

## **Innovation through Collaboration: Advancing Business through Collaborative Research**

Speakers at Knowledge Transfer Ireland's annual conference on 18 November 2016 shared their insights on how collaboration between research and industry drives innovation and improves competitiveness.

The conference, held at Killashee House Hotel, was attended by over 200 people involved in tech transfer, including members of industry, higher education institutions and professional service firms. Delegates received copies of the KTI Practical Guide on Collaborative Research Agreements and the latest Directory of Innovation Supports, Research Centres and Technology Centres.

Karl Flannery, Chair of the KTI Industry Advisory Board, welcomed delegates and noted the strength and popularity of this year's KTI Conference, with numbers up nearly 40 percent on last year.

"Research collaboration is a good way to access skills, resources and expertise that don't exist in companies. This drives innovation and companies active in R&D typically outperform their peers," said Flannery. "Given the events in the UK this year, we need to ensure that the ecosystem we are building here continues to evolve and thrive for the obvious economic and societal benefits for young people."

Opening the conference, Minister for Training, Skills and Innovation, John Halligan TD said innovation through collaboration was particularly important for Ireland which needs to remain competitive at a time of greater uncertainty globally.

"In 2015, €736 million was invested by Government in the public research system and the belief is that research and technology is the way forward. There is an increase in the 2017 budget of €17 million for R&D," said Halligan. "The work of KTI is crucial in providing a portal through which the relevant supports available from our RPOs can be identified and connected and worked on actively."

### **Research Collaboration at Work**

Panel:

- John Barron, Managing Director, Reagecon Diagnostics
- Phil Harris, Group Leader Networks & Embedded Systems, UTRC
- Carolyn Hughes, Business Development Director (Physical Sciences), Invent, DCU
- Breda Lynch, Industry Programmes Manager & TT Manager, AIT
- John O'Donohue, Chief Executive Officer & Founder, ENBIO

Reagecon Diagnostics, the largest global manufacturer of physical and chemical standards, engaged in a strategic innovation partnership with Limerick Institute of Technology (LIT).

UTRC set up a European research hub in Cork due to the ease of access to academics and the research community in Ireland. UTRC engaged with University College Cork (UCC) in particular, and Cork Institute of Technology (CIT) and the University of Limerick (UL), to build a European focused research agenda. They employed people from the universities and made significant investments, recently announcing a \$1.5 million investment in the Insight Centre for Data Analytics at UCC. They secured more than €7 million in EU funding.

T.E. Laboratories provides analytical services such as environmental water testing and fuel analysis. It saw an opportunity to expand into autonomous sensing platforms and identified relevant technology in Dublin City University (DCU) in the National Centre for Sensor Research. A target project at the Insight Centre for Data Analytics enabled DCU to offer additional expertise.

Shabra Group is in polymer recycling and reprocessing. The initial project with Athlone Institute of Technology (AIT) focused on identifying particular streams of incoming waste material for higher value uses. A second project is looking at material modifications on the reprocessing side to fine tune product for particular customers.

ENBIO works with the European Space Agency (ESA), with help from Enterprise Ireland, and works closely with the university and third-level sector. ENBIO started as an orthopaedic company but pivoted and moved to NOVA UCD in 2011. Current products include a titanium coating to absorb energy from the sun and a product licensed out of UCD to address an unmet ESA need.

### **Key takeaways**

#### **The importance of strategic fit**

Reagecon finds working with LIT effective as the institute is more compatible in terms of size than a very large institution.

Reagecon clearly communicated its business strategy, and how it fit with the research, at every level in LIT.

Having a core team in both the company and AIT adds value to Shabra. AIT understands Shabra's systems while Shabra understands AIT's capabilities.

#### **Access to expertise and equipment**

The work carried out by UTRC with UCC, CIT and UL has shown business units in Europe and globally that they should be looking to researchers in Ireland.

The quality of work delivered by its research partners here ensures UTRC will continue to grow these relationships.

AIT helped Shabra build capacity and establish an R&D facility. Shabra gained access to expertise and a particular piece of high tech analytical equipment.

Having a college setting and network to work in (which every company can avail of) empowers industry.

The big change now is researchers that can dedicate themselves to the work. The system makes available full time researchers and principal investigators.

#### **Proactive collaboration partners**

T.E. Laboratories were active partners with DCU and put a lot of their own resources behind development including regular project meetings. They planned well for the knowledge transfer.

Some companies are focused, have regular meetings, and plan for the technology transfer. Proactive companies get the most out of the collaboration.

#### **Building relationships**

The key is meeting researchers and forming relationships. It takes time and effort but is worth it. The investment pays off.

Work closely with PIs and researchers and go with them to meet a company. Always have more than one office involved.

Don't underestimate the power of a conversation. This often allows one collaboration partner to see an easier way to address a problem than the other.

#### **Leveraging state supports and European funding**

It's vital to have an academic partner that understands how to help you and how to avail of the right type of state aid.

It's not about "taking money out," it's about delivering something and justifying that money.

## Growing the future research talent pool

To enable more rapid scaling of the size of the research groups in academia, research partners should move to framework type agreements so that the universities have certainty about long-term sustainability.

More work could be done with undergraduates. They build confidence working with a company and are more likely to take on post-grad opportunities.

Companies should engage with the college sector, start programmes, find people they can work with; it doesn't cost a lot to build a recruitment base.

If companies engage with colleges and third-level institutes to retain highly trained people, it stops graduates from going abroad and boosts the economy.

