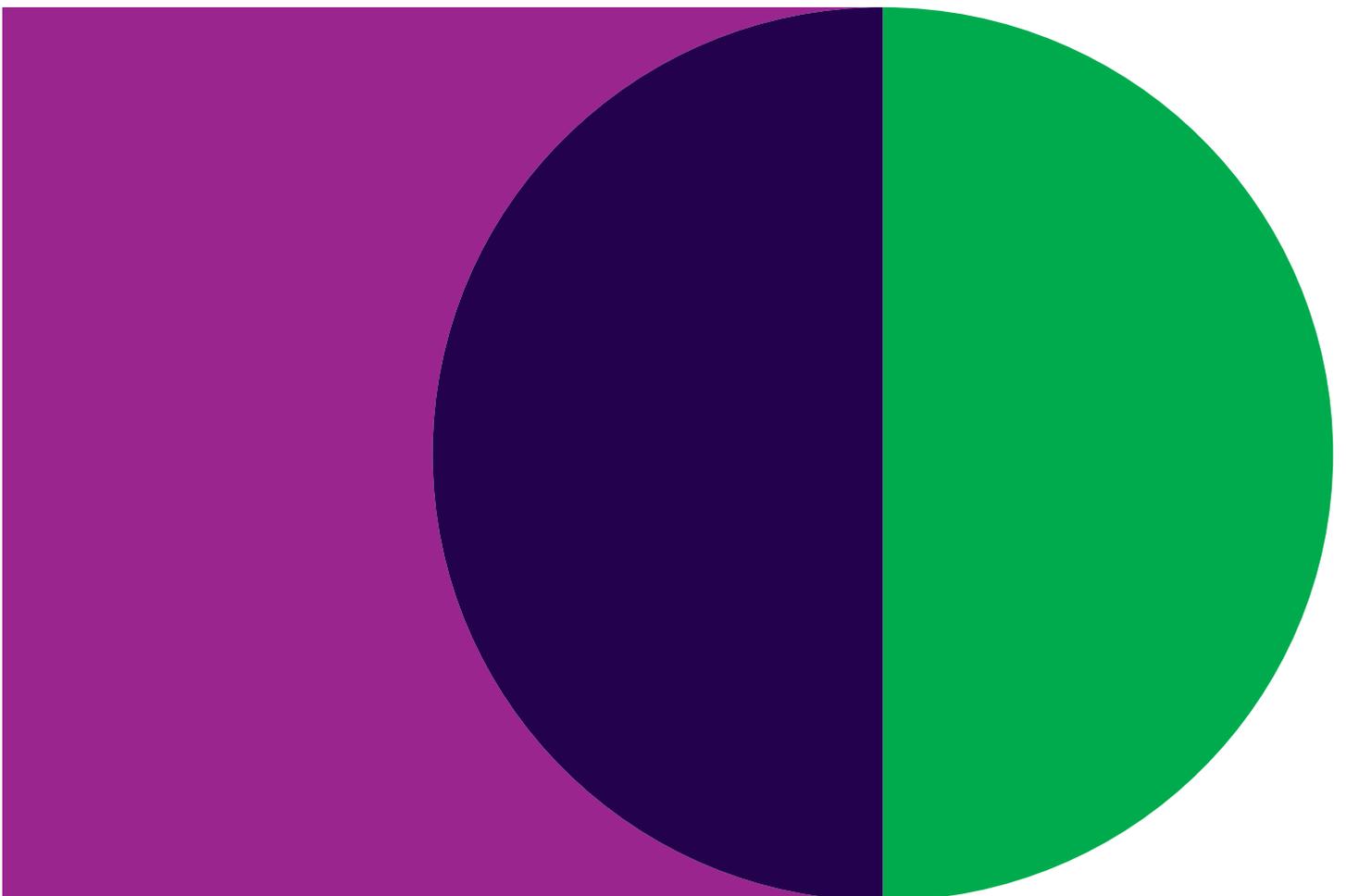




KTI

Knowledge Transfer Ireland
Where Research & Business Connect

Knowledge Transfer Ireland **First Annual Report 2013-2014**





RESEARCH



BUSINESS



COMMERCIALISATION



TECHNOLOGY
TRANSFER OFFICE

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SPIN-OUT
COMPANIES



INTELLECTUAL
PROPERTY



COLLABORATION



NETWORK

Introduction

I am pleased to introduce you to the first report of Knowledge Transfer Ireland (KTI) which sets out our progress in the nine months between formation in September 2013 and our launch in May 2014. In this report we also highlight some of Ireland's successes in knowledge transfer during this period.

This has been a busy period for KTI, which is a partnership between Enterprise Ireland and the Irish Universities Association, accountable to the Department of Jobs, Enterprise and Innovation (DJEI) and the presidents of the Irish universities.

