

The Business of Research

Building Ireland's Technology Transfer System

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Foreword

The discovery, protection and transfer of commercially valuable intellectual property from ‘bench to boardroom’ is essential if Ireland is to generate more high-value jobs and exports and consequently, we are focused on increasing the commercialisation of research funded through State agencies, most specifically the Higher Education Authority, Science Foundation Ireland and Enterprise Ireland.

The types of inventions that are brought from the research lab to the marketplace are ground-breaking and in some cases life-saving – from new medical devices to alternative energy sources, exciting breakthroughs in mobile communications to noise reduction technology.

A national technology transfer infrastructure has been put in place under the Government’s Strategy for Science, Technology and Innovation 2006-2013 to create a network of centres, placed within the commercialisation function of the higher education institutes, to work directly with them to ensure that best use is made of their research outputs with commercial potential.

Enterprise Ireland, in partnership with the technology transfer offices in our higher education institutes, has put in place a support system for capturing the commercial outputs of research in key areas like food, healthcare, IT, telecommunications and renewable energy and environmental technologies.

I welcome this publication as part of the national effort to increase both the levels, and importance of research commercialisation. I am pleased to note that the phenomenal success story of Powervation Ltd, a spin-out from UL is included as I presented them with the Company of the Year award at the Irish Technology Leadership Group (ITLG)/ Irish Times Innovation awards in Silicon Valley in May 2009. This company and the many other emerging from the research system are already making a difference to the Irish economy and will continue to make an impact on Ireland’s future growth and prosperity. We want to increase the number of successful and innovative spin-out companies such as Powervation emerging from publicly-funded research.

This publication highlights the fact that State investments in a national technology transfer network are delivering tangible results that benefit both the economy and society, and I look forward to seeing further evidence of the rewards to be reaped from the State’s investment in research.

Mary Coughlan T.D

Tánaiste and Minister for Enterprise, Trade and Employment.



Introduction

This publication reflects two years of consistent and focussed work to build a national technology transfer system. Since the Technology Transfer Strengthening Initiative was launched in April 2007, Enterprise Ireland has worked side by side with Irish Technology Transfer Offices in higher education institutes to develop a world-class system for transferring valuable intellectual property from research into industry.

All of Ireland's higher education institutions are engaged with this €30million, five year initiative which is coordinated by Enterprise Ireland's Technology Exploitation Network team. There is now a dedicated Technology Transfer Office (TTO) in University College Cork, University College Dublin, NUI Galway, NUI Maynooth, Waterford Institute of Technology, University of Limerick, Dublin Institute of Technology, Trinity College Dublin, Royal College of Surgeons in Ireland and Dublin City University. Enterprise Ireland has committed this support to strengthen these TTOs, allowing them to recruit an additional 32 trained professionals with the skills to identify commercially valuable intellectual property and find a way to bring it to the marketplace. Profiles of each TTO and examples of recent impacts they have made on the economy are featured in this publication.

Excellent progress has already been made in extracting the commercial potential from research activity funded by Enterprise Ireland and other State funding agencies. The statistics speak for themselves; over 750 invention disclosures, more than 390 patents filed, 130 deals between companies and researchers to licence new technologies and 27 new spin-out companies since the initiative was launched in 2007.

These results are impressive as they represent significant increases on previous years, and they reflect the strength of this coordinated effort by Enterprise Ireland and the Technology Transfer Offices to create more high-value, knowledge based companies. The first quarter of 2009 has already yielded 7 spin-out companies, which is evidence of this intense focus on creating new companies.

This publication contains examples of these new high-value businesses that began life as research projects and are now delivering impressive results as spin-out companies. Slidepath, based in Invent at DCU now employs 26 staff and has 70 customers in 10 countries, while ChangingWorlds, which spun out of UCD now employs 160 people and has expanded its operations into Brazil, the Far East and the USA.

Together with the Technology Transfer Offices, Enterprise Ireland is committed to creating more companies like these, and all of our national contacts, our 31 global offices, market research and technical expertise are accessible to support such new ventures. Enterprise Ireland has the right support structure to help these new companies maximise their economic potential and long-term viability.

I would like to thank our colleagues in the Technology Transfer Offices and the companies who have contributed to this publication, and encourage them to pursue their targets with the energy and commitment they have demonstrated to date.

Frank Ryan
CEO Enterprise Ireland

Overview

Enterprise Ireland's role in the National Technology Transfer system.

Operating at the interface between industry and research, Enterprise Ireland is uniquely placed to increase the levels, and relevance, of interaction between the two communities for the ultimate benefit of the Irish economy. The Technology Transfer Strengthening initiative represents a coordinated national approach to technology transfer in partnership with the higher educational institutes, with the key priority of creating spin-out companies from State investments in academic research.

In 2007 Enterprise Ireland established a new Department called the Technology Transfer Exploitation Network to manage the €30 million Technology Transfer Strengthening initiative.

In addition to managing the direct support to the Technology Transfer Offices in the higher educational institutes described in this publication, the Technology Transfer Exploitation Network team in Enterprise Ireland delivers other supports in a focused, centralised way to ensure the technology transfer system in Ireland develops in a coordinated and cooperative manner. Supports include customised training events to ensure the highest professional standards of technology transfer practice are adopted in the Irish higher educational system. Performance data is regularly collected and compared with information on international trends to set targets and continually track how we measure up against other countries and regions.

A key element of the Irish technology transfer system is the link between the TTOs and Enterprise Ireland's 25 commercialisation specialists across three teams - lifescience & food, industrial technologies and ICT sectors, directed by Dr. Keith O'Neill, Jim Lawler and Gearóid Mooney respectively. These commercialisation specialists work closely with the TTOs to bring new technologies to the marketplace and in particular, to support researchers who want to establish spin-out companies.

In response to this increased focus to create more spin-out companies, Enterprise Ireland in December 2008 launched a search for Business Partners - successful entrepreneurial individuals to match up with prospective spin-out companies emerging from publicly funded research in our Universities and Colleges. Once formed, new companies can apply for support from Enterprise Ireland's Innovative high-potential start up fund. Many of the spin-out companies formed to date have moved into Enterprise Ireland funded campus incubation centres which offer new companies a supportive environment to begin operations from, based on campus in close proximity to research expertise with centralised office supports and a network of like-minded entrepreneurs.

The Technology Transfer Exploitation Network team are working with the TTOs to link researchers into the various resources of Enterprise Ireland - from market research, to venture capitalist contacts to investor networks - to help find the best way to bring a technology to the marketplace. As this publication demonstrates, the national technology transfer system is delivering results in the form of high value companies and jobs in every region of the country.

Mary Gillick

Technology Transfer Exploitation Network Manager.

For more information visit www.researchcommercialisation.ie

Enterprise Ireland would like to thank the Technology Transfer Offices for their contribution to this publication. Photographed at a recent meeting of the Technology Transfer group in Enterprise Ireland's Eastpoint Office were; front row, left to right: Kathryn Kiely WIT, Tom Flanagan Hothouse, DIT, John Kavanagh Ignite, NUIG, Pat Frain NovaUCD, Richard Stokes Invent, DCU, Brendan Cremen UCC. Back row, left to right: Margaret Woods TCD, Seamus Browne UL, Ciaran O'Beirne NovaUCD, John Scanlan NUIM, James Callaghan TCD, Aoife Gallagher RCSI, Dr. Paul Dodd SFI, Mary Gillick Enterprise Ireland. Missing from photo: Gearóid Tuohy, RCSI and Paul Dillon, UL.



Invent DCU Ltd

“Our emphasis is, where possible, on forming partnerships with Irish companies and working with them to influence and exploit DCU’s translational research. We are open for business and we offer support to entrepreneurs or companies who are looking for opportunities to add value to their own products or processes by collaboration on attractive pro-business terms”.

