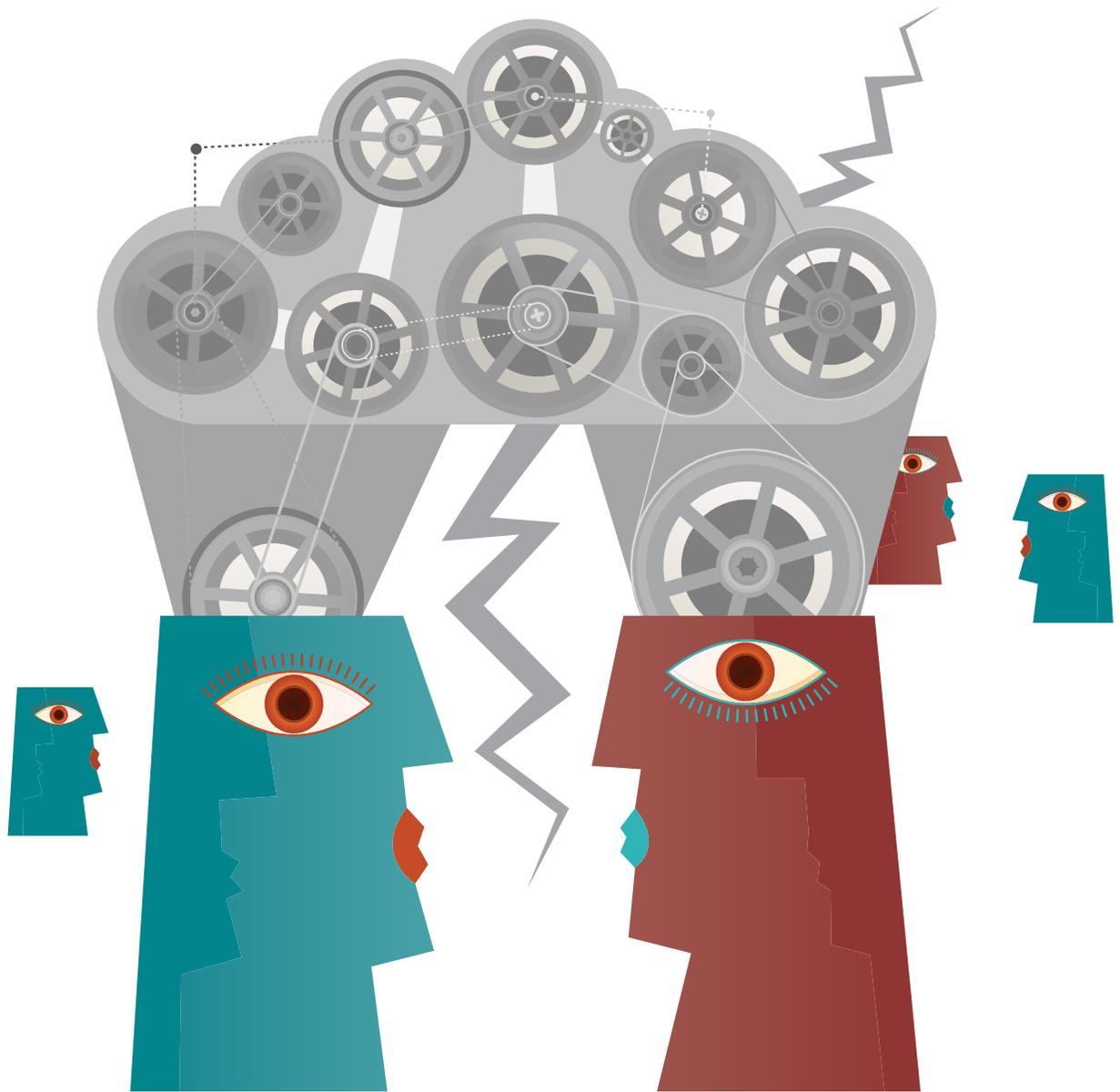




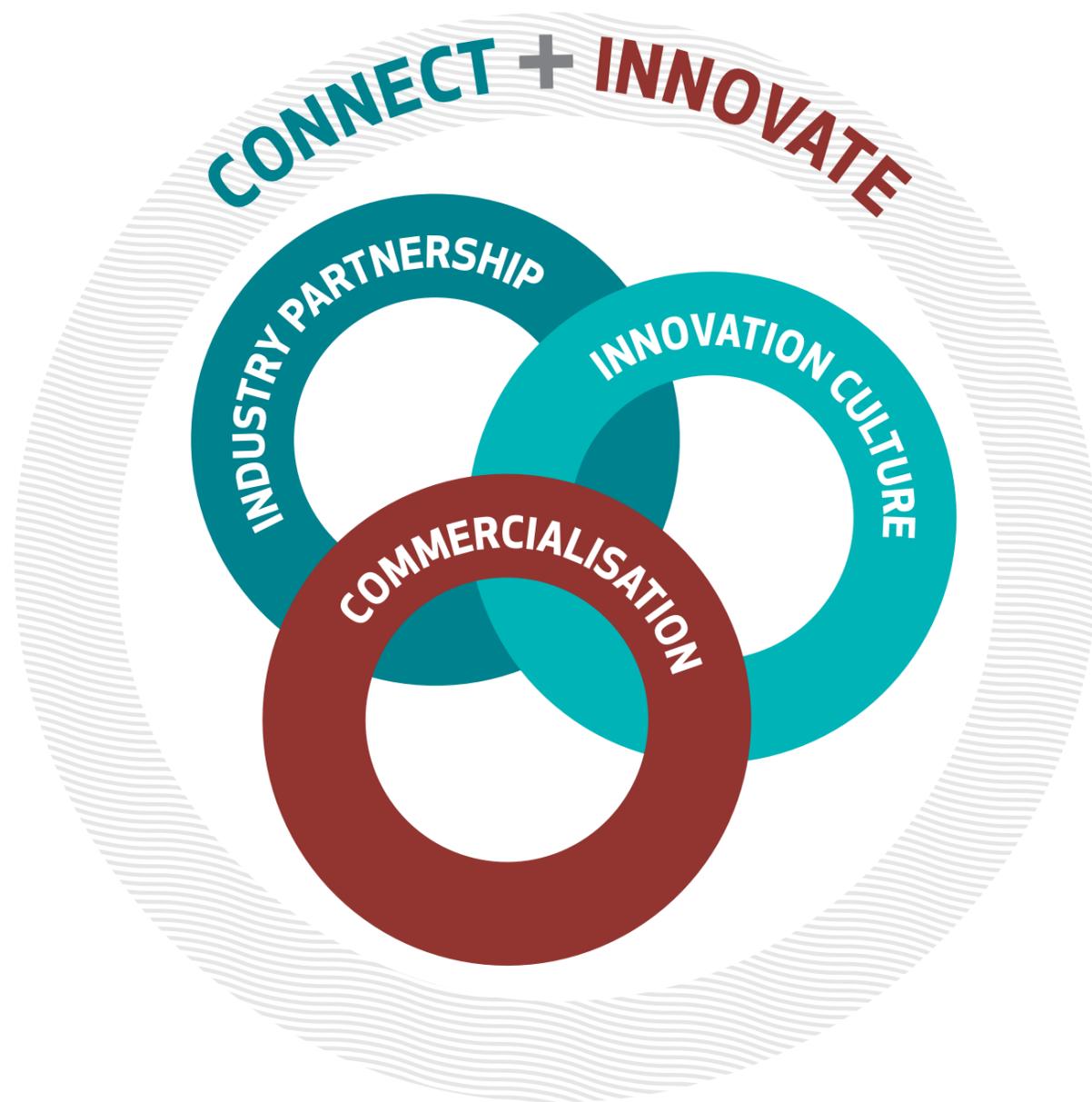
COMMERCIALISATION
NUI MAYNOOTH
CONNECT + INNOVATE



CONNECT
+ INNOVATE

2012/2013

FOREWORD



IT IS A PLEASURE TO INTRODUCE THE 2012 ANNUAL REPORT OF THE NUI MAYNOOTH COMMERCIALISATION OFFICE. THIS BROCHURE SUMMARISES OUR 2012 ACTIVITY AND INTRODUCES PLANS FOR 2013 AND BEYOND.

