

The Dowling Review of business university research collaborations Submission by PraxisUnico, March 2015

PraxisUnico is pleased to have the opportunity to inform this review on behalf of our members. We look forward to making further contributions at the intermediaries workshop scheduled for 26th March at the Royal Academy of Engineering.

Q1. What experience do you have of establishing, participating in or supporting long-term research collaborations with expertise and interest in this area?

PraxisUnico is the UK's leading professional association for research commercialisation practitioners. It has 2889 members from 126 universities and public research organisations and 37 professional service providers and other commercial organisations. Members are engaged across the whole range of knowledge exchange activities to support commercialisation and collaboration in academic and public sector research for economic and social benefit. PraxisUnico provides a voice for the sector and facilitates interactions between universities, public sector research organisations, business and government. It is a founding member of the global Association of Technology Transfer Professionals and has delivered professional training to around 3000 individuals from 40 countries.

The UK's technology transfer (TT) profession is recognised as world leading and UK performance in business partnerships and global income is very good in terms of global comparisons.¹ PraxisUnico supports and enhances the UK's reputation by delivering professional training programmes around the world, promoting best practice in knowledge transfer (KT). This includes courses for new and experienced practitioners, including a 'Developing Strategic Partnerships' course that addresses the skills needed to stimulate new business, grow, and maintain strategic alliances between knowledge generators in research organisations and commercial partners.²

PraxisUnico works with key stakeholders to inform and influence public policy around research commercialisation and knowledge transfer. Our close working relationships include HEFCE, the Department for Business, Innovation and Skills (BIS), the UK Research Councils, the National Centre for Universities and Business (NCUB), Innovate UK and the UK Intellectual Property Office. We are ideally positioned to comment on the motivations and mechanisms for collaboration between business and university researchers in the UK, the varying effectiveness of different models and the important factors underpinning success in the long-term and routinely respond to consultations on relevant subjects.

We recognise the contribution of sister organisations in this space; notably the Association for University Research and Industry Links (AURIL) with which we have collaborated and shared platforms to represent the KT profession. We fully endorse the comments made in AURIL's submission to the review panel.

¹ Such as the 2014 Global Innovation Index, <https://www.globalinnovationindex.org/content.aspx?page=GII-Home>. The UK was ranked 2nd behind Switzerland.

² See <http://www.praxisunico.org.uk/training/>

Q2. What are the key success factors for building productive, long-term research partnerships between business and academia and how do these vary across sectors and disciplines?

The components of successful partnerships can be summarised as follows:

- People: research partnerships are a people business which may be underpinned by legal frameworks and agreements. Like all collaborative partnerships, interactions between universities and businesses work best when both parties are able to invest the necessary resources (largely time) in gaining a mutual understanding of culture, priorities and drivers or KPIs. A particularly effective way of getting to know respective cultures is to invest in secondments to and from industry and to fund active networking, for example through fellowships. Professionally skilled TT/KT teams can also facilitate relationships which take in to account and reconcile the aims of both academic and commercial interests.
- Willingness to take risks on the demand side: Even in sectors where collaboration is common, such as biotech/pharma, there is a huge difference in companies' attitude to risk; generally better relationships are formed with those that are more willing to take risks.
- A portfolio approach to activities (e.g. research, IP licensing, CPD, student placements): Collaboration isn't just about money and long-term relationships benefit from several points of engagement between organisations where activities may move at a different pace but ultimately support the same overall goal(s). This engagement should be supported by long-term relationship management to build partnerships over time within and across institutions.
- Flexibility of funding for collaboration: the ability to support small-scale interactions, promote shared cost and risk makes for well-balanced discussions with potential partners. This works with large and small companies / universities.
- Longevity of funding mechanisms: in order to build up expertise in using funding schemes there needs to be greater stability in the funding environment. Simplicity of use and speed of decision making is also key to productive partnerships.

In this context we refer the panel to the CBI's business-university collaboration guide 'Best of Both Worlds' which presents the benefits and challenges of collaboration, along with tips for success³ and the Big Innovation Centre's (BIC) 2013 report 'Collaborate to Innovate' which highlights the distinct contributions of academics and institutional support staff in initiating and developing research collaborations.⁴

³ CBI, 'Best of Both Worlds: Guide to business-university collaboration', January 2015, p.14.

⁴ Big Innovation Centre, 'Collaborate to innovate: How business can work with universities to generate knowledge and drive innovation', November 2013. See in particular Chapter 6.