Richard Stokes, CEO,
Invent DCU Ltd.

Invent DCU Ltd is the commercialisation gateway of Dublin City University (DCU) with the mission of working with academics, companies, entrepreneurs, inventors and students to ignite and develop new business ideas. Invent is staffed by experienced technologists and business managers who act as a bridge between the worlds of business, academia and research. The Invent building on the DCU campus is a state-of-the-art innovation and enterprise centre developed with the support of DCU, Enterprise Ireland and AIB.

DCU is known internationally for its emphasis on translational technology based research and collaborative relationships with Irish business. Invent was established to ensure that the benefits of this research are made as widely available as possible to the rapidly developing knowledge economy.

The Invent team works closely with start-up companies and prospective licensees and advises researchers and external companies on innovation partnerships, innovation vouchers and other technology transfer opportunities. Invent is keen to strengthen its links with Irish companies to exploit research opportunities. Since the formation of Invent in 2001 there have been 14 spin out companies from DCU and Invent has worked with more than 50 client companies who have availed of the mentoring and advisory services available at the Invent Centre.

The Invent technology transfer team manages the intellectual property created in DCU’s large research centres including the 3 Centres for Science, Engineering and Technology – the Biomedical Diagnostics Institute, the Centre for Next Generation Localisation and Clarity, which integrates sensor, mobile and web technologies and is jointly operated with UCD. Recent successes for DCU include the launch of Strategic Research Clusters such as the Separation Science Cluster and the Precision Cluster both of which involve not only multinational companies but importantly for DCU smaller innovative indigenous companies.

Licensing opportunities exist with IP created in other large scale research centres at DCU such as the Centre for BioAnalytical Science, the National Institute for Cellular Biotechnology, and the Research Institute for Networks and Communications Engineering. DCU’s National Centre for Sensor Research is a world leading large scale research activity involving chemical, physical and biological sensors which illustrates particularly well DCU’s strategy for translational research based on innovations arising from its interdisciplinary research teams. Invent also places an emphasis on participation in Enterprise Ireland funded Innovation Partnerships which are designed to help Irish based companies who wish to collaborate with the DCU in further development of new or improved products.

SlidePath - A better way to see

A DCU-based company has become the pre-eminent provider of software solutions in the management of digital slide content.

SlidePath was founded in 2003 by Dr Dónal O'Shea and Dr Seán Costello. Donal and Sean were based in the Dublin City University (DCU) School of Biotechnology at the time, and the SlidePath project originated in research they conducted there into analysis of pathology slides.

The research focused on digitising pathology in the same way that radiology has been digitised in recent years, and led to the development of software that can enable output from state-of-the-art scanners already in the marketplace. This computer-aided image analysis has useful functionality for clinicians, scientists and educators, and enables them to work more efficiently together, making it possible to share images and facilitating collaboration between institutions worldwide.

Since then, SlidePath has developed an international reputation as an innovator in digital slides and life sciences informatics. Their Digital Slidebox is a digital slide multimedia management system that allows users to create their own web-based pathology resource. This has a variety of applications in education (such as facilitating the creation of libraries cases for student review) and external quality assurance (allowing the simultaneous review of the same set of cases by multiple remote users).

There are two main aspects to the business:

- digital slide software, such as Digital Slidebox, Distiller, and Digital Slide Server; and,
- data management and consultancy services and solutions.

From humble beginnings in Invent DCU in 2003, SlidePath now employs 26 staff and has 70 customers in 10 countries. The company's core focus is to target clinical research institutes and pharmaceutical companies engaged in



Dónal O'Shea (left) and Seán Costello, founders of Slidepath.

research, and customers include institutes and hospitals from Vancouver to Tasmania, a truly global spread. The field of digital pathology is an emerging market and SlidePath are very well placed to exploit its potential; as a result, revenues have grown year on year since the company's foundation.

SlidePath has been with Invent since the company began, and is now its largest tenant. Donal O'Shea cites the flexibility of the facilities at Invent as an enormous advantage to start-up companies; SlidePath was able to expand at its own pace in a space that suited whatever scale was appropriate at the time.

In addition, a high tech information transfer business such as SlidePath requires exceptional network capabilities, and at Invent the company has access to HEAnet Internet services for high-speed linkages to universities all over the world. This enables the company to efficiently carry out its support and software management functions.

Putting the seal on the company's success, SlidePath was recently sold to cell imaging and analysis group Genetix for up to €3.7 million in cash and shares. Slidepath's expertise in cell imaging analysis software will complement Genetix's core skills in imaging and image analysis, meaning that the company can now build a stronger platform to offer a broader mix of products for the digital pathology market.

Hothouse – Dublin Institute of Technology

“Hothouse draws in entrepreneurial and academic talent, ignites creativity and provides a dynamic environment to fast track businesses and technologies to commercial success”.

Tom Flanagan,
Head of Commercialisation,
Dublin Institute of Technology.

Hothouse is the innovation and technology transfer centre at Dublin Institute of Technology (DIT) and amongst its achievements to date can count the Shell Livewire award for services to enterprise for its venture programme in 2007.

Hothouse assists entrepreneurs to start and grow knowledge-intensive businesses through the Hothouse Venture Programme; business leaders to find technologies, research partners and funding; investors to find high potential opportunities; and, DIT staff and students to commercialise their intellectual property (IP). Since 2001, Hothouse has helped to launch over 200 knowledge-intensive start-up companies, contributing to over 1,000 jobs, including well-known companies like Gamesworld, eWare, Bianca Med, Muzu, Myaddress, Boards.ie, MovieExtras and Movidia.

Since the Technology Transfer Office was set up in 2007, Hothouse has licensed IP to: Enterprise Ireland high potential start-ups (HPSUs) such as Decawave and Trezur; Irish SMEs, including Graph Engineering and General Paints; and, Irish-based multinationals, including SONY, Fleetwood Sherman Williams and Bausch & Lomb.

Last year, DIT had 28 new invention disclosures, 11 patents and five licences and it currently has more than 30 technologies available for license. In 2008, it also had its first spin-out company in Breakout Interactive, a developer of innovative devices and platforms linking the real and virtual world. Breakout Interactive was founded by Andrew Deegan, a graduate of the Engineering Product Design Programme at DIT and a runner up in the 2008 Shell Livewire Young Entrepreneur of the Year Award.

Beyond its increased focus on starting indigenous companies around its existing portfolio of technologies, Hothouse is forward looking and plays a central role in matching industry needs with DIT research strengths in active pursuit of new job and wealth creation. It recently united DIT engineering talent with an indigenous aquaculture company to address problems in bringing its next generation aquafarm design to market. It also continues to play a key role in the funding of other collaborations and research projects by ensuring that DIT projects are not flights of research fancy but focused commercial endeavours that will bring real world benefits and put people back to work in a stronger Ireland for the century ahead.

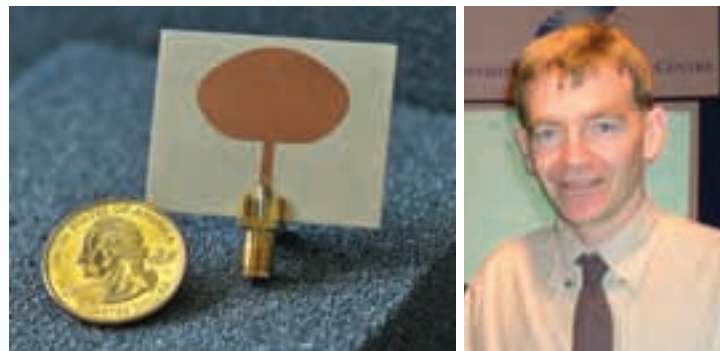
DecaWave - Enabling antennas

A collaboration between a Dublin company and DIT has led to major innovation in wireless technology.