The report provides an overview of the work of the office during the year, and highlights some of the successes and achievements in the commercial and enterprise sphere that have been achieved by the partnership of NUI Maynooth researchers with the Commercialisation Office team.

2012 has been the year of research impact in Ireland. Of course, it has always been there, but now it is more explicit, most clearly in the strategy of Science Foundation Ireland, subtitled "Excellence and Impact". Impact takes many forms, but none is more direct than the formation of spin-out companies based on advanced technologies addressing real human needs and wants. A close second is direct transfer of expertise and knowledge to established companies who employ significant numbers of people and thus promote a return to economic stability. In both of these areas NUI Maynooth has had significant successes in 2012, with 3 new spin out companies formed and 15 new industry links developed.

Of course, to state an obvious truism, initiating new things is only the start. It is impressive that, of the twelve companies created by NUI Maynooth Research and Commercialisation since 2006, twelve are still operating and five have secured external management teams and investment in excess of €100,000 (with two having secured more than €500,000 in investment). Not all will succeed but several are close to significant commercial breakthroughs. In addition, most established companies which carry out work with NUI Maynooth researchers are staying the course to establish long term relationships of mutual benefit. This is testimony indeed to the quality of the research the University undertakes, and to the relationship builders and culture builders.

It is this very particular combination of importing external commercial nous and the encouragement of an increasingly entrepreneurial attitude among academic staff and students that has been the greatest success of the Commercialisation Office. The team has been hugely proactive in developing that culture at NUI Maynooth and in building effective external relationships that last, and it is that work that leads to the impressive picture presented in this report.

Professor Ray O'Neill
Vice President for Research

INTRODUCTION

NUI MAYNOOTH CONTINUES TO BE A NATIONAL LEADER IN THE COMMERCIALISATION OF RESEARCH AND 2012 WAS ANOTHER FRUITFUL YEAR FOR US.

Our 2012 performance metrics are outlined below, along with a table of comparison performance metrics over the past years. Against international standards per research expenditure, NUI Maynooth again ranks in the top percentiles. This performance is down to the outstanding research and the desire of our researchers to see their work make not just a scientific impact but an economic one.

The Commercialisation Office continues to focus on 3 pillars of activity:

- Connecting NUI Maynooth researchers with industry and the market place
- Developing a culture of research commercialisation at NUI Maynooth
- Identifying and commercialising the IP developed by NUI Maynooth researchers

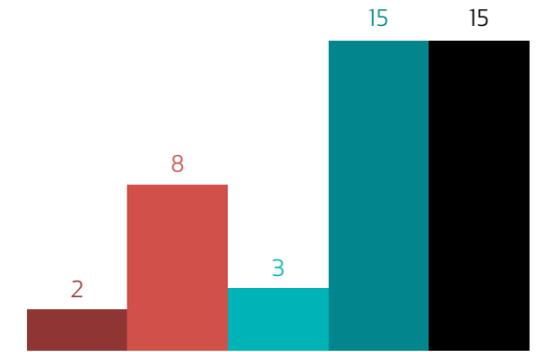
The output of these 3 pillars of activity contributes to the growth and development of Ireland's knowledge economy and job creation.

2012

The Commercialisation Office received support from Enterprise Ireland (EI) under the Technology Transfer Strengthening Initiative (TTSI) which ran from 2007 until the end of 2012. We have secured funding from EI under TTSI phase 2, to run from 2013 to 2016, and we will now support technology transfer at Athlone Institute of Technology, Institute of Technology Carlow and Waterford Institute of Technology. The consortium will act as a unit, sharing resources and adopting common policies and management systems to ensure efficiencies and excellence in TT. We look forward to strengthening the development of TT within the consortium.

