Dowling Review of Business and University Collaboration

Response by the Wellcome Trust

March 2015

Key points

- Successful innovation is underpinned by partnerships across sectors and disciplines. Personal relationships and strong internal champions are crucial.

- Researchers should be rewarded for collaborative working and entrepreneurship, with incentives that create a ‘revolving door’ between universities and businesses.

- Training, advice and mentorship should be readily accessible to academics to equip them with the skills they need to collaborate with commercial partners.

- Technology Transfer Offices must focus on exploiting knowledge for public good rather than revenue, and act as a broker between academia and industry.

Introduction

1. The Wellcome Trust is a global charitable foundation dedicated to improving health. This year, we are planning to invest £750 million in biomedical research and the medical humanities. The majority of this will be spent in the UK as a direct result of both the excellence of the research base and the Government’s commitment to science. Our breadth of support includes public engagement, education and the application of research to improve health.

2. We are pleased to input into Professor Dame Ann Dowling’s review of how to support more effective partnerships between university researchers and businesses. Collaboration across sectors and disciplines underpins successful translation and the commercialisation of treatments, technologies and products. This is a key focus area for the Trust, and much of our response is informed by a review of the UK’s innovation ecosystem[1] which we commissioned last year.

Consultation questions

The Trust’s experience of supporting research partnerships

3. The Innovations division of the Wellcome Trust offers six major funding streams[2] for researchers who are developing early-stage ideas into commercial propositions. To be successful, programmes must have a clear structure and be based on good science or technology. Agreements on IP ownership, confidentiality, publication and financial commitments need to be put in place from the outset. Careful project management is also important, including setting goals or milestones, and ensuring regular interactions between all of the parties involved. Support for our grant-holders is also essential, and we provide advice, guidance and mentoring to develop collaborations.

4. One of our schemes, Pathfinder Awards[3], aims to kick-start pilot initiatives with significant potential to deliver new and innovative products that address an unmet healthcare need. A key priority for this programme is the development of effective partnerships between the not-for-profit sector and companies, and clear eligibility criteria ensure that collaborations are well established and planned.

---

5. It is important to acknowledge that the STEM pipeline starts early, and well-equipped and inspired students will form the next generation of innovators, researchers, technicians, healthcare workers and science teachers. The Trust has a long-standing commitment to supporting a stimulating science education for young people. In addition, high-quality careers information, advice and guidance are critical. This should span sectors, including vocational routes at further education colleges, apprenticeships, as well as university and employment opportunities. From an early age, students should be aware that science isn’t just an academic endeavour.

6. The National Science Learning Centre, which the Trust funds alongside Government and other partners, supports the Teacher Industrial Partners’ Scheme. This initiative, launched in 2014 by the Institution of Mechanical Engineers, gives STEM teachers a two-week placement in engineering or technology companies, supported by bespoke professional development sessions. As well as developing contemporary STEM knowledge, this will help teachers to contextualise learning and better explain the diverse range of careers available across the sector. It also offers an interesting model of short-term, cross-sector placements to drive mutual understanding and forge relationships — something that could be extended to industry and academia.

Success factors for building productive collaborations

7. We believe that personal relationships are crucial for the longevity and success of research partnerships. Strong, consistent internal champions are hugely beneficial and those involved should be enthusiastic, committed and flexible. Individuals should communicate openly to allow problems to be addressed quickly, and have a good understanding of each parties’ aims and boundaries. The Trust recently commissioned the Centre for the Advancement of Sustainable Medical Innovation to produce a practical guide for organisations taking part in ‘open innovation’. This acknowledges that there is no one-size-fits-all model for collaboration, and partners need to be open-minded about different cultures, capabilities and constraints.

8. Representatives from academia and industry can often struggle to understand each other’s drivers and perspectives, and agree terms, particularly around IP. Preconceptions abound about the motivations and speed of the different sectors. In these instances, the Trust’s Innovations team can play an important brokerage role and