Although radio frequency (RFID) tags and global positioning technologies have been around for a number of years, their biggest limitation has been their ability to locate objects accurately. Frustrated with the absence of true real time locating systems (RTLS), Dublin-based fabless semiconductor company and former Hothouse incubator participant, DecaWave, set about developing a new standardised system with greater performance and accuracy than anything previously available. Based on a new and now ratified ultra wide band (UWB) standard called IEEE802.15.4a, the team at DecaWave has designed a radical new wireless chip they call ScenSor (Seek, Communicate, Execute, Network, Sense, Obey, Respond), which can be used to locate and track up to 11,000 devices or tags indoors within a radius of 20m and with a precision of 10cm.

However, it was apparent from the start of development that for the chip to work, let alone deliver such groundbreaking performance, new low cost and high performance antenna solutions were required, especially as 802.15.4a was a new standard and no suitable antennas existed. This led DecaWave to Dr Max Ammann and the High Frequency Research Group at Dublin Institute of Technology (DIT). Max and his team had been working on UWB antenna technology for a number of years and had the expertise and know-how to design and build the antennas that were crucial to DecaWave. So the two became partners and applied for funding under Enterprise Ireland's Innovation Partnership Programme.

Research on the new antenna designs will be completed this summer and DecaWave plans to launch the ScenSor chip in January 2010. With Max's antennas, the ScenSor chip will deliver a number of industry firsts, including asset location to a precision of 10cm, up to 500m away (line of sight) or 45m away (non-line of sight). The chips will be low cost because they are very small, and incredibly efficient, with each chip capable of running for 10 years off a single watch battery.



A UWB antenna and Dr. Max Ammann (right)

So why are the antennas so important for DecaWave chips? According to Max Ammann, it comes down to efficiency. "More efficient antennas means they can transmit and receive more information in a faster time," says Max. This greater efficiency is down to unique shapes and geometries but the antennas also have a number of other advantages, including being cheap to make because they can be printed, and having a sharp pulse profile (called fidelity factor), which makes them particularly suited to these ranging and positioning applications.

Max's team is also researching antennas for medical devices, cancer treatment and solar cells but UWB is particularly exciting given that it will enable completely wireless office environments to become ubiquitous. The use of UWB in DecaWave's new RTLS technology also opens up a new era in object tracking/locating that will impact on all industry sectors, making it "an exciting time to be designing the antennas upon which these technologies depend".

Ignite Technology Transfer Office, NUI Galway

“Our vision is to be an international leader and to ensure best practices in the transfer and commercialisation of research and other knowledge-intensive activity for the benefit of NUI Galway, the economy and society”.

John Kavanagh,
Technology Transfer Director,
Ignite Technology Transfer

In 2005, NUI Galway (NUIG) established a dedicated technology transfer office (TTO). The office is jointly funded by the university and Enterprise Ireland . Personnel are drawn from a wide range of research, industrial and commercial backgrounds, and this has been very successful in instilling a commercial culture across the campus.

The university also has a strong tradition of collaboration with both national and international organisations with complementary capabilities that will add value. Regular seminars ensure that Schools, Colleges, Departments, and particularly new staff, are informed about the university policy on intellectual property (IP) and best practice in entrepreneurship. The key message is that commercialisation and publication can go hand in hand, which fulfils the TTO’s mission in facilitating commercialisation while recognising academics’ need to publish. The TTO also manages business development, training for entrepreneurship and commercialisation, industry outreach, and 24 campus companies.

In view of the current economic climate, the highest priority for 2009 and beyond has been given to spin out company formation, and this is being driven by the establishment of a spin out focus team. Particular emphasis is being given to linking the academic promoters with sector-specific business partners and the strengthening of the spin out company organisation by targeted recruitment. The recent EI initiative, Business Partners Programme, is being actively leveraged to complement the technical skills of NUIG entrepreneurs with experienced managers in the areas of business organisation, commercialisation and marketing.

Since 2007, NUIG concluded more than 30 licence deals, launched 7 spin-out companies has filed more than 100 patents.

Finding the silver lining

At NUI Galway, nanoscientists have partnered with an Irish-based multinational to create antimicrobial wound dressings.

NUI Galway (NUIG) has a long tradition of encouraging convergence between its physical sciences, engineering and life sciences schools on industrially-led research for the life sciences. The Enterprise Ireland (EI) Innovation Partnerships Programme is an ideal vehicle for such focused industrial collaborative research, and NUIG has been particularly successful in the formation of these partnerships.

As a result of a feasibility study (carried out under Enterprise Ireland's Innovation Partnerships programme), a team of nanoscientists at NUIG's School of Physics, led by Dr Margaret Brennan-Fournet, has partnered with Dún Laoghaire-based Alltracel Pharma, a subsidiary of US multinational HemCon Medical Technologies, to integrate silver nanoparticle technology in advanced haemostatic wound dressings. NUIG technology is supported by background intellectual property (IP) from Trinity College Dublin (TCD), both of which were developed with the significant financial support of the EI Commercialisation Fund. NUIG and TCD have granted Alltracel Pharma an option to license the relevant background IP, and to future developments in their specific field of interest. The antimicrobial properties of silver have been well known for centuries. This technology provides the silver in a form that allows a much lower amount of the metal to be used. This allows a more optimum balance between antimicrobial properties and cytotoxicity, which is important for wound dressing applications. It is envisaged that the potential of the NUIG nanoparticles will give HemCon's wound dressing products a competitive advantage over current products. Commercially available silver nanoparticles currently have a number of limitations which seriously compromise their antimicrobial performance. Dispersion of such silver



Dr. Patrick Fournet and Dr. Margaret Brennan-Fournet from NUIG's School of Physics.

nanoparticles is also notoriously difficult, and a major impediment to industrial processing. The NUIG team has overcome these technological problems, and is capable of producing large volumes of well-dispersed particles in aqueous solution, using its proprietary SilverFluidics™ processes.

"This is not just a partnership between a university and industry, but also a partnership between universities," says Dr John Kavanagh, Director of Technology Transfer at NUIG. "Trinity College Dublin and NUI Galway are co-operating closely on the wider programme of silver nanoparticle research, and are partnering to exploit the technology in many fields. The success of this project has the potential for job creation in both Dún Laoghaire and Galway," he concludes.

NUIM Office of Commercialisation

“If our commitment is to a knowledge economy and universities beget knowledge, then it’s clear we have a critical role”.

Dr John Scanlan,
Director of Commercialisation, NUIM

At NUI Maynooth (NUIM), when a researcher invents a technology with commercial potential, the university’s Commercialisation Office files a patent application, and the researcher then brings the technology to a stage where it can be demonstrated.

“Enterprise Ireland helps us financially from its Commercialisation Fund, and acts as a marriage broker, putting us in touch with an entrepreneur with knowledge and experience in the field,” explains Dr John Scanlan, Director of Commercialisation.

All going well, the entrepreneur sets up a company to which NUIM licenses the technology, and the researcher remains at the university.

The technology transfer team at NUIM believes that Irish universities need to step beyond pure research and embrace innovation and so, launched two new initiatives in early 2009:

1. Your R&D Resource

This initiative will link existing Irish businesses with the research expertise at NUIM. Schemes such as the Enterprise Ireland-funded Innovation Partnership and Innovation Vouchers currently facilitate these links, but in this scheme NUIM will actively promote its own expertise.

2. Market driven innovation

Industry experts will be invited to brainstorm with an NUIM multidisciplinary team. The expert will present a problem (or put another way, a market opportunity), and the team will brainstorm and come up with a marketable solution. A researcher from NUIM will then seek commercialisation funding to bring the idea to the prototype stage.