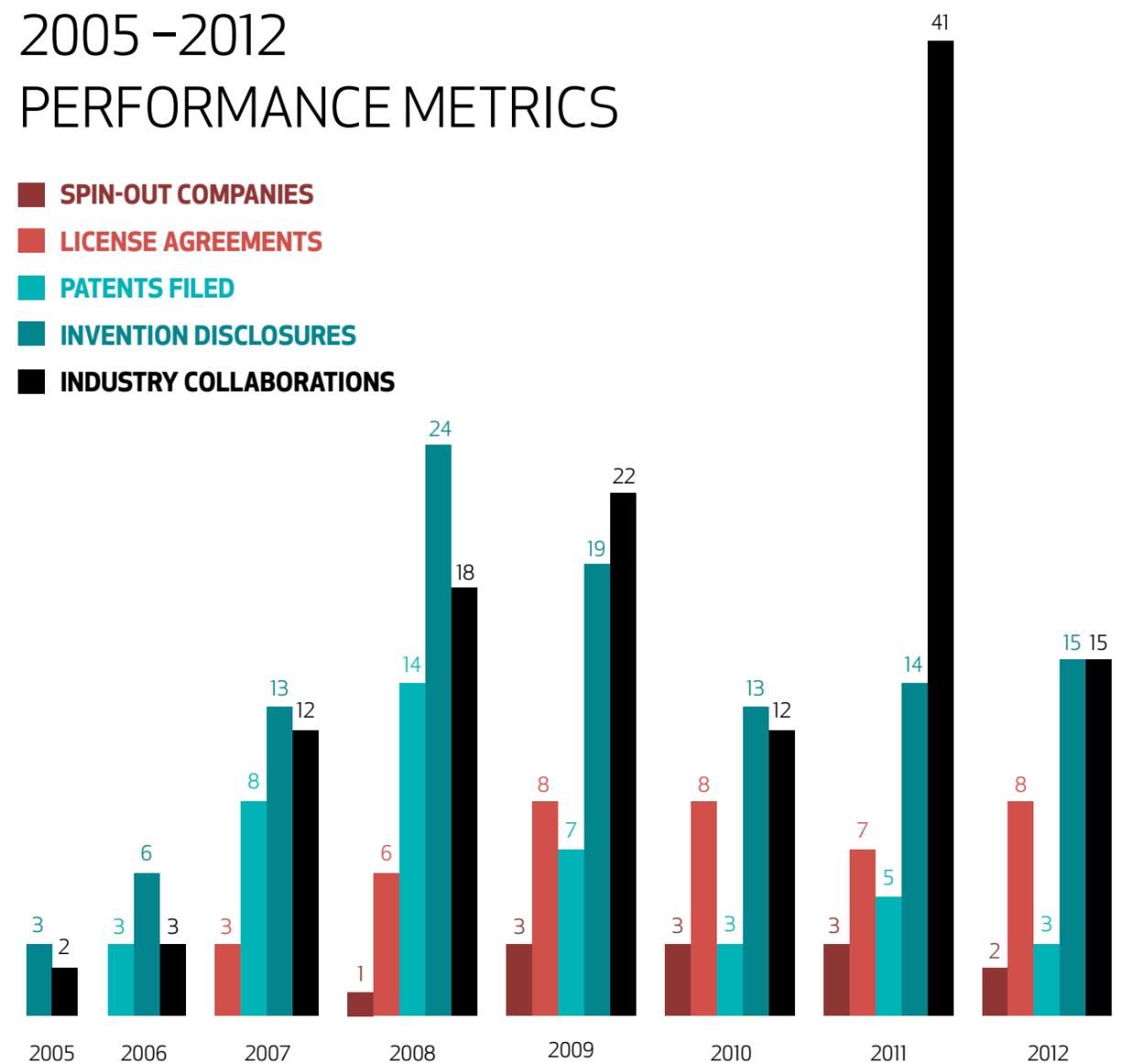
2012 PERFORMANCE METRICS

- 2 NEW SPIN-OUT COMPANIES**
- 8 NEW LICENSE DEALS**
- 3 NEW PATENTS FILED**
- 15 NEW INVENTION DISCLOSURES**
- 15 NEW INDUSTRY LINKS**