Intellectual property (IP) has been perceived as a potential source of difficulty in relations between universities and businesses at least since the time of the Lambert Review of Business-University Collaboration in 2003.⁵ In order to establish a successful relationship, businesses and universities need to be clear about their approach to IP from the outset but also recognise that IP is only a small component in a long-term business-university relationship. In our experience the most successful partnerships are where a pragmatic approach to IP ownership has been taken on both sides, recognising that what is important is not ownership per se but that each party has the rights that they need (for companies, to develop products and provide protection from competitors, and for universities to carry on research work in the field).

“In many cases the biggest contribution that is made to business innovation is when the originators of IP in universities share their perspectives with business, develop trust and work together towards common goals. Often these goals are not spin-out companies nor licences but rather a long-term collaborative relationship where mutual understanding of motivations develops and each partner respects the other’s strengths.”⁶

The partnership and trust aspects of collaboration heavily outweigh most other factors including sector specialism. However, it is true that there are factors particular to sectors and disciplines that will affect the nature of a collaboration; for example, discussions around the treatment of IP which will be considerably different in the life-sciences / pharmaceutical sector where valuable patent-based IP assets are built over a long period when compared with software and the creative industries, where speed to market and frequent reformulation of products are prioritised and IP protection is likely to rely on copyright, trademarks and design rights. Specific TT/KT expertise is valuable in recognising the differing requirements of disciplines.

Q3. What barriers do individual businesses face in developing long-term research collaborations with academic partners and how can these be overcome?

The barriers for businesses to developing long-term collaborations are interpersonal and institutional. The initial challenge is likely to be identifying a university that has skills and knowledge of interest to the business and where these are located. Despite the provision of dedicated points of access for business, first contacts are often made with individual academics who may not have a broad awareness of university knowledge assets and so may not be able to refer companies to colleagues with appropriate or complementary interests. The problem of locating and initiating contacts is being addressed by a number of projects including the NCUB Intelligent Brokering project and ResearchResearch’s ‘Unity’ platform.⁷ The issue is also explored in detail in the BIC report.⁸

⁵ The Lambert Review of Business University Collaboration, December 2003

⁶ LiSAB/ISF consultation: "Intellectual assets at the university-business interface: seizing the opportunity" AURIL and PraxisUnico, October 2014, p4.

⁷ See <http://www.researchresearch.com/knowledge-innovation-network/>

⁸ Ibid., 5

Many large companies, such as GlaxoSmithKline, have a strong track record in outreach to the university community and have dedicated staff to support HEI engagement. Others, like Boeing, have multiple preferred university partners with whom they have developed a long-term and strategic relationship. Some, like Syngenta, have formal processes for evaluating and responding to proposals from potential partners. This streamlines the partner selection process and minimises the cost of unsuccessful engagement. However, many collaborations start from discussions between individuals rather than a specific, corporate, decision to collaborate and smaller companies particularly may lack resource (time, personnel, money) for external engagement. They therefore need incentives and support to establish and develop productive relationships.

Universities respond to these demand-side challenges by creating structured support for engagement, with a diversity of solutions across the sector. These include identified teams (e.g. Business Partnership Managers) tasked with proactively seeking partners and supporting engagement. Technology Transfer / Research Collaboration Offices staff are important in supporting academics' interaction with businesses once a relationship is formed, particularly as providers of administrative, legal and coordination support with professional expertise. Universities continue to seek better mechanisms to enable easier interactions. The Lambert toolkit of model agreements provide clarity on the legal basis of engagement and have been widely welcomed, although there has been reluctance on the part of businesses to adopt them. Similarly the EasyAccess IP initiative, devised by a consortium of UK universities, aims to make it easier for companies to approach a university and to provide a simplified approach to licensing IP where appropriate.⁹

Q4. What barriers do academics and universities face in developing long-term research collaboration with businesses and how can these be overcome?

The barriers for academics and universities mirror the issues raised above in respect of businesses, being both interpersonal and institutional. The BIC research showed that business-university relationships most frequently originated at meetings, conferences or networking events, or when firms contacted academics directly or vice versa. The role of institutional support therefore is focused on nurturing promising relationships and supporting academics by taking on the administrative and legal tasks which provide the context and framework for collaborations.

As with businesses, the cost and availability of specialist staff skilled in supporting engagement with businesses is a consideration. The support given to universities by government has been crucial, specifically HEIF funding and the equivalent in the devolved nations, which has been used in many ways according to universities' third-stream engagement strategies. Its value has been in providing institutional support for research collaborators in terms of skilled support personnel and also in terms of funding discrete activities such as academic-business networking which otherwise would go unfunded, coupled with the ability to co-invest in collaborative projects, reducing risk and building trust.