Business has been booming at the Commercialisation Office over the past year. Some 16 patents were filed in a variety of domains, and the Office was also proud to report six licence deals.

With all of this escalated activity, and almost €1 million of funding from Enterprise Ireland under the Technology Transfer Strengthening Initiative, the Commercialisation Office has expanded, and 2008 also heralded a new identity and set of communication tools, including a website and online newsletter.

Wavebob - Breaking the waves

Researchers at NUIM are working with industry to put Ireland at the forefront of wave energy research and development.

The possibility of harnessing the immense energy present in ocean waves has received increasing attention over the past decade, given the significant rises in the price of fossil fuels and the need to reduce our carbon emissions. This has accelerated the interest from wave energy device developers and research groups the world over. It is the economic viability that will ultimately determine the proliferation of wave energy devices since, while the natural resource itself is free, the development, capital and operational costs are not! A subsidised Irish rate of 22 cents per kWh of electricity generated from ocean energy provides a strong financial incentive to spur activity in the area.

Ireland is blessed with one of the best wave climates in the world; we can potentially provide in excess of the total electricity consumption on the island of Ireland from wave power alone. Furthermore, given the fledgling nature of wave power, Ireland has an opportunity to become the lead player in the development and commercialisation of wave energy technology. With a history of wave energy research and development stretching back over 20 years, and around 10 companies involved in the area, Ireland is now recognised internationally as a leading nation in this emerging industry.

Among the Irish players in wave energy development and research are Wavebob Ltd and the Wave Energy Group (WEG) at NUI Maynooth (NUIM). The innovative Wavebob device has been under development for a decade and a recent collaboration with the WEG at NUIM has resulted in the development of a mathematical/computational model, which allows the visualisation and analysis of the Wavebob device's motion under a wide variety of sea conditions and the examination of the effect on performance of changes in various device parameters. The resulting licensing arrangement, which saw the transfer of intellectual property to Wavebob, was carried out under the Enterprise Ireland-funded project 'WAVELEC'. The agreement was brokered by the NUI Maynooth Commercialisation office, which has been instrumental in facilitating the professional relationship between the NUIM researchers and Wavebob.



The overall aim of the WAVELEC project is to develop control technology for wave energy systems, primarily to improve the conversion efficiency of these devices, but also to ensure their smooth operation and survivability in extreme storm conditions. Appropriate control technology has the capability to roughly double the converted energy by adapting the device to the ever-changing sea conditions, thereby making a significant contribution to device economics.

The close proximity of NUIM and Wavebob, whose HQ is situated on the Maynooth Business Campus, has contributed to a healthy collaboration, with Wavebob getting access to latest technical developments in the control of wave energy devices, while the NUIM group get access to technical information and specifications. Further strengthening of the relationship is likely via a joint research project proposal under the Enterprise Ireland Innovation Partnership programme, which should see both groups working even more closely together over the next few years.

RCSI Technology Transfer Office

“Enterprise Ireland and their commercialisation specialists are our third arm, continually matching the College portfolio with commercial players. This allows us to close deals and get RCSI technology out into the commercial arena”.

Dr. Gearóid Tuohy,
Associate Director,
Technology Transfer Office

The RCSI Technology Transfer Office (TTO) was established in October 2007 with the objective of harnessing innovative research into commercial assets and business-generating opportunities. The initial team has been expanded to three and, in the space of less than 15 months, has generated just under €1m in revenue from the execution of option, licensing and collaborative agreements based on College intellectual property.

Much of the success of the TTO has been built on the timely investments of Enterprise Ireland (EI) in the establishment of infrastructure and resources embedded within the technology transfer function. EI now provides considerable support well beyond the basic investment in TTO staff and resources.

According to Dr Gearóid Tuohy, Director of RCSI's Technology Transfer Office “EI and their commercialisation specialists are our third arm, continually matching the College portfolio with commercial players. This allows us to close deals and get RCSI technology out into the commercial arena”.

EI funding has enabled the College to recruit experienced commercial skills and build strong networks between the College and commercial players that are now providing further business opportunities for several technologies conceived and built by RCSI researchers.

Achievements and initiatives of the RCSI TTO have included:

- the establishment and implementation of an incentivisation scheme for new inventors;
- an increase of almost 75% on overall reported inventions between FY2007 and FY2008;
- the identification and development of a number of start-up opportunities for RCSI ; working in concert with EI's Business Partners Programme the College is actively assessing new opportunities in the drug delivery, drug formulation and bio-/IT sectors.

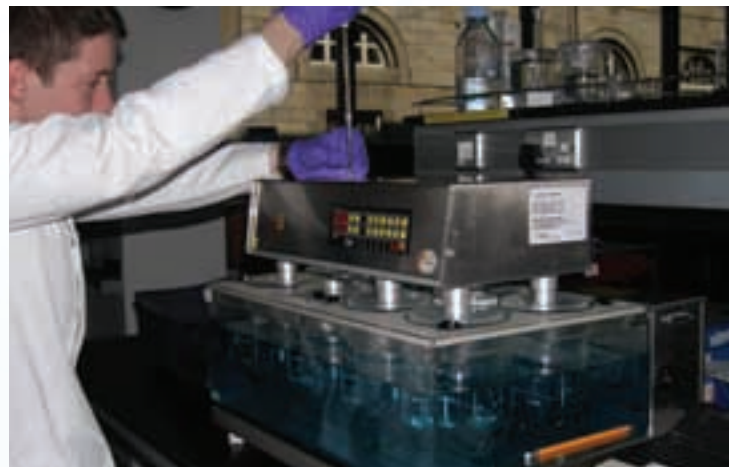
Pharmaceutical developments at RCSI

Three successful technologies from RCSI demonstrate how constructive interaction with state agencies throughout the entire product research and development process can lead to success.

The School of Pharmacy at the Royal College of Surgeons in Ireland (RCSI) was established in 2001. Also at that time, the School's pharmaceuticals research laboratory was funded under the Government's Programme for Research in Third Level Institutions (PRTL I 3). This established RCSI's Centre for Drug Delivery Research. Both Professor John Kelly and Dr Zeibun Ramtoola of the School of Pharmacy had backgrounds in industry research and development and took the view that, as well as basic research, their experience and the facilities established under PRTL I funding gave an opportunity to develop products to a commercialisable point, together with the all-important work on patent protection. This fitted well with RCSI's strategy of translational research (bench to bedside). To date, three technologies have progressed to the stage of commercial development.

The first technology is in wound care. Working with Professor David Bouchier-Hayes, the team had an interest in developing phenytoin as a treatment for wounds. Following preliminary research funded by the Health Research Board, Enterprise Ireland sponsored a feasibility study, with results leading to a commercialisation grant. This enabled pilot-scale manufacture, stability, preliminary study and patent development. The result is a product available either as a gel or for incorporation into wound dressings, and which is currently the subject of commercial option agreements.

The second technology is a new method for the manufacture of fast-dissolving tablets. This rapidly growing area provides 'melt in the mouth' tablets for more convenient drug administration. The technology is also applicable to controlled-release products. The commercial advantage is the ease of manufacture of the product and its mechanical sturdiness, standing up well, for example, to blister packing. This technology was also developed with the aid of a feasibility grant and a commercialisation programme grant from Enterprise Ireland. The team envisages both developing its own products and undertaking development partnerships. The first products have already



Researchers at work in RCSI

completed small-scale manufacture, and stability and packaging tests. These first products are now at the stage of GMP manufacture for clinical trial and the intellectual property is protected. This technology has advanced to commercialisation stage, with a number of products for third parties under contract development. The products developed and the technology is currently available for potential licensing or co-development.