2005 - 2012 PERFORMANCE METRICS

- SPIN-OUT COMPANIES**
- LICENSE AGREEMENTS**
- PATENTS FILED**
- INVENTION DISCLOSURES**
- INDUSTRY COLLABORATIONS**



COMMERCIALISATION ¹ OF NUI MAYNOOTH RESEARCH

2012 SPIN-OUT COMPANY ACTIVITY

NUI Maynooth spun out 2 new companies in 2012, all based on research work carried out at the University over the last couple of years:

Odiyko was founded by Ricky Jacob, a Computer Science postgraduate student and former Google employee. Odiyko will commercialise technology which allows for the real time tracking of runners in fun runs and marathons. Employing Google Maps and GPS on the runners and audiences' phone the application gives detailed information on the runners whereabouts and progress. The business plan allows for location based advertising opportunities.

Metric Capture Technologies Limited (t/a Kintinous) was formed by Dr John McDonald and Thomas Whelan of the Computer Science Department. Their technology allows for the large scale scanning of environments using the Microsoft Kinect™ platform. Their technology allows for the stitching together of very large scenes removing inaccuracies that occur with other systems.

We also continue to support the spin-out companies we completed in the last number of years. Some highlights from these companies over the year include:

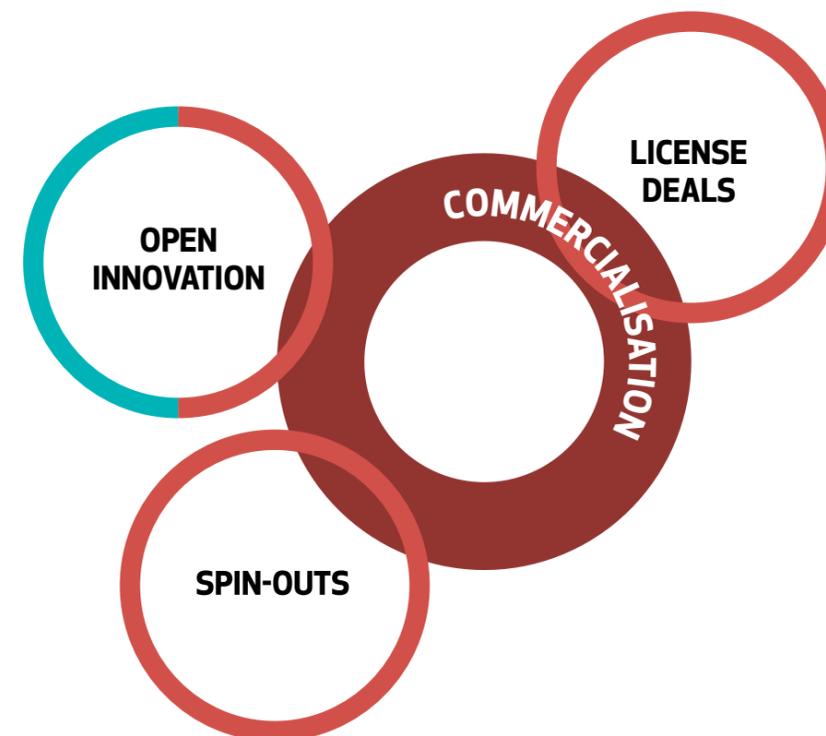
- **Socowave** successfully completed end-to-end field trials with a vendor partner and proved its claims of substantial capacity improvements through its patented Active Diversity beamforming technology.
- **Beemune** is now in late stage testing of products for bee health and large scale trials will soon conclude in the US with novel treatments for known bee diseases.
- **Bluebox Sensors** completed a successful funding round in 2012 and secured additional staff. Meanwhile they have increased their customer list and are now selling products to several pharma companies.
- **Mutebutton** successfully completed trials on their device and are raising funds to bring the technology to market.
- **Relational Frame Training** (trading as RaiseYourIQ) have now launched their product, are in discussion with several potential partners and will raise investment to expand their platform and drive sales and marketing in 2013.
- **iGeotech** won the European 'Earth Monitoring' cloud-computing challenge in Munich in Oct 2012 and were recently shortlisted from 200 startups to make the final 20 at the Global Technology Leaders Summit in Cork. iGeotech will travel to Silicon Valley mid May 2013 to meet VCs and pitch their company.
- **Profector** raised further investment in 2012.

