Unlocking more value through Tech Transfer

Wednesday 29th March 2017

Summary document

The BIA's Science & Innovation Committee brought together representatives from across the biotech/healthcare community to discuss technology transfer. This followed the recent Dowling Report, and also the evidence given and the subsequent report by the House of Commons Science and Select Committee on managing academic intellectual property. The BIA's intention is to address some of the issues highlighted, such as friction around IP licencing, by bringing together all the relevant parties, and encouraging open dialogue.

The government is developing an Industrial Strategy encompassing biotech/healthcare, and through the Higher Education and Research Bill, has created a new UKRI research funding and translational governing body. It is clear that the government want to see more productivity from the country's research base, into which it heavily invests.

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It was discussed that there is **no single owner of technology transfer**, that it takes the whole biotech/healthcare community[1] to convert ideas and inventions into products and services of economic and social value.

Academic-industry collaboration in the UK is vibrant and healthy. Over £3.9bn of funding comes from industry in to universities and institutes, with a target to see this increase to over £5bn by 2025[2].

What is often not appreciated is that revenues from licencing academic intellectual property (IP) represents **less than 3%** of this in financial terms. Yet this is the part that experiences most emotion.

The are **many different ways** to facilitate converting ideas in to products. The fact that there are multiple, diverse routes is a positive. The wider community jointly responsible for technology transfer is not looking for a homogenous approach, or a reversion to centralisation.

IP licencing is complex. There are multiple stakeholders and co-owners of IP including the inventors themselves, and may also include their host institution, the institution's technology transfer office (TTO, often a separate legal entity), and funders including government, charities and industry.

Since the Lambert Reports 10 years ago, it is acknowledged that technology transfer, is **not primarily a profit a making activity**. It has to be viewed as a long term creator of economic and social benefit. Unfortunately a few headline large licences create an impression that the activity is highly lucrative; the reality is that the **majority of HEIs lose money on the activity**. IP licence revenue generation is a poor metric on it own. Note, IP licenced to companies often sees sponsored research result back to that HEI. This has more immediate financial impact potentially for the institutions.

[1] Inventors, consultants, advisors, funders (government (Research Councils, Innovate UK), charities (incl. Wellcome Trust, CRUK), angels, venture capitalists, industry incumbents, entrepreneurs.
[2] PraxisUnico KE&C Report, 2016 and 'Fixing the Foundations' HM Treasury and BIS, July 2015.

Idea triage is a core task (evaluating which ideas to protect and pursue), that preferably involves direct input from customers and the market. Multiple examples of good practice exist, as well as funding mechanisms to prove the concepts of inventions. These are applauded and encouraged. Further ways of involving **external specialist parties**, such as charities and Catapults could be considered.

There is a need for **greater understanding of the different roles and responsibilities** of the different stakeholders. This is sometimes unclear to the inventors themselves. Those outside HEIs need to understand more clearly the roles, obligations and constraints of TTOs specifically.

IP co-ownership must also be transparent to all. For instance, it is often not appreciated that the IP co-ownership by an institution can be separate from any obligations or ties to the same institution's technology transfer office. It is also noted that six universities carry out over 80% of IP licencing. These operations are quite different from smaller offices.

IP licencing terms vary a great deal, with some universities taking significant initial equity positions in IP licensee entities. Because so many different scenarios exist, significant flexibility in the system is required. However, given that IP licencing ultimately represents such a small fraction of industry-academia revenues, it is unclear why more **transparent approaches** cannot be adopted. Publication of outline deal terms by TTOs (respecting commercial confidentiality obligations) would be helpful, and mirrors how biotechs themselves benchmark their deals, when licencing products to corporates.

There are many excellent technology transfer professionals, with specific expertise and experience. Given existing governance structures, much of this knowledge is not shared between HEIs and nationally. **Greater sharing of TTO professional knowledge** would benefit the system as a whole, and see greater specialisation and thus expediency.

Not all universities have an exclusive hold over IP invented at their institutions, for example University of Cambridge. Further debate is encouraged to create a more **open market approach** to technology exploitation, to take advantage of technology transfer specialisation.

Improved information and advice should be provided to inventors, not just from their host HEI and TTO, but also perhaps from their research funders, on potential routes of technology transfer and exploitation. Inventors themselves are often driven to see an idea through. Many have existing relationships with industry through consultancies and sponsored research.

Proof of concept funding is encouraged, but also additional **business training and secondments**. Examples of both of these exist already and could be leveraged further.

Improved incentivisation of **early venture investment funds** should be considered, in parallel to other schemes, some in existence, for angel investors.

Increased focus on ways for **industry to reach into universities** and institutes could be encouraged. Channels exist, but these are poorly promoted and used. This was raised specifically by the House of Commons Select Committee.

Continued active dialogue, debate and understanding between all parts of the technology transfer community are encouraged, and will be followed up via the **Science & Innovation Advisory Committee**. Clearer articulation by industry of what the existing problems and bottlenecks are required.

Collated comments, not necessarily universally agreed:

What should the BIA aim to influence with respect to technology transfer?

- Promote mechanisms that help HEIs to use industry (incl translational arms of charities) to evaluate commercial potential of opportunities (several example mechanisms exist already). Fast, effective triage of ideas is a key need, and benefits from external input.
- Adapting existing ways, or adopting new mechanisms should be considered to better utilise expertise within the technology transfer system – there is a clear dichotomy between large/mature HEI TTOs and others.
- Centralisation of technology transfer is not the answer, but more open mechanisms to be promoted – no one way of working is best. Better to have an array of different ways to commercialise (and reflects reality of the wide range of different opportunities and associated factors).
- Greater practical support for inventors/potential entrepreneurs (whether Principal Investigators or Early Career Researchers).
- IP revenue as a primary metric of technology transfer is flawed and counter-productive.
- Continue to support the Biomedical Catalyst, and Innovate UK early engagement (pre-commercialisation), including CiC.
- Empowerment of inventors through wider use of schemes such as ICURe and DiscoverAssist
- Continue to support entrepreneurial incentives, such as EMI.
- Encouraging UKRI to provide clearer, more consistent expectations around IP ownership from universities.
- Promote mechanisms that encourage longer term investment capital (early IP through to commercialisation) – the Patient Capital model.
- Support for translational evaluation centres, particularly for drug discovery.
- Promote more transparency in IP licence deal terms, whilst being mindful of any confidentiality obligations.
- Promote funding for post docs to take time out to carry out translational/evaluation activities.

What should the BIA do to promote more community cohesiveness?

- Discussion lunches, sharing experiences between academic and industry, those with experience of spinning technology out.
- To bring together champions from the different parts of our community to debate and recommend on TT matters (can be done through SIAC) – clarity of defining what we what to improve/solve.
- Promote greater understanding of the different roles and constraints of the different constituencies in technology transfer, so expectations are clearer.
- Promotion of mechanisms such as Gateway to Research and others to help industry reach in to academia.
- Work with PraxisUnico and others to promote understanding and the positive role of TTO professionals.