Particle engineering can generate products that are important in many areas, including pharmaceuticals, agriculture and food production. The third RCSI technology is a widely applicable platform, using a new method to manufacture multilayer particles of a wide range of sizes from nanometer to micrometer diameter and with many different options for the core and surface coat. The method of manufacture is convenient and readily capable of scale-up. This very versatile technology has a potentially huge range of applications and all of the claims in the patent application have been judged novel. The team is currently exploring the use of the technology in a number of drug delivery applications and is seeking potential industry partners.

Trinity College Dublin Technology Transfer Office

“This is a really exciting time for technology transfer at Trinity. The newly enriched team gives us the capability to commercialise IP on a scale that previously we could only imagine. Technology transfer is no longer just an administrative role but rather a pro-active process that helps to identify commercial IP and fast-track it to the marketplace”.

Dr James Callaghan,
Associate Director,
Trinity Research & Innovation (TR&I)

The Trinity College Dublin Technology Transfer Office is one of four functions that comprise Trinity Research & Innovation– the others are Research Development (funding applications), Contracts (negotiation and signature), and Entrepreneurship (training and advice). The close working relationship between the teams that comprise Trinity Research & Innovation allows TCD to provide centralised support for researchers all along the continuum from funding application to research to commercial exploitation.

Within the TTO section, TCD is already seeing the benefit of Enterprise Ireland’s Technology Transfer Strengthening Initiative support for an expanded TTO team. The team has been fully in place since mid-August 2008. It now includes an industry liaison manager, a technology transfer/patents administrator and four case managers, with responsibilities in translational science, physical sciences, life sciences and ICT.

The complementary skills of the four new case managers are proving to be a major asset to each other and to TCD’s researchers. Each case manager has been allocated a portfolio of academic researchers in their field of technical expertise, to whom they provide assistance and advice with all intellectual property-(IP) related matters. This personalised approach to IP-mining has resulted

in a significant increase in the number of new invention disclosures, and subsequent protection and commercial exploitation of IP. The case managers also interact with, and provide technology transfer support for, major collaborative research programmes in their fields of expertise.

The TTO actively advises Trinity researchers on the formation of new companies to exploit IP generated at TCD, and the Entrepreneurship section provides training for those wishing to become actively involved. Several companies are in the pipeline in the ICT and other sectors.

Within the last six months, the TTO has held two major open demonstrations of Trinity’s emerging technologies, showcasing 11 exploitation-ready projects in the field of ICT and 15 in the life sciences sector. A physical sciences open demonstration is planned for the near future.

TCD is looking forward to taking an increasingly active role in supporting the Irish economy. As part of the new Innovation Alliance with UCD, the TTO will seek to ensure job-creation through new-company formation and through IP-licensing to existing companies.

Sonitus Systems - Come on feel the noise

The team at Sonitus Systems has come up with a reliable, accurate and efficient way to monitor environmental noise.

With increased traffic on the roads, and in the air, and an increasing awareness of the impact of noise pollution on health and well being, a new and better way of measuring environmental noise levels is bound to have many applications.

In the past, such measurements were generally taken using hand-held equipment, with point measurements taken over relatively short periods of time. Long-term continuous monitoring was not possible, as it requires low cost, robust and reliable equipment that would record indefinitely. Now, the team at Sonitus Systems, a company that began life in the School of Engineering in Trinity College Dublin, has come up with a solution that meets these exacting specifications.

The team – Dermot Geraghty, Paul McDonald, Ivor Humphreys, Ciarán McElroy, and Bartley McElroy – developed a device that could be installed on site and left to take continuous measurements over an indefinite period of time. These units gather measurements based on standard noise measurement statistics, and could be accessed via WiFi. Early prototypes were subjected to extensive testing, including a pilot study conducted with the support of the National Roads Authority and Dublin City Council.

These early devices compared well with other, more expensive systems on the market; however, the team knew that more was needed – the machines needed to be more focused, and more cost effective. Therefore the new Sonitus unit has all the features of the earlier versions, but at a lower cost. Crucially, it is also Internet capable; with a broadband connection, it is possible to access and download data from anywhere in the country, taking point measurements at any time from any location at the touch of a button.

EU legislation requires the monitoring of noise levels with noise maps, which are usually made using simulation programmes and point measurements.



Sonitus Unit and Microphone

The Sonitus unit can target a specific area and use live data to generate maps, making it a far more efficient and accurate system.

Sonitus is almost ready to commence manufacturing, and is actively seeking customers. The system has numerous applications in both the public and private sectors. From local authorities measuring traffic noise, to airports, warehouses, concert venues and construction sites, the system can be adapted to any and all noise mitigation requirements.

Continuing their support for this innovative technology, Dublin City Council now has 10 units fully deployed. The company hopes to establish a large network around the country measuring noise levels. In the long term, the company would love to extend the product range to measure air quality. As most noise pollution emanates from traffic, there is a strong case for a unit that could use the same technology to simultaneously measure emissions.

The original research was funded by the Enterprise Ireland Technology Development Fund, and took place in collaboration with colleagues in the School of Computer Science. With intellectual property rights residing with TCD, the company are in the process of obtaining a full licence, and this is imminent.

Office of Technology Transfer – UCC

“At UCC, we are committed to providing a return to the Irish economy from the large national investment in research and we see commercialisation of IP as a critical factor in achieving this”.

Brendan Cremen,
Director, Technology Transfer Office

The Office of Technology Transfer at UCC was set up in 2007 with the goal of commercialising the intellectual property being generated in UCC. Through that initial year the main focus was on recruiting personnel, setting up policies and processes, and communication of the technology transfer agenda. Since then, the Office has reached across the core research centres of the university and into industry with the systems in place to ensure a clear, consistent and high standard of service to both researchers and external commercial entities. The services, activities and supports of the Office include expertise in IP management and commercialisation, from IP protection to licensing and the generation of university spin outs, networking, facilitating flexible collaborations between industry and research, access to funding and incubation facilities, etc.

With these structures and services in place, the Office of Technology Transfer can effectively support:

- UCC’s research strategy to create centres of research excellence that address national priorities including stimulating the Irish economy.
- The related innovation agenda outlined in the Government’s ‘Building Ireland’s Smart Economy’ policy document.

In 2008 alone, 13 technology licenses were executed across the indigenous SME and MNC industry

base from UCC research centres of excellence. Examples include the successful collaboration and partnership between Treemetrics and UCC’s Cork Constraint Computation Centre (4C) resulting in the development and licensing of innovative software which enabled Treemetrics to win projects with international companies and initiate the global roll out of its technology. The recent success with Treemetrics builds on the historic focus on innovation and partnership evidenced by the creation and development of a number of start-up campus companies from UCC including Glantreo, Alimentary Health, Firecomms, Luxcel, Biosensia, Sensl and more.

UCC recognises the need for emphasis on commercialising IP, particularly the generation of start-up ventures, in order to drive national economic growth. With our technologies maturing and the culture of entrepreneurship and innovation rapidly embedding itself in the structures of the university and the wider economy, we look forward to working with our partners in the government agencies and the commercial arena on this effort.

Glantreo - Bridging the gap

Cork's Glantreo is using a mix of technical and business expertise to create links between academia and industry.

Commercialising research can be a tricky business; the interests and requirements of academia and industry may seem worlds apart, and the principles of pure science and profit difficult to reconcile. However, Glantreo, a company based in the Rubicon Centre in Cork, but with strong links to University College Cork (UCC), has developed a unique approach to this problem, by using expertise in both the business and scientific/research fields to bring industry and academia together.