In this time we have developed and launched the KTI web portal as a unique resource for business and others interested in what Ireland has to offer within its research base. This is the first time that industry has been provided with a comprehensive overview of the research capabilities and technologies available for licence from Irish Research Performing Organisations (RPOs). The website also contains the first in a series of KTI Practical Guides and Model Agreements. This is a suite of resources, with supporting guidance notes, providing a starting point for businesses that wish to collaborate with Irish RPOs. These deliverables meet targets set for KTI by the Government in its *Action Plan for Jobs 2014*.

In the period 2007 to 2012 the State provided funding through the Enterprise Ireland Technology Transfer Strengthening Initiative (TTSI1) to build capacity and capability within the Irish technology transfer system. In our review of the impacts of this first round of State funding we found that investments made through this programme have been advantageous to business, resulting in



Dr. Alison Campbell OBE,
Director, Knowledge
Transfer Ireland

a significant increase in the licensing of technologies and the creation of spin-out companies from State-funded research.

We have also been conscious of the importance of acknowledging the achievements of individuals who make valuable contributions to the development of knowledge transfer in Ireland. We were delighted, therefore, to award our inaugural KTI Research2Business Award to Dr. Mark Southern of the University of Limerick. This was in recognition of the impact he has made through his sustained engagement with business as an academic researcher.

We established two new groups to inform and support our work. The Industry Advisory Board (IAB), which comprises industry and investment professionals, will help us set our direction and review our activities on an ongoing basis. The Knowledge Transfer Stakeholder Forum (KTSF) gives us access to the views of all the major contributors to the knowledge transfer agenda in Ireland. To this end, we also work closely with the Irish Technology Transfer & Innovation Group (ITTIG), the national network of technology transfer professionals. I wish to thank the members of all these groups for the commitment they have already shown to helping us develop as a relevant and valuable resource in the knowledge transfer arena and I look forward to working with them in the future.

Future Plans

This report describes the start-up phase for KTI and outlines our progress so far. The challenge is to maintain this momentum and build on these foundations. Our immediate objectives include further development of the web portal's content and functionality, a review of the national IP Protocol in practice and management of the TTSI2 programme as it reaches mid-term.

We are also developing a series of events to share best practice in knowledge transfer within the research sector and more widely within the innovation community. We will continue to work with the IAB, the KTSF and the ITTIG to inform and be informed.

KTI is an office, a resource and a facilitator. We need and value engagement across the innovation ecosystem, both in Ireland and abroad. I would like to take this opportunity to invite you to connect and engage with us – by attending our events, using our website resources and sharing your thoughts with us. Working together we can make Ireland an exemplar of modern knowledge transfer. You will find our contact details at the end of this report. I urge you to use them.

Dr. Alison Campbell OBE RTTP

Director, Knowledge Transfer Ireland

Welcome

Knowledge Transfer Ireland is a unique approach adopted by the Irish Government to accelerate the translation of the State's investment in research for the benefit of business, society and the economy.

In 2012 the Irish Government published *Putting Public Research to Work for Ireland* - revised guidelines, policies and procedures to further encourage industry, from start-ups to small and medium enterprises to multinational corporations, to collaborate with Ireland's public research performing organizations. This document is also known as the *IP Protocol*. The recommendations in the *Protocol* were made by an expert panel of representatives from the main stakeholder groups - industry, Venture Capital state agencies and Higher Education Institutes (HEIs). I was a member of that task force.

A key recommendation in the report was the establishment of a national function (at that time referred to as the Central Technology Transfer Office) with a remit to support business and the research base to maximise innovation from State funded research by getting technology, ideas and expertise into the hands of business, both indigenous and multinational, swiftly and easily for the benefit of the public and the economy. This has now become Knowledge Transfer Ireland (KTI).



Karl Flannery,
CEO Storm Technology
Chair, KTI Industry
Advisory Board

The publication of the *IP Protocol* and subsequent establishment of KTI mark a major evolution in the innovation ecosystem in Ireland. Clearly, this not an end in itself and as we learn we will need to continue to adapt and improve the system. Therefore, the Industry Advisory Board welcomes your feedback, which will ensure industry can provide informed recommendations to KTI.

KTI has an ambitious strategy and has made a strong start. The community of industry, research funders, investors, researchers and our higher education institutions working with KTI will be pivotal to the success of the endeavour and our aspirations to make Ireland a great place in which to innovate.