2012 LICENSING ACTIVITY

An example of the new technologies licensed in 2012 and the companies we have licensed them to include:

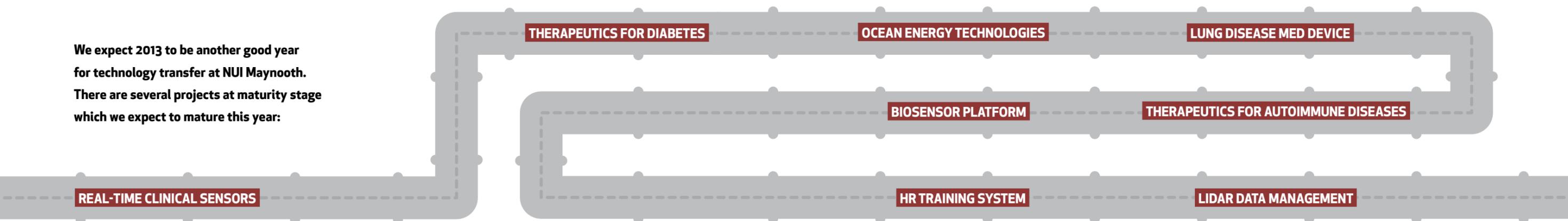
- We licensed a method for detecting infections to an Irish biotechnology company. The technology was developed by Prof. Sean Doyle in our Biology Department.

- We licensed technology to a large semiconductor manufacturing company, which was developed as a tailored solution to help optimise part of the manufacturing process. The technology was developed by Dr. Sean McLoone and colleagues in the Department of Electronic Engineering.
- We licensed software that permits mapping of extended scale environments in real time to an international visual effects company. The technology was developed in the lab of Dr. John McDonald.
- We licensed software for optimisation of wave energy converters to a leading wave energy company. The technology was developed by the team in the Centre for Ocean Energy Research.



FUTURE PIPELINE

We expect 2013 to be another good year for technology transfer at NUI Maynooth. There are several projects at maturity stage which we expect to mature this year:



REAL-TIME CLINICAL SENSORS

We are developing a suite of in-vivo electrochemical sensors for clinical applications, including continuous monitoring of patient vital signs in the I.C.U, during surgery, during anaesthesia and in organ transplantation.



OCEAN ENERGY TECHNOLOGIES

The Centre for Ocean Energy Research (COER) at NUI Maynooth has core strengths in mathematical modelling, control systems, prognostics and optimization – all focused on ocean energy research. COER is strongly supported by EI and has programs in place to drive at least two spin-out companies, one focussed on ocean energy technical services and another focussed on wave energy converter technology.



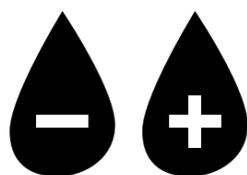
BIOSENSOR PLATFORM

We are developing an exciting biosensor based technology with high sensitivity and selectivity to pre-selected analytes. Our sensor can be pre-programmed for sensitivity to a range of airborne and liquid based analytes, with applications in security, health and environment. The sensor is portable, robust and operates in real-time.



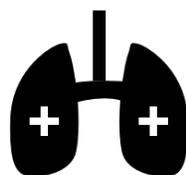
HR TRAINING SYSTEM

We are developing an expert system allowing HR managers to understand the ROI on staff training. The system allows companies to measure and increase effectiveness in their organisations.



THERAPEUTICS FOR DIABETES

We have developed compounds effective at combating insulin resistance and the development of type 2 diabetes in high fat diet mice, tested by glucose and insulin tolerance. Animals fed the compounds from the outset have reduced weight gain and on intervention have subsequent reduced weight gain.