⁹ A review of the EasyAccess IP scheme is to be published by NCUB in March 2015.

One of the principal barriers to developing long-term collaboration is the low level of investment in innovation by businesses, coupled a reluctance in some sectors to make long-term commitments and take risks. The low level of R&D spend by UK companies is clearly demonstrated in reports such as the annual Thomson Reuters Global 100 where no UK company has featured since 2011.¹⁰

Despite this, knowledge exchange (KE) income continues to grow and demonstrates the attractiveness of universities as innovation partners. The 2014 HE Business Community Interaction (HE-BCI) survey found income growth across all KE categories. However, the cash contribution to collaborative research income from external partners declined.¹¹

Q5. How effective are current incentives, policies and funding streams for promoting this type of collaboration? How could these be improved in order to scale up the range and impact of collaborations being undertaken nationally?

The inclusion of impact criteria in the 2014 REF has had a positive effect on how university-industry collaborations are viewed and valued, with some PraxisUnico member universities reporting that "...the connection of quality Case Studies (that drive the benchmarking of academic staff and departments within the REF) to greater interaction with industry is a key motivation and enabler for [the university] to become more effective at engagement with businesses and KT. Creation of case studies with economic impact may provide the missing motivation for many academic staff to engage with businesses".¹²

As noted above the HEIF stream has contributed significantly to the ability of universities to develop collaborations by providing finance to stimulate and support areas of multi-disciplinary collaboration which respond to industry needs (rather than supporting single academic disciplines). HEIF has been used across a very wide range of activities, all of which have the objective of attracting and securing industry engagement for the long-term. For example, one university reports a ten-fold return in activity and value as a result of using HEIF to invest in business relationships. HEFCE estimates that the return on public investment from HEIF knowledge exchange funding is about 6:1.

Alongside HEIF, the QR funding stream supports innovative activities within universities, enabling them to respond flexibly and proactively to opportunities, such as forming multidisciplinary research networks, as a way of engaging with industry sectors or individual business partners. The link between QR funding and third-stream income was made in a HEFCE-commissioned report, which underlined the importance of QR funding for specific activities and also for enabling universities to leverage additional funding from

¹⁰ Thomson Reuters, Top 100 Global Innovators <http://top100innovators.com/> . Unilever was the only UK company to feature in the 2011 survey.

¹¹ HE Business and Community Interaction survey, June 2014, <http://www.hefce.ac.uk/pubs/year/2014/201410/#d.en.87367>

¹² PraxisUnico, 'Business-University Collaboration', response to the HoC Business, Innovation and Skills Committee, April 2014, p.6

industry.¹³ The availability of dual-funding support means that universities can respond to opportunities which occur locally and which fit their particular research strengths and /or strategies for achieving impact.

Funding for collaboration varies amongst the UK's research councils depending on the type of collaboration being undertaken and the partners involved. The diversity of funding amounts and schemes available across the research councils reflects the differences in sector and disciplinary priorities but the number, complexity and rate of change of funding schemes can be off-putting for business. Large-scale and multidisciplinary collaborative funding competitions are also becoming more common and such schemes require industry and other partnerships, often with match funding, and so act as an incentive to develop external links.

Innovation voucher schemes which fully or partly cover the cost of small consultancy projects have been widely trialled, but take-up has been disappointing and the outcomes mixed. Innovate UK is currently reviewing how its voucher scheme and more sophisticated support measures such as Knowledge Transfer Partnerships (KTPs) can be better integrated to give a "ladder of engagement" which will help to build more durable relationships, and this is to be welcomed. The KTP scheme is squarely aimed at supporting transformational change in businesses through engagement with universities. Uptake by universities is patchy though and the administrative requirement is considerable. However, the programme's longevity means that it is possible to build up and retain expertise on how to use it and many excellent and ground-breaking projects have resulted.

Overall, businesses and universities both need greater simplicity and stability in the funding environment in order to take long-term decisions about resourcing partnerships, which may require strategic level decisions, for example to fund research facilities. Clear signposting on the applicability of schemes for different types of collaboration and collaborative partners is also valuable and it is important for funding decisions to be reached quickly; business priorities have often moved on by the time a decision on funding is made.

Q6. How can progress under the Industrial Strategy be harnessed to stimulate collaboration between business and researchers in the UK?