Karl Flannery
CEO Storm Technology
Chair, KTI Industry Advisory Board

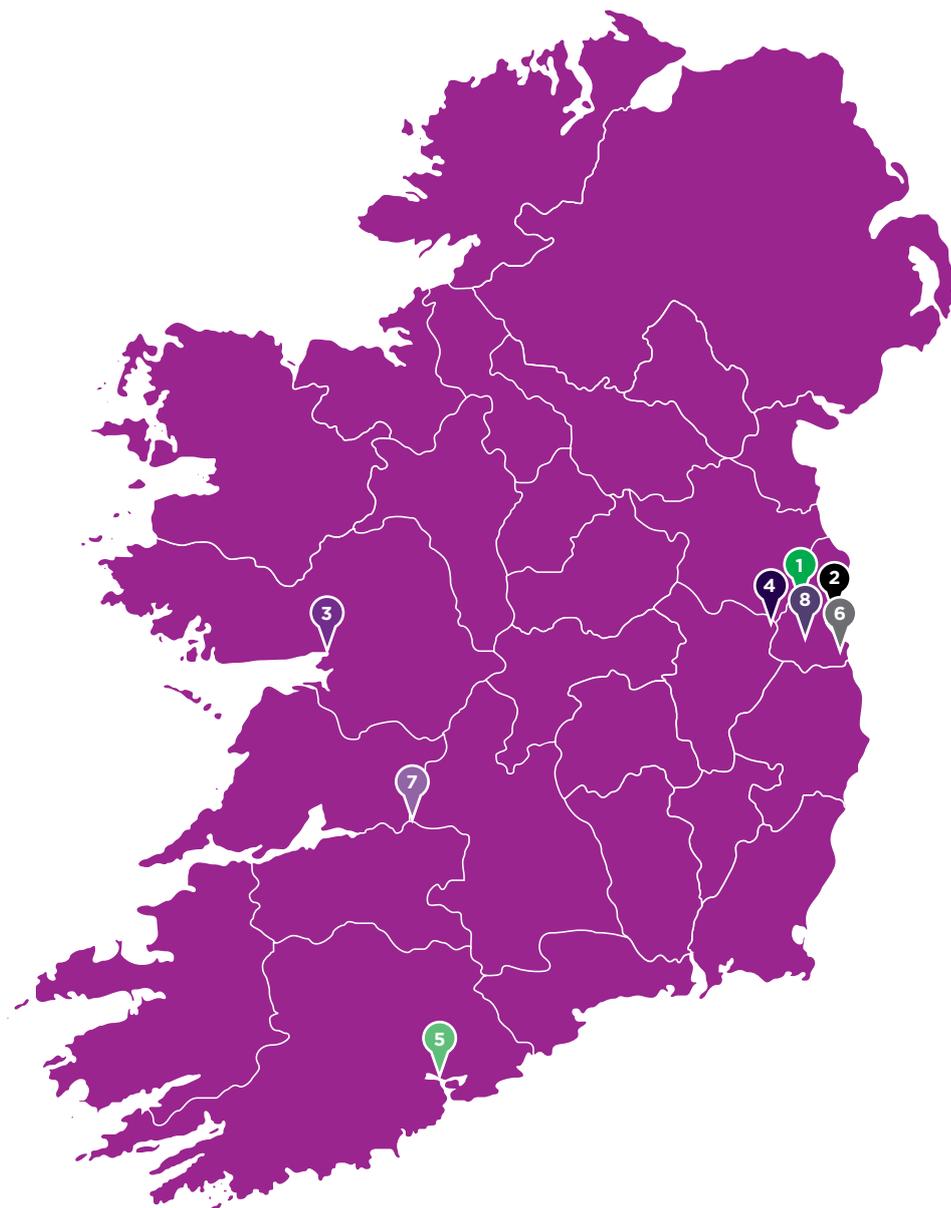
National Knowledge Transfer structure

All Higher Education Institutes (HEIs) in Ireland now either have or have access to dedicated support for knowledge transfer. This is typically through a Technology Transfer Office (TTO), Innovation Office (IO) or Industry Liaison Office (ILO). State funding to support and build capacity and capability has played a large part in this.

Two rounds of a Technology Transfer Strengthening Initiative (TTSI) programme have been deployed to date through Enterprise Ireland. The first, TTSI1, was a €30 million, six year programme that ran between 2007 and 2012. This facilitated the start of a process of developing TTOs with appropriate skills in HEIs and also provided access to funding for operational costs, including the management of intellectual property (IP), to facilitate meaningful interactions between the HEIs and business. Before TTSI1 such capability within Ireland's HEIs was very limited.

In 2012 the State committed a further €22 million to the second round of the programme, TTSI2. This investment is aimed at continuing to build knowledge transfer resources and, as part of this process, Ireland's institutes are now working together in knowledge transfer consortia to share and scale expertise. The consortia are shown in the following map.