## Perspectives on R&D

- Anil Kokaram, Trinity College Dublin

Having joined Trinity College Dublin in 1998, Anil Kokaram conducted research into motion picture restoration which led to collaborative work with UK-based software developer the Foundry. In 2007, Kokaram and three members of the Foundry won an Academy Award for the development of visual effects software for the film industry. He set up Green Parrot Pictures to try and push cinema technology into cameras and smartphones and the company was acquired by Google/YouTube in 2011.

Kokaram described his work with Google and YouTube over the past five years, fine-tuning slow motion technology. "Making it work for YouTube was making it work for millions and the challenge was quite different so we had to go through another iteration of the feedback loop between research and product development."

### **Key takeaways**

Simple, clearly defined agreements allow parties to get on with the collaboration.

Increase the breadth of conferences that you attend and go to industrial conferences.

Making connections by presenting at industrial conferences and forums is particularly useful because you make connections with people who might be interested in using your technology in different ways.

It's very important that you get on well with your collaboration partners as you're going to be spending a lot of time with them.

You have to be able to take criticism from people. Don't be precious; take feedback that helps you make better research decisions.

## Things Can't Possibly Go Wrong

- Maureen Kelly, Consultant Solicitor, Keystone Law

Maureen Kelly is a consultant solicitor at Keystone Law with experience in contracting, research, legal agreements, start-up licences and collaboration agreements.

### **Key takeaways**

Contracts document relationships. A contract can't make a bad relationship good, but a well-written and well-negotiated contract will help all parties.

Think of contract negotiation as a journey. Who do you meet? What do you learn? What do you gain?

The finance team is often left out or not involved sufficiently early. It is also important to spend time with the insurance broker to make sure the cover is appropriate.

The patent attorney advises on existing technology or the results of planned research.

Once you start to discuss a research contract, the other party may ask for warranties. That prompts an essential conversation about background IP.

Really drill down to understand each other's plans and needs. It's almost always possible to accommodate them if the conversation is open and honest enough.

Avoid the temptation to grab a template, or the last deal you did, and work from there. Heads of term templates are a great starting point because they force you to stop and ask what this deal is about.

The benefits of contract negotiation include the delivery of appropriate due diligence on the technology and clarity as to who's putting in what.

Unless the IP, money, equipment and time are documented, your view of reality and the other party's can be very different.

Contact negotiation helps achieve a balance between what companies and academics want. Companies need secrecy, but not with everything. Academics need to publish, but they don't have to publish everything. Contract negotiation accommodates that.

The negotiation process caters for the indemnities, the warranties, IP risk and governing law (which can take up an inordinate amount of time).

Contract negotiation takes time. A paper contract is an essential by-product of the negotiation but the primary thing is to build a relationship; that takes time.

Watch costs. Solicitors should be able to provide a fixed price for a first draft agreement if you have a clear outline.

You're not looking for the ideal outcome or contract, but a fair and balanced one that will last.

### **Encouraging Research Collaboration – A Global View**

- Rupert Osborn, CEO, IP Pragmatics

Rupert Osborn works with academics and industries across the world advising on research collaborations, commercialisation, and strategy and policy. He was involved in the review of the UK's Lambert Toolkit, which provides model agreements and guidance for use in negotiations. He also worked with KTI on developing its practical guides for collaborative research agreements.

#### ***Key takeaways***

We're seeing a move from smaller individual relationships between industry and universities to an increasing number of larger, longer-term strategic partnerships. These larger collaborations are bringing more complexity.

Instead of being obsessed with tech transfer in licensing and spin-outs, we should be looking more at collaborative research and other types of engagement with industry.

Collaborative research and consultancies with companies generate ten to twenty times more income for universities than IP revenue.

While it's important to have a centralised database of tech transfer information, the universities that are going to win collaboration contracts are the universities that get out there and talk to industry. It's all about personal relationships and legwork.

There is a rise in corporate portals through which RPOs have to send their technology opportunities.

We're seeing much more in-depth interaction so it's not just money coming from the company – it's know-how, materials, sharing researchers and embedding people together. Inevitably that raises more concerns about IP and the issue of joint IP and how you solve that.

The Downey Report examines what makes collaboration successful and all the top issues are about relationships and building trust.

From the RPO and academic side, we see that people could be better prepared in terms of knowing what the opportunity is and knowing whether the IP is an issue.

Things like the Lambert Toolkit and KTI's model agreements are being shared around the world so you'll have consistency across how companies in different areas work with universities.

In the United States, they've set up the University Industry Demonstration Partnership (UIDP) with the aim of getting people to talk about the issues around contracting between universities and companies.

The UIDP provides contract accords which are Wiki-type references for different issues that arise within collaboration agreements. They're well worth looking at and available on the web.

Across the world governments are keen to grow the volume of interactions between universities and industry to underpin their industrial growth strategies.

Ultimately, it's all about the academics and the science. It's they who have to drive the interaction with industry.

## Summary and Close

- Alison Campbell, Director, Knowledge Transfer Ireland (KTI)

Alison Campbell said Ireland could be proud of its research expertise which is highly valued by both its SME community and large multinationals.

"A recurring theme today has been the importance of research and industry talking and exploring new opportunities. In the three years that I've been in Ireland I have seen an increase in the volume, complexity and quality of collaboration between research and industry. I've also been particularly struck by the way in which these interactions occur across institutions and across the country and how there is a genuinely shared agenda," she said.

"We've heard a lot about Brexit and we understand how important it is to have a good industrial strategy, and how important innovation and competitiveness are. I don't doubt that we have a really dynamic [tech transfer] culture and community here."