Originally founded in 2004 by Prof. Michael Morris and Dr Justin Holmes as a means to commercialise their own research, Glantreo is a nanotechnology company, designing and manufacturing nano-particles for life sciences applications. Their technological developments have applications in instrumentation, particularly in the field of chromatography. The company has laboratory space in UCC's Environmental Research Institute, and utilises several powerful equipment sets in the College.

The company develops technologies in house, and works to commercialise them in conjunction with researchers and the Technology Transfer Office (TTO) at UCC.

This involves using a particular mix of skills to work with university research teams and industry, taking promising research from academia, finding a potential industry partner with a specific requirement, and working with both parties to develop the research into technology that can be brought to market and meet that particular need.

The company does this through its own research, and also by assessing other technologies to see if they'll fit with the demands of a particular commercial partner. They understand the life cycle from academia to full-on industry mode, and can work with academics and industry from start to finish of the partnership process.

Crucial to this process is the ability to build good relationships, and understand the needs of all parties involved, and the Glantreo model has been very successful to date, punching above its weight in international terms. The company maintains a deliberately small set of industrial partners, in order to build a detailed knowledge base of their needs, so that they can work with researchers in UCC to tailor developments to meet those needs.

The Glantreo team offers a full range of expertise. Chairman Dr Jim McGrath and Chief Commercial Officer John Hogan build strategic business relationships, finding out what industry needs and feeding this information back to Chief Technology Officer Dr John Hanrahan and Prof. Mike Morris, who have the scientific know-how to respond.

For the next two years, the company plans to focus on developments in Separation science, in particular high performance liquid chromatography (HPLC). However the platform nature of Glantreo's technology means there are many other possible applications, including medical device and material science applications. The company also has a portfolio of technologies, including a toxic sequestering agent for animal feeds, which the company is currently exploring. They are also always on the lookout for more technological breakthroughs to bring to the marketplace, and would like to work with other universities to help achieve this.



NovaUCD

“A major strategic objective for UCD is to contribute to the social, economic and cultural objectives of a knowledge based society by realising the full value of research programmes and engendering an entrepreneurial culture. NovaUCD has been a key driver in ensuring that this objective is met”.

Dr Pat Frain,
Director NovaUCD

NovaUCD, the Innovation and Technology Transfer Centre at University College Dublin, is now in its sixth year of operation having officially opened in October 2003.

Building on prior successes in technology transfer and campus company development, NovaUCD's support for innovation and knowledge transfer is built around 4 key areas:

- Managing technology transfer
- Incubating start-up companies
- Promoting a culture of innovation and entrepreneurship
- Developing strategic partnerships with industry.

NovaUCD offers comprehensive programmes and facilities to ensure that the above goals are met by supporting the commercialisation of UCD research and other knowledge-intensive activity through initiatives such as the Campus Company Development Programme (CCDP). The aim of this enterprise support programme is to assist academic entrepreneurs in the establishment and development of knowledge-intensive enterprises. During the period 2004-2008, 57 new ventures completed the CCDP and fifteen new ventures are currently participating on the 2009 Programme. Former participants on the NovaUCD CCDP,

including companies such as BiancaMed, Celtic Catalysts and ChangingWorlds, now collectively employ over 750 people. To date, UCD companies have attracted over \$200 Million in investment and realisation. (See ChangingWorlds case study)

The technology transfer group within NovaUCD, with support from Enterprise Ireland under the TechnologyTransferStrengtheningInitiative, provides comprehensive assistance to UCD academics and acts as a one-stop centre for transferring research outputs into the marketplace. In 2008, the group reviewed 53 invention disclosures, filed 25 priority, 6 PCT and 7 National/Regional patent applications, executed 13 licence agreements and negotiated in excess of 120 contracts, including four major multiparty IP agreements for UCD led Strategic Research Clusters. In light of the current economic conditions, the group is increasingly focusing on start-up creation by assisting academic entrepreneurs in transforming innovations into early-stage companies. Supports include assisting in business plan development, connecting the entrepreneurs with experienced innovators and securing sources of early-stage finance.

ChangingWorlds at UCD

A UCD spin-out company is recognised as the global expert in personalisation for mobile data and subscriber intelligence techniques.

ChangingWorlds began life in 1999, when it was co-founded by Professor Barry Smyth and his then PhD student, Paul Cotter, to commercialise the award-winning ClixSmart personalisation engine developed as part of an extensive research programme in UCD's Smart Media Institute in the School of Computer Science and Informatics. During 1999, Barry and Paul participated on NovaUCD's Campus Company Development Programme (CCDP) and ChangingWorlds was the overall winner of that year's Programme.

Following completion of the CCDP, ChangingWorlds occupied incubation space in the Campus Innovation Centre at Roebuck, the forerunner of NovaUCD, today's Innovation and Technology Transfer Centre at UCD. Quickly outgrowing this space, the company moved to South Dublin Business Park in Leopardstown, where it is still headquartered today.

Since establishing ChangingWorlds, Barry and Paul have continued to maintain strong strategic links with UCD and the School of Computer Science and Informatics. When the company established an Advanced Research Centre, it located it at NovaUCD.

In 2005, Professor Barry Smyth was presented with the 2005 NovaUCD Innovation Award in recognition of his outstanding and continuing success in the commercialisation of his research since joining UCD in 1995, which included the establishment of ChangingWorlds.

Since being established, ChangingWorlds has rolled out its ClixSmart™ Intelligent Mobile Portal platform to over 50 mobile network operators worldwide, including Vodafone Global Group, O2 Ireland and Germany, Celcom Malaysia, Hong Kong CSL and Sprint, USA. The company now employs over 160 highly qualified staff including staff based in Dublin and others in offices in Brazil, the Far East and the USA.

In December 2008, ChangingWorlds was acquired by the US-quoted technology company Amdocs for \$60 million, and additional consideration may be paid later based on the achievement of certain performance metrics.

The success of ChangingWorlds is an inspiration for UCD academic



Professor Barry Smyth

entrepreneurs, who have established, are establishing or want to establish new ventures to commercialise the innovative ideas emerging from UCD research programmes.

Professor Barry Smyth has now gone on to form his second spin-out company, HeyStaks Technologies, which he co-founded in July 2008. HeyStaks is an add-on to Google that makes it easy for users to remember their search experiences and to share them with others. By creating so-called search staks, users can store prior searches, based on their interests. A search stak is like a folder for searches; for example, if a user is planning a holiday, they might create a search stak for recent travel searches and, as they search, Google will remind them of results from this stak that they have found interesting in the past.

HeyStaks was one of four new initiatives to share the 2008 Eircom €100,000 Web Innovation Fund.

Professor Smyth is also the Director of CLARITY, a €6 million Science Foundation Ireland research centre focused on the so-called 'Sensor Web', which combines researchers from University College Dublin, Dublin City University, and the Tyndall National Institute, Cork.

Technology Transfer Office, University of Limerick

“Limerick has a long tradition of high tech start-ups, much of which has been centred around the University, the National Technology Park and our relationship with regional actors – we aim to keep things that way”.

Paul Dillon, Director,
Technology Transfer Office

The primary mission of the Technology Transfer Office (TTO) at the University of Limerick (UL) is the commercialisation of the University's expertise. With support from Enterprise Ireland the Office has grown in recent times.

The TTO has actively facilitated successful industry interaction through the Innovation Partnership Programme. More than 80 projects have been completed since 2000, all assisted by the TTO in negotiating IP agreements. The TTO has also worked with the research community to secure commercialisation funding for the most marketable and industry-relevant technologies. The TTO is currently in the process of protecting and commercialising in excess of 90 technologies on our books. The collaboration of researchers with industry is seen by the TTO as one of the best ways towards successful commercialisation of research.