1 **Dublin City University (DCU)**, Dundalk Institute of Technology (DKIT)

2 **Dublin Institute of Technology (DIT)**, Institute of Technology Blanchardstown (ITB), Institute of Technology Tallaght Dublin (ITTD), Dun Laoghaire Institute of Art, Design and Technology (IADT), National College of Ireland (NCI)

3 **National University of Ireland Galway (NUIG)**, Galway-Mayo Institute of Technology (GMIT), Institute of Technology Sligo (ITS), Letterkenny Institute of Technology (LYIT)

4 **Maynooth University (MU)**, Athlone Institute of Technology (AIT), Institute of Technology Carlow (ITC) and Waterford Institute of Technology (WIT)

5 **University College Cork (UCC)**, Cork Institute of Technology (CIT) and Teagasc

6 **University College Dublin (UCD)**, National College of Art and Design (NCAD) (now a college of UCD)

7 **University of Limerick (UL)**, Institute of Technology Tralee (ITT), Limerick Institute of Technology (LIT)

8 **Trinity College Dublin (TCD)**

Bold text = Lead Institution

Technology Transfer Offices' collaborations add value to company creation process

The development of strong collaborative networks of Technology Transfer Offices has been one of the major highlights of TTSI2 in 2013. The TTOs are now working closely, sharing experiences and identifying best practices. This collaborative approach is already bearing fruit.

For example, the Institute of Technology Blanchardstown (ITB) and Dun Laoghaire Institute of Art, Design and Technology (IADT) celebrated their first spin-out companies in 2013. Both worked closely with their consortium lead, Dublin Institute of Technology, to realise these results.



Reflective Measurement Systems Ltd, a spin-out from ITB, has developed a system that measures the retroreflective values and the night visibility of road markings, including “cats-eyes”. Simpler to use than existing systems, it is claimed to halve the time and costs involved for road authorities responsible for ensuring compliance with EU and US standards. Within eight months of its formation RMS acquired the exclusive worldwide licence from ITB for the ‘INFORM’ technology behind this system on which it has developed its own proprietary technology.

Vizolve, a design-led spin-out from IADT, specialises in search and data visualisation technologies. The company’s flagship product, SeeSearch, is a multi-platform cloud-based solution that searches multiple content types from structured and non-structured databases and repositories. Vizolve has raised more than €100,000 in funding and currently employs three people.

CaraMagic is a spin-out company created jointly by AIT and MU. It is developing products for a number of different sectors based on voice changing algorithms that have been licensed to the company. Its first product is a digital puppet app called MagicFriends.

KTI's Mission, Vision and Goals

Mission

To support business, the public sector and the research base to maximise innovation from State-funded research by exchanging knowledge and getting technology, ideas and expertise into the hands of business and the public sector swiftly and easily for the benefit of the public and the economy.

Vision

KTI will be recognised and respected as Ireland's central point of reference for business-research base partnership and commercialisation.

Goals

1. Enabling business to leverage the commercial potential of Irish research and innovation through connecting businesses with cutting-edge research, expertise and opportunities.
2. Taking the guesswork out of knowledge transfer through providing a predictable knowledge transfer system for Ireland.
3. Supporting, developing and building the capacity and capability in the knowledge transfer system in Ireland to deliver a first class service to business and the research community.

Overview of Knowledge Transfer Ireland

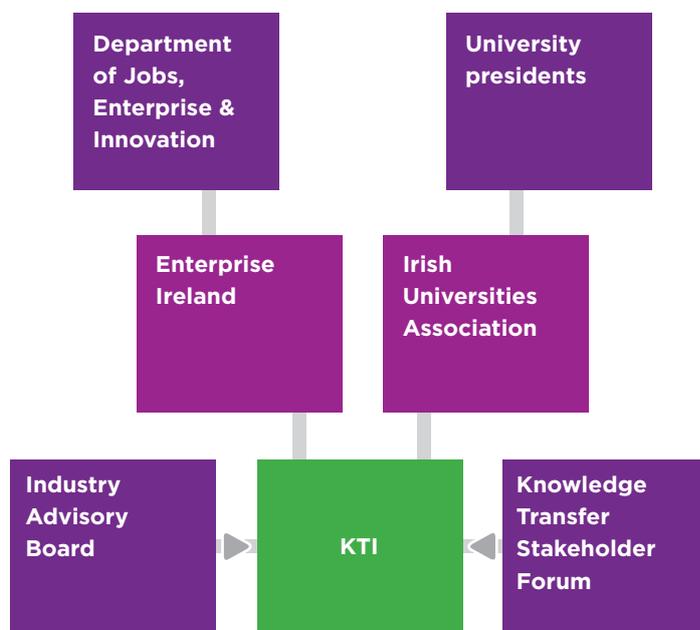
Industry and research – a winning team

KTI works with the key stakeholders of business, investors, publicly-funded research performing organisations and Government to develop a visible and predictable knowledge transfer system in Ireland to enable the impact of publicly-funded research to be realised. Ultimately the overall winner will be Ireland as companies, both indigenous and multinational, grow export turnover through bringing innovative solutions to global markets.