The sector councils created as part of the Industrial Strategy are at different stages in their work with limited representation from the university sector. Where councils have set up Catalyst Funds for investment in R&D projects (the Agri-tech Catalyst and the Biomedical Catalyst) universities have benefitted from the opportunity to put forward collaborative projects with business and some have received funding for university-only feasibility studies. It is not clear whether the potential for Catalyst funding has prompted collaboration, but it seems that funds have supported existing or embryonic partnerships to develop and is welcomed. Innovate UK has provided the platform for competitive applications and we

¹³ HEFCE (2014), PACEC and the Centre for Business Research, University of Cambridge 'A Review of QR Funding in English HEIs. Process and Impact' <http://www.hefce.ac.uk/pubs/rereports/year/2014/qrrreview/>

support the publication of strategies and early announcement of timelines for competitions so that potential partnerships can form well in advance of competition deadlines.

The work of the Catapults is also at different stages. Earlier established Catapults have strong university links. For others, it is not yet clear what the relationship to universities will be and there is concern as to how university researchers and knowledge exchange professionals will engage with them and whether in fact the roles of Catapults and universities will overlap, leading to uncertainty and potential competition for resources.

Local Enterprise Partnerships (LEPs) have progressed in terms of university representation on their boards and are important to universities in their local environment. There are some good examples of engagement, in Oxfordshire and Northamptonshire for example¹⁴, but nationally the picture is patchy and this gives cause for concern. The smaller geography of the LEP areas compared with the former regions means that a university's partnership connections frequently may not map onto a single LEP area, making participation in LEP schemes to support university-business collaborations more complex. It is probably true to say that the mechanisms for working with LEPs, with the businesses that they represent and in terms of business creation, are still being established in the post-RDA environment.¹⁵

Q7. Which models of collaboration have proved most successful for stimulating SME engagement with the research base in the UK? What additional action needs to be taken to strengthen UK performance in this area?

It should be recognised that only a small proportion of SMEs can benefit from university research, partly because of lack of resources for external engagement and partly through lack of awareness of the possibilities for engagement. The focus of engagement strategies should be on making it easier for the SME that has the capacity to engage and to help them find what they need, rather than on universities finding SMEs to engage with. SMEs come in all shapes and sizes, and degrees of knowledge intensity. There is often an underlying policy philosophy that the right university for an SME to interact with is the local one. But the right mix of skills, experience and equipment is worth travelling for to develop a successful collaboration, and policy should facilitate this. Brokering initiatives, such as those referred to above, may help although take-up of existing schemes, such as the European Innovation Network, has been low.¹⁶

Where a university interaction with an SME is successful the company can be expected to grow or be acquired and further interaction would then no longer be eligible for any enhanced weighting which would be a poor reward for a successful intervention. The panel might consider whether there are any demand

¹⁴ For example, see the case study of the Northamptonshire Enterprise Partnership <http://blog.universitiesuk.ac.uk/2015/02/25/third-mission-northamptonshire/>

¹⁵ The role of LEPs in the university-business landscape was much discussed in both the Wilson and Witty reviews.

¹⁶ See <http://ebn.be/>

side incentives that can be given to high growth potential SMEs to encourage engagement with appropriate university partners.

Q8. Which approaches/sector/organisations - in the UK or internationally – would you identify as examples of good practice in business-university collaboration with the potential to be applied more widely?

Firstly, we would like to highlight the many case studies of good practice published online and annually by the National Centre for Universities and Business (NCUB).¹⁷ We would also re-emphasise the value of model agreements such as the Lambert agreements and Russell Group Studentship agreements in reducing transaction costs between universities and business and we would like to see greater use of such agreements by businesses.

We also point to the success of the SETsquared enterprise collaboration project¹⁸ which was ranked first in Europe and second in the world in the University Business Incubation (UBI) index in 2014 – an exceptional achievement. This HEIF funded initiative is a focus for enterprise activity and new business creation for its five university partners, all of which share a key aim to develop strong relationships with industry and commerce through knowledge exchange.

Finally, Proof of Concept funding has been shown to be important in taking research outputs and moving them closer to the marketplace within universities, de-risking them for uptake by companies. The sources of funding that have been used for this include HEIF and Impact Acceleration Accounts from research councils, and these funding sources should be protected and bolstered if at all possible.

End.



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¹⁷ See <http://www.ncub.co.uk/success-stories.html>

¹⁸ See <http://www.setsquared.co.uk/>