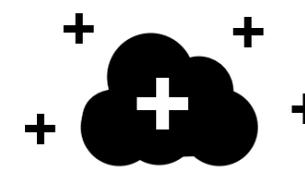
LUNG DISEASE MED DEVICE

We are developing a novel diagnostic and drug delivery platform technology that has a broad range of potential clinical applications for diseases at many sites in the body. Bronchoscope-mediated deployment to the lungs is the current focus.



THERAPEUTICS FOR AUTOIMMUNE DISEASES

We have a project which is evaluating a novel peptide for its therapeutic potential in the treatment of inflammatory bowel diseases. This peptide is effective in inhibiting LPS signalling and we are currently attempting to generate small molecule mimetics to assess their potential in the treatment of sepsis.



LIDAR DATA MANAGEMENT

We are developing a cloud based tool for user management of global Lidar data. The tool allows users to easily find and upload location specific data from an easily accessible data mirror.

CONNECTING INDUSTRY ² AND NUI MAYNOOTH

INDUSTRY LINKS

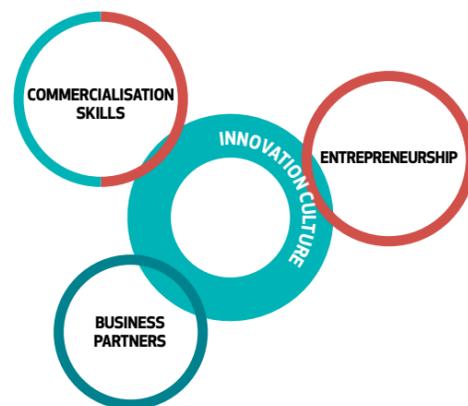
2012 saw NUI Maynooth form 15 new partnership contracts with industry contacts. These links are based on research collaborations and range from collaborations with SME's under the Enterprise Ireland Innovation Vouchers Programme to collaborations with multinational companies on specific issues which NUI Maynooth has research excellence. NUI Maynooth now has over 50 ongoing industry collaborations across all disciplines which are an indication of the outward facing culture at NUI Maynooth.

We are also significant contributors to several multi-party industry-academia research collaborations spanning MNCs and SMEs, leading to further research, innovation, new products and ultimately new jobs with these companies. These include Technology Centres such as the NUI Maynooth led Innovation Value Institute (IVI) which has an additional 75 active industry links, the Irish Centre for Manufacturing Research (ICMR), and the Microelectronics Competence Centre Ireland (MCCI); and SFI funded centres such as the NUI Maynooth led Strategic Research in Advanced Geo-technologies (StratAG), the Centre for Telecommunications Value-Chain Research (CTVR), the Immunology Research Centre (IRC), and the Federated Autonomic Management of End-to-End Communications Services (FAME).

MARKET PARTNERS

Successful technology transfer or commercialisation is based on the execution of three key tasks; selection of projects with good commercial potential, execution on those projects and securing sufficient capital funding to bring the technology to market. Getting the first two right tend to make the last one easier, and we therefore focus most of our efforts on the first two. Given that we have a commercialisation team of three, having expertise in many fields and being market informed in those fields is practically impossible, so we must rely on external partners to help in the selection and execution of worthwhile projects.

Our extended team of market partners continues to be a vital part of our commercialisation process. The team now includes more than 100 professionals in various roles such as product development, marketing, legal, IP, business owners, clinicians, investors from organisations of all sizes from small companies to multinationals. This group remain our sounding block to help ensure the commercialisation projects we focus on are "market-informed" and we continue to deliver solutions to "problems that are worth solving".



SEEDING INNOVATION ³ AT NUI MAYNOOTH

GSE2 - INNOVATION AND RESEARCH COMMERCIALISATION

The Commercialisation Office ran its Generic Skills GSE2 programme in November 2012. The participants this year included students and staff from Athlone Institute of Technology. The module is entitled "Innovation and Research Commercialisation" and the aim is to equip researchers with the skills required to commercialise the outcome of their research, to provide them with the ability to interact with industry and to improve their skills to innovate and act with an entrepreneurial mindset.