“Our strong relationship with Athlone Institute of Technology has undoubtedly given us the edge in a very competitive international environment,” says Mergon CEO Pat Beirne. “We are very much seen as the ‘go to’ company when someone is looking for moulding expertise. Being able to tap into the deep reservoir of knowledge that resides within AIT has helped us maintain our reputation for capability and ongoing innovation.”

Governance

KTI is supported by Enterprise Ireland and the Irish Universities Association. We are accountable to the Department of Jobs, Enterprise and Innovation and to the presidents of the Irish universities.



Industry Advisory Board

The Industry Advisory Board (IAB) has been established to support KTI in setting direction and reviewing our activities. Our advisors are industry and investment professionals with experience of working with the academic research base.

Members

Karl Flannery, (Chair), Storm Technology

John O'Sullivan, ACT Venture Capital

Mike Devane, American Chamber of Commerce Ireland

Eadaoin Collins, Department of Jobs, Enterprise and Innovation

Ena Prosser, Fountain Healthcare Partners

Malcolm Skingle, GlaxoSmithKline

Barry Kennedy, ICMR, i2e2

Alan Phelan, SourceDogg

Knowledge Transfer Stakeholder Forum

The Knowledge Transfer Stakeholder Forum (KTSF) represents the major contributors to the knowledge transfer agenda in Ireland. The KTSF meets with KTI to consider issues and initiatives with the aim of developing a shared and consistent knowledge transfer system in Ireland.

Members

Enterprise Ireland, Gearóid Mooney, (Joint Chair)

Irish Universities Association, Ned Costello, (Joint Chair)

Department of Agriculture, Food and the Marine, Richard Howell

Department of Jobs, Enterprise and Innovation, Eadaoin Collins

Health Research Board, Graham Love

Higher Education Authority, Muiris O'Connor

IDA Ireland, Leo Clancy

Institutes of Technology Ireland, (Chair), Athlone Institute of Technology, Paul Killeen

Irish Research Council, Eucharía Meehan

Irish Technology Transfer and Innovation Group, (Chair), Dublin Institute of Technology, Tom Flanagan

Science Foundation Ireland, Dara Dunican

Highlights

KTI launch

Making it easier to commercialise ideas from State-funded research

Two hundred delegates from the business and investment community, research and government agencies attended the formal launch of KTI at the Convention Centre Dublin in May 2014. Speakers at the launch included Danny McCoy, CEO of Ibec, and Kevin Sherry, Manager International Sales and Partnering at Enterprise Ireland.

The Minister for Jobs, Enterprise & Innovation, Richard Bruton T.D. said: "As of today, Ireland is the first and only country in Europe to give companies the opportunity to search multiple databases of the research talent, knowledge and technologies available in our publicly-funded research institutions. This is a significant milestone in the Government's strategy to build collaborative links between the State research sector and industry. It will lead to increased business innovation, cost-efficiencies and ultimately job creation in Irish industry."



Pictured at the launch of Knowledge Transfer Ireland were Richard Bruton T.D., Minister for Jobs, Enterprise & Innovation and Dr. Alison Campbell, Director, KTI.

KTI web portal - find, connect, transact

KTI web portal makes engaging with research simpler

The KTI web portal unveiled at the launch offers a range of resources for industry, investors, policy makers and researchers. It provides an overview of Ireland's research landscape and also enables users to obtain a detailed picture of the research capabilities of the country's universities, institutes of technology and other major research centres. The web portal provides commercial enterprises and public sector entities with a single powerful resource to leverage the potential of Irish research and innovation.

Drawing on multiple databases, the portal provides:

- Unrivalled access to new ideas and technologies available for licensing
- Links to research specialists and research facilities to optimise R&D opportunities and overcome challenges
- Technical advice on IP, licensing and commercialisation
- Direct links to TTOs and individuals within the research sector

A step-by-step guide, which explains what can be expected throughout the interaction process, is supported by check-lists and questionnaires to help prepare for meetings with the TTOs and researchers.

A series of KTI Practical Guides to contracts has been designed to make the process of contracting between business and the research base simple and understandable.

The suite of model agreements includes:

- Confidential Disclosure Agreement
- Model Licence Agreement (exclusive and non-exclusive)
- Model Option Agreement
- Model Evaluation Agreement
- Model Material Transfer Agreement

www.knowledgetransferireland.com

Success follows when you find the right partner

DecaWave: Partnering with purpose yields new products and new jobs



When DecaWave was seeking a custom-built antenna to support new applications for its ground breaking miniature integrated circuit it sought the help of Professor Max Ammann at Dublin Institute of Technology's Antenna High

Frequency Research Centre. The resulting innovation has led to new knowledge, new products and new jobs. DecaWave's new semiconductor chip, ScenSor, was launched in November 2011 and has led to the company announcing 25 new jobs.