The TTO has facilitated a number of significant campus company formations in the past few years. These include Stokes Bio Ltd, Powervation Ltd and Crescent Diagnostics Ltd, which between them have raised in excess of €12m in venture funding and now employ nearly 50 people in high quality jobs within the region.

In 2007 UL's TTO began implementing a quality management system in line with the University's Quality Management Framework. The aim is to assist performance management and improved delivery services value to customers and stakeholders. As a result the TTO workflow processes are now fully automated, and this eases access to the large volume of documentation involved in TTO operations.

TTO Director Paul Dillon believes that working in a region of 400,000 people with a capital city of less than 100,000 people, means the UL TTO has to be very innovative with the finite resources at its disposal.

Powervation - An 'overnight' success

Patience can indeed be a virtue when it comes to converting research results into ground-breaking innovations in the market place.

In 2007, a University of Limerick (UL) campus company, Powervation Ltd, raised €7m in a venture capital funding round. The round was led by Intel Capital, and other investors included VentureTech, Scottish Equity and 4th Level Ventures. At an event entitled 'Silicon Valley Comes to Ireland 2008', organised by the Irish Technology Leaders Group (ITLG), Powervation was selected as the Irish high tech company most likely to exceed sales of €100m. From the outside, it may all have appeared as an overnight success, but appearances can often be deceiving.

In 1990 a young engineer named Karl Rinne came to UL to undertake a PhD in power electronics within the Power Electronics Ireland (PEI) Centre. In 1995, he graduated with a doctorate in advanced power conversion. Karl left UL, and held senior design positions in a number of international companies, where he worked on advanced power conversion, before returning in 2001 to take up the position of lecturer in the areas of circuit design and computer architectures in the Electronics and Computer Engineering Department.

The former PEI Centre at UL was now the Circuits and Systems Research Centre (CSRC), and was focused on research into advanced mixed signal circuit design at a silicon level. Karl joined this group, and identified the opportunity to implement advanced power control concepts directly onto silicon, with Enterprise Ireland (EI) support under the Commercialisation Programme.

Working with the Technology Transfer Office at UL, a first patent was filed in July 2003 on a Digital Pulse Width Modular, invented by Karl Rinne and Eamonn O'Malley. Further patents were filed in 2006 and 2007. In late 2006 Karl and Eamonn teamed up with Alan Dunne to form Powervation Ltd. Antoine Russell joined the team in the same year and brought a strong commercial presence, having previously been vice president of research and development for Power-One Ireland, and the Powervation team was complete.



Karl Rinne (centre) with Powervation founders Antoine Russell, CEO, (left); and, Alan Dunne, COO (right).

Further consolidating the company's 'overnight' success, in 2009, in an awards ceremony held in the Schwab Center in Stanford University, Powervation won the ITLG/Irish Times Innovation Award. The Award, which is part of a thriving programme initiated to spur Irish technology companies to expand into the US and to encourage investment in Ireland from Silicon Valley's leading corporations, was presented to Powervation for the company's research successes, management team, product strategy and growth potential.

Responding to the win, Antoine Russell said: "We're especially proud to be recognised for our innovative digital power control technology and the promise it holds for global manufacturers of complex electronics systems. It's a validation of the industry need for such a solution and Powervation's capability to deliver the goods".

Powervation has set itself the goal of becoming the leading global supplier for energy control management in information processing systems.

“Industry–academic engagement is central to our philosophy. We are committed to ensuring that investment in research has real economic impact through job creation and product and service innovation”.

Kathryn Kiely,
Industry Services Manager, WIT

Waterford Institute of Technology’s Technology Transfer Unit

Waterford Institute of Technology’s (WIT) Technology Transfer Unit forms part of the Institute’s core infrastructure supporting research and innovation. Assisting researchers in mapping out commercialisation roadmaps, providing appropriate market intelligence and advising on intellectual property (IP) rights clearly highlights to researchers the benefits of engaging with the TTO.

Over the last decade the Institute has significantly enhanced its level of research activity, culminating in more than €22m in research awards last year alone and developing a reputation for excellence in the areas of telecommunications software, pharmaceutical science, eco-innovation, materials research and optics. WIT has demonstrated its capacity to support the emergence of high potential companies such as Catch and Headway Software. It actively leads an SFI Strategic Research Clusters programme in autonomics, an EI-funded Industry-led Research Programme in the area of mobile services, and has ongoing research collaborations with regionally based companies such as Eirgen and Genzyme.

WIT’s approach to technology transfer is driven by the belief that to be most effective, a broad, long-term view must be embraced. This can be achieved by incorporating elements of effective knowledge transfer into the undergraduate programme, developing generic graduate skills training related to IP and commercialisation, establishing enterprise training programmes for aspiring entrepreneurs, and providing incubator space and mentoring support for companies based in WIT’s ArcLabs Research and Innovation Centre.

Rather than focussing on the ‘transfer’ of technology with the implicit assumption that it already exists in a form that is valuable to an identified marketplace, WIT’s approach is to work with interested parties, bringing in additional expertise where necessary, to firstly develop a commercialisation roadmap, and then to work with the promoters to reach their goals.

Catch™ - Catching the potential of radio

A WIT-based company is bringing a new dimension to radio communication.

The director of new media company Catch™, Conor Ryan, recognises Waterford Institute of Technology (WIT) and Enterprise Ireland as key elements of the foundation upon which the company has grown. The high potential start-up is currently co-located with the Telecommunications Software & Systems Group (TSSG), the South East Enterprise Platform Programme (SEEPP) and a number of other start-ups in WIT's ArClabs Research and Innovation Centre.

Ryan describes Catch™ as “an evolving concept that extends the media reach of radio stations through non-traditional radio media that include web and mobile”. The original Catch™ prototype was the result of an Innovation Partnership project between the company and the TSSG. In October 2007 the TSSG won the Enterprise Ireland Informatics Commercialisation Award in recognition of its role in supporting the development of start-up companies such as Catch™. The Catch™ solution has since evolved into a comprehensive entertainment platform tailored for radio through working in collaboration with stations in Ireland and the UK.

When asked about what attracts customers, Ryan replies: “Stations adopt the Catch™ platform to connect their listeners with content that they emotionally engage with through radio. This content includes music, talk (comedy sketches, news), advertisements and anything else you are likely to hear on radio. This provides stations with new advertising inventory, new revenue opportunities and key market differentiators”.

Catch™ enables listeners to use their mobile phone, PC or other device to impulsively ‘catch’ songs or pieces of audio they hear on air, so they can find out more about it, listen to it again or share it with friends. It allows listeners to interact with adverts they hear on air while also generating unique off-air advertising opportunities that are proving to be extremely attractive to media buyers and advertisers.

Catch™ works with public radio, international radio groups and smaller stations to roll out Catch™-enabled solutions that include mobile applications,



The Catch team.

browser toolbars, interactive websites, social network applications and off-air radio portals. Most recently, RTÉ launched the new RTÉ 2fm entertainment experience on www.rte.ie/2fm, which was completely designed, developed and is currently operated by Catch™.

Catch™ was founded in 2005 and currently has 14 employees, many of whom were former TSSG staff and graduates of WIT. Conor graduated from WIT with a masters by research in telecoms, has lectured in WIT and is a past participant in WIT's enterprise development programme, SEEPP, which supports entrepreneurs involved in knowledge-based start-ups in the South East of Ireland.

Looking to the future, Ryan indicates that the company's immediate activity is focused on rolling out Catch™ on stations across Europe. “We are progressing very well in Ireland and the UK and we are working with several major stations in these territories. Our market is global. When we have proven the model in Europe we will look towards the US and elsewhere. We have applied for patents in these markets and are also looking at the potential for filing in other jurisdictions”.