The course covers the basics of intellectual property, technical marketing, product development, spin-out company formation and research commercialisation contracts. Also included are workshops and exercises, including preparation of a marketing pitch, culminating in a group business plan presentation. These are very useful in informing the student how to present their ideas as a business opportunity rather than as just interesting science, a practical approach which then complements their academic training.

GATEWAY PILOT PROJECT

The Gateway at NUI Maynooth is a pilot project created by the Commercialisation Office and supported by the academic community. The Gateway essentially provides a one-stop shop for companies to engage with the University.

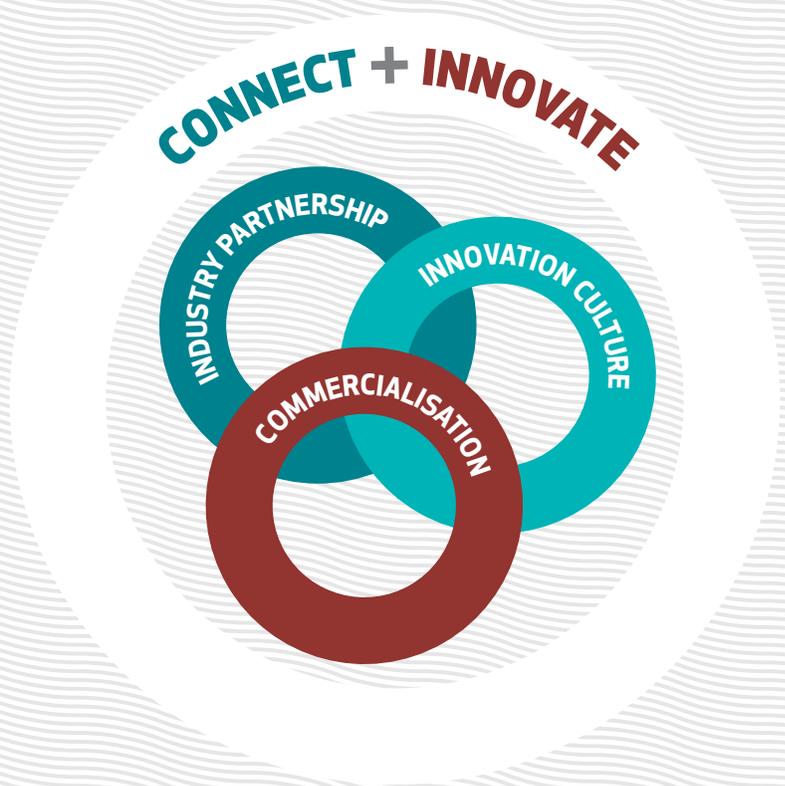
Whether it's a business seeking to solve a problem, a community group in need of targeted research or an NGO with training requirements, the Gateway provides the welcoming point from which the whole university opens up. In a recent workshop on campus the participating group included the client's team and experts from Anthropology, Design Innovation, Marketing, Business and Commercialisation.

STUDENT ENTREPRENEUR COMPETITION

The NUI Maynooth Student Entrepreneur Competition is now in its sixth year and continues to grow year on year in both the numbers participating and the quality of competitor ideas. The first competitive round of the competition commenced in January 2013, with the competitors pitching their concepts in front of an internal judging panel. The groups were mentored and pitched again, after which a number were selected for the following round where external business people review the business plans and pitches. Four competitors are selected for the final, before the end of Semester 2, for an open-to-the-public Dragon's Den format. The total sponsored prize fund on offer is €10,000, with €6,000 earmarked for the winning team/competitor. Our sponsors are Bank of Ireland Maynooth and McCann Fitzgerald Solicitors, Dublin.

BUSINESS INCUBATION CENTRE

NUI Maynooth has finalised plans to develop a Business Incubation Centre (BIC) which will facilitate spin-in and spin-out companies. The BIC will be part of an ICT hub building, promoting industry-academic links and acting as a locus for entrepreneurial activity and commercialisation.



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