Sonex Metrology: A marriage of technical expertise with business experience

Professor Patrick McNally of Dublin City University's School of Electronic Engineering undertook years of research into ways of applying photoacoustic metrology to detect mechanical defects in semiconductor and solar cell wafers. This resulted in patent applications covering the technology being filed in 2004 and 2009. The challenge for the scientists, however, lay in bringing the new technology to market.

In 2010 industry expert Mike Cunningham, who had been asked to evaluate its commercial potential by Enterprise Ireland, assembled a spin-out team which has enabled the company to build on its DCU research foundations through further R&D and to embark on production of the technology. As a result, Sonex has developed further IP.



Attending Enterprise Ireland's Big Ideas Technology Showcase were (from left) Mike Cunningham, CEO Sonex, Seán Sherlock T.D., then Minister for Research & Innovation, Prof. Patrick McNally, DCU, and Feargal Ó Móráin, then Executive Director, Enterprise Ireland.

State investment in technology transfer delivers on licensing, spin-outs and job creation

TTSI1

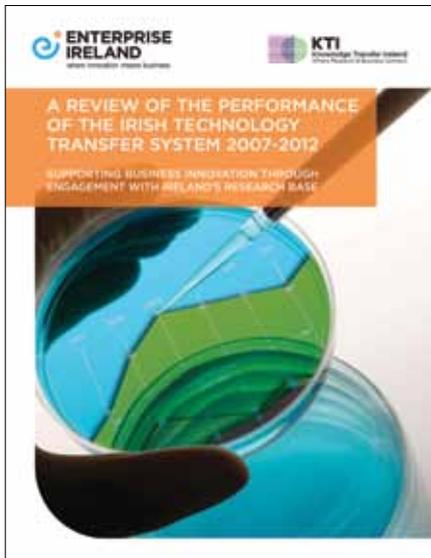
In May 2014, KTI published a comprehensive review of the results from the first round of State funding of TTOs across Ireland. Enterprise Ireland's €30 million Technology Transfer Strengthening Initiative (TTSI1) ran for six years between 2007 and 2012. By the end of the programme licensing and spin-out formation had increased significantly. KTI is responsible for managing the second round of this funding programme (TTSI2, 2013 to 2016).

By the end of 2012, the average number of LOAs executed each year was up over seven-fold (compared with the baseline year of 2005) at 85. The average number of spin-out companies created each year had risen over the same period by nearly 450% to 22.

The review included an independent study involving a sample of 65 Irish companies that had been able to access technology, IP and expertise from the Irish research base. This study identified that these companies had created or retained 1,844 jobs which they believed were directly attributable to their ability to engage with the HEI through the TTO under the TTSI1 programme. As a direct result of the programme, a further 2,128 jobs are expected to be either created or retained by 2017 by these companies.

Complementing this study, data returned to KTI by Ireland's 26 RPOs (universities, institutes of technology and State research organisations) and published in KTI's Annual Knowledge Transfer Survey (AKTS) 2013 showed that national performance in knowledge transfer is healthy.

The number of external clients with whom the TTOs worked in 2013 increased by 15% over the previous year, with 87% of companies with which the RPOs worked being based in Ireland. Contract research, fully paid for by the company (e.g. by way of Enterprise Ireland funded Innovation Vouchers) was more prevalent amongst IoTs, whilst the majority of collaborative research, which is risk sharing and where any resulting IP will be owned initially by the RPO, was undertaken with the university sector.

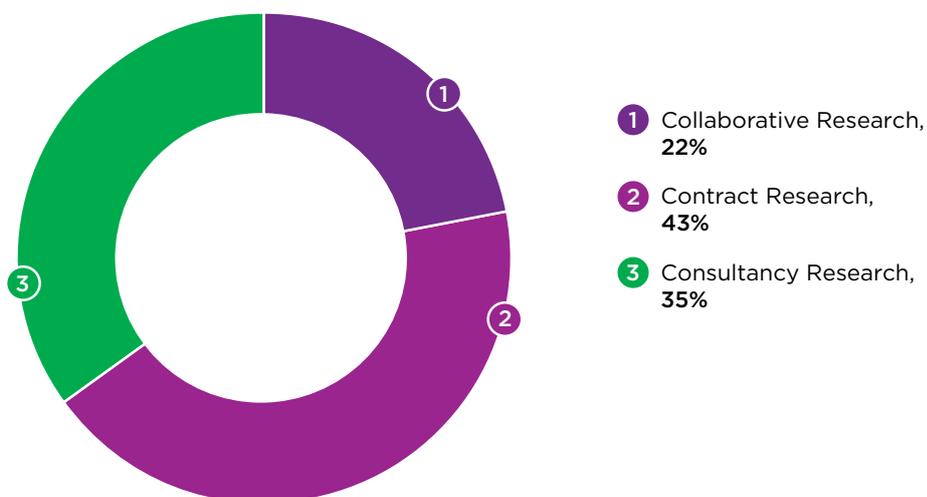


In 2013,

1,598

new partnership agreements
(collaborative, formal contract
research and consultancy)
were signed with
companies.