Building a technology transfer system for all third level institutions

Having supported 10 Technology Transfer Offices in the initial phase, the Technology Transfer Strengthening Initiative is also working with the other higher education institutions that have a lower level of research activity on campus but nevertheless have valuable intellectual property to bring to the market.

In 2008 the existing relationships between higher education institutions, the institutes of technology being the largest grouping, and Enterprise Ireland (EI) were greatly expanded. Technology transfer staff across the sector have been working with the technology transfer team in EI and with the full team of commercialisation specialists from the three EI commercialisation directorates. Recent changes in the Institutes of Technology sector have strengthened the research stream, and will lead to the enhancement of the technology transfer function within the individual institutes.

These changes will be accelerated in 2009 as a result of the publication of the 'Framework for Development of Research in the Institutes of Technology'.

Across the sector, the majority of institutes have either adapted their intellectual property (IP) policy or currently have their policy before their governing bodies for final review. The successful implementation of IP policies is demonstrated by an increase in the number of invention disclosures (16) and licences (2) during 2008.

The technology transfer element is coming to the fore in terms of licence negotiation and patent filing, and is thereby increasing its profile within the IoT research community.

In the future, the inclusion of a strong policy statement outlining the important role of technology transfer in the individual institute strategic plans and research and development plans will further add to the authority of the technology transfer function within the IoT sector.

To date, the IoTs have promoted the concept of technology transfer to their own researchers and principle investigators. Courses run by external providers in the fundamentals of technology transfer have been held in a number of institutes, and these courses will be followed up with a series of courses/workshops on various topics, including the operation of the IoT's IP policies.

It is expected that 2009 will see a further increase in technology transfer activities within these institutions; Athlone IT, IT Blanchardstown, IT Carlow, Cork Institute of Technology, Dundalk IT, Dun Laoghaire Institute of Art, Design & Technology, Galway-Mayo Institute of Technology, Letterkenny IT, Limerick IT, IT Sligo, IT Tallaght, IT Tralee, the National College of Art and Design, the National College of Ireland.

This will enable all colleges to make an active contribution to Ireland's smart economy.

Platform for success

In this example of the type of valuable intellectual property being produced by Irish Institutes of Technology we look at the Institute of Technology, Sligo, which recently completed a groundbreaking licensing agreement with HemCon Medical Technologies, a leading global developer of advanced medical products.

The licensing agreement relates to the exclusive global rights to research, develop, manufacture and market a controlled-release hydrogen peroxide technology that provides broad-spectrum antibacterial and antiseptic properties.

This proprietary platform technology provides a full range of product solutions for the wound care, oral care and personal care markets, ranging from antimicrobial professional products for the control of hospital-acquired infections, to personal hygiene solutions for consumers, and oral hygiene applications. The technology will allow entry into major new market opportunities for HemCon.

The new technology releases hydrogen peroxide through a carefully controlled proprietary process allowing control of the dose and of the period of delivery. The hydrogen peroxide at the required level is slowly released over a controlled time, providing a steady dose while ensuring that the levels produced are below those that could be harmful.

The new technology was developed at IT Sligo School of Science and a patent has been filed on behalf of the Institute.

The research centre at IT Sligo promotes applied research, and in the course of a project in the School of Science, led by Dr James Brennan, Dr John Barrett and Dr Tom Patton, the new medical technology application was discovered. The researchers developed their discovery and IT Sligo began a process of selecting suitable industry partners to develop the new discovery for commercial applications. HemCon Medical Technologies was selected as the most suitable partner given their existing markets, complementary technologies and their track record in innovation. The company featured for two years running in the list of the top 50 most innovative companies in the United States.



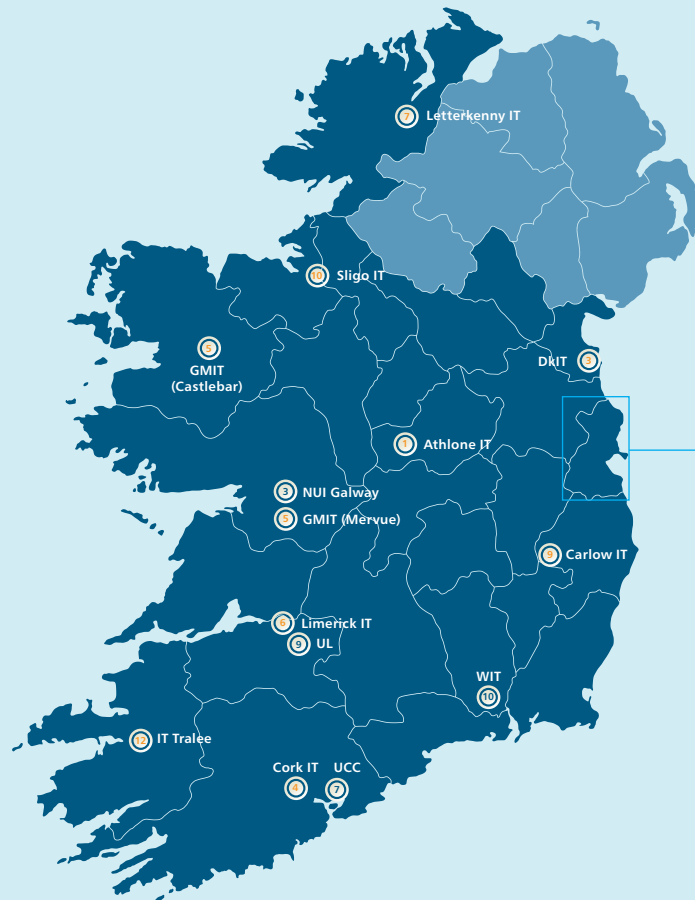
Dr James Brennan, Head of Department, School of Science Institute of Technology, Sligo, Keith Real, Global Vice President of Development, Hemcon, Dr Jimmy Devins T.D, Professor Terri Scott, President Institute of Technology, Sligo, at the announcement of groundbreaking licensing agreement with Hemcon Medical Technologies, a world leader in wound care.

IT Sligo has taken a major step forward with this agreement, which puts the Institute at the forefront of third-level technology transfers, enhancing the reputation of the Institute, the School of Science and the Research Department. It has the potential to deliver significant royalty income to IT Sligo in the future, and a portion of this income will be ploughed back into further research and development.

The agreement will allow HemCon the ability to directly commercialise or sub-license these technologies to key medical device and pharmaceutical partners globally. Of particular significance, the technology has shown good potential in early studies for the treatment of fungal nail infection.

The technology transfer team at IT Sligo hope that collaborations like this one between academia and industry will help sustain and create new jobs as Ireland becomes a knowledge-based society.

Map of Ireland's Technology Transfer System



Technology Transfer Offices:

- 1 Dublin City University
- 2 Dublin Institute of Technology
- 3 NUI Galway
- 4 NUI Maynooth
- 5 Royal College of Surgeons in Ireland
- 6 Trinity College Dublin
- 7 University College Cork
- 8 University College Dublin
- 9 University of Limerick
- 10 Waterford Institute of Technology

Other colleges engaged in the Technology Transfer Strengthening Initiative:

- 1 Athlone Institute of Technology
- 2 Dun Laoghaire Institute of Art, Design & Technology
- 3 Dundalk Institute of Technology
- 4 Cork Institute of Technology
- 5 Galway-Mayo Institute of Technology
- 6 Limerick Institute of Technology
- 7 Letterkenny Institute of Technology
- 8 Institute of Technology, Blanchardstown
- 9 Institute of Technology, Carlow
- 10 Institute of Technology, Sligo
- 11 Institute of Technology, Tallaght
- 12 Institute of Technology, Tralee
- 13 National College of Ireland
- 14 The National College of Art and Design

