global agriculture, by making it cheaper for farmers to cultivate crops while also reducing the massive damage caused to rivers and lakes by nitrogen run-off from fertiliser.

AN ENTERPRISING FUTURE

The creation of the Technology Entrepreneurship Centre at the University of Nottingham Enterprise Zone will further help students, academics and local businesses to nurture and develop ideas, creating a new generation of science and technology entrepreneurs, bringing new jobs and wealth to the Midlands and beyond and helping to strengthen the UK's position as a world-leader in innovation.