Partnership agreements by type, 2013



Source: AKTS 2013

Thomas Swan: Partnership creates global business opportunity

Thomas Swan (UK) entered into a directly-funded collaborative project with Trinity College Dublin in 2012, involving Thomas Swan investing €750,000 in a two-year programme with the Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN). The research has achieved the goal of perfecting a process to generate pristine graphene materials in volume – and to be able to demonstrate delivery of the project within the competitive timeframe.

Through access to expertise, novel research and a licence to Trinity's patented ground-breaking achievement, the company is now able to make graphene products in commercial volumes. The relationships forged have seen the company subsequently embark on a further collaboration at the Science Foundation Ireland funded AMBER (Advanced Materials and Bioengineering Research) centre, which is housed at CRANN.

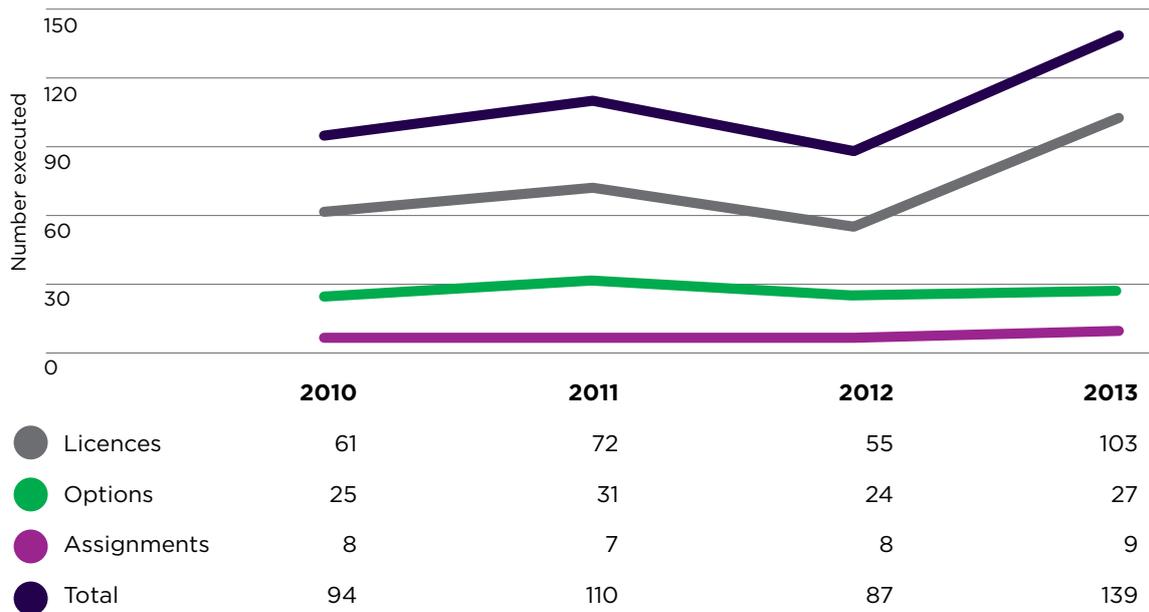


Prof. Jonathan Coleman, TCD, (left) with Harry Swan, Managing Director of Thomas Swan.

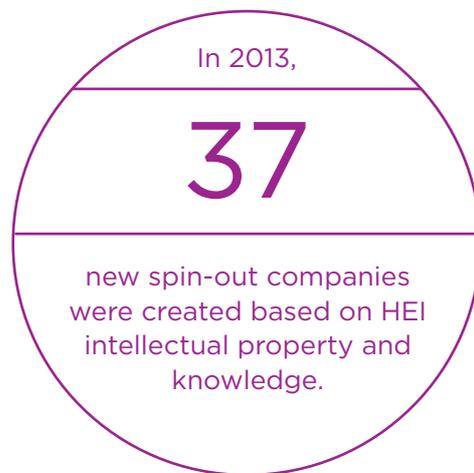
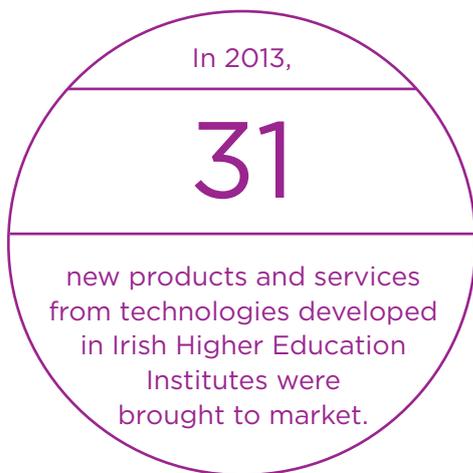
Over the past four years, the number of IP-based transactions with industry (licences, options and assignments) has increased from 94 in 2010 to 139 in 2013. Over the same period the number of patents granted to Irish RPOs has increased by 34%.

There was a dip in 2012 under most headings which was mainly due to the flux in the funding system for research in Ireland. More recent performance data for 2013 indicates a return to normal figures.

Total number of licences, options and assignments executed, 2010 - 2013



Source: AKTS 2013



Spin-out successes

OxyMem: Competing on the European stage

OxyMem, a University College Dublin spin-out company and winner of the Innovation of the Year category in the inaugural Science Foundation Ireland-sponsored Irish Laboratory Awards, has gone on to scoop a number of other top prizes. The Athlone-based company is the only Irish spin-out in a shortlist of nine competing in the 2014 annual pan European Academic Enterprise Awards, along with companies from Germany, the UK, Denmark and Switzerland.

OxyMem, which has developed a breakthrough technology for wastewater aeration, currently employs 12 people and expects to increase staff numbers to 35 by the end of 2014. Wayne Byrne, OxyMem CEO, was introduced to the project through the Enterprise Ireland Business Partners programme.



At the presentation of *The Irish Times* InterTradeIreland Innovation of the Year Award were (from left) Thomas Hunter McGowan, InterTradeIreland, Prof. Eoin Casey and Wayne Byrne, of the overall winning company, OxyMem, An Taoiseach Enda Kenny T.D. and Liam Kavanagh, *The Irish Times*.
Photograph: Brenda Fitzsimons, *The Irish Times*

Metabolomic Diagnostics: Incubation success in health sector

Metabolomic Diagnostics Ltd, a University College Cork spin-out, is based on technology and expertise in detecting pre-eclampsia. Led by CEO Charles Garvey, the company secured €750,000 in venture funding and currently employs six people, with plans to create 40 jobs. The company graduated from the UCC gateway incubation centre in 2013 and is located in Little Island, the heart of Cork's pharmaceutical and biotech cluster.



Seán Sherlock T.D., then Minister for Research & Innovation, presents Prof. Louise Kenny with the Enterprise Ireland Lifesciences & Food Commercialisation Award in Dublin.

Research2Business Awards celebrate knowledge transfer successes

KTI's Research2Business Award Series acknowledges and celebrates the impact of knowledge transfer across the State. In September 2013 the inaugural award was presented to Dr. Mark Southern of the University of Limerick (UL) by Seán Sherlock T.D., then Minister for Research & Innovation. It recognises Dr. Southern and his team's sustained engagement with industry that has delivered significant impact for business in Ireland.

They are considered to be one of Ireland's leading groups in enabling manufacturing change to boost productivity, output, employment and profit. Dr. Southern has received over €4.6 million in research funding so far, 23% of which has come from industry. The team's collaborations with a substantial number of companies across a range of different sectors has led to the creation of over 100 new high-end manufacturing jobs in Ireland, in addition to sustaining core employment in these

companies and enabling them to secure substantial new export sales. As a result of these collaborations many members of Dr. Southern's team have moved into research partner companies over the years.

An award was also presented to Dr. Mary Shire, Vice President Research, at University of Limerick to recognise the active support and encouragement given to the academic research community at UL to engage in collaborative projects with industry and to promote knowledge transfer.

A further three researchers with outstanding track records of successfully engaging with industry were shortlisted for the inaugural award: Dr. John Breslin (NUI Galway), Prof. Willie Donnelly (Waterford Institute of Technology) and Prof. Luke O'Neill (Trinity College Dublin). All continue to deliver major impact for established and emerging companies and for the early stage career researchers within their teams.

Dr. Mark Southern,
University of Limerick,
Senior Research Fellow,
Enterprise Research
Centre



Dr. John Breslin,
NUI Galway,
Lecturer and Research
Leader at the Insight
Centre for Data
Analytics



Professor Willie Donnelly,
Waterford Institute of
Technology, Vice
President of Research
and Innovation,
Director of the
Telecommunications
Software and Systems
Group (TSSG)



Professor Luke O'Neill,
Trinity College Dublin,
Chair of Biochemistry,
Academic Director
of the Trinity
Biomedical
Sciences Institute





At the 2013 Research2Business Awards Seán Sherlock T.D., then Minister for Research & Innovation presents Dr. Mary Shire, Vice President Research and Dr. Mark Southern, University of Limerick, with their Research2Business Awards, accompanied by Paul Dillon, Director, UL Technology Transfer Office (left) and Dr. Alison Campbell, Director, Knowledge Transfer Ireland (right).

The Team

At KTI we come from diverse backgrounds. Some of us have worked in senior roles in industry, others bring years of experience in the knowledge transfer sector or public administration. We combine our complementary experience with a shared passion for responding to and meeting the needs of our stakeholders.



Contact

At KTI we welcome an open dialogue with all our stakeholders. To talk to us and to find out more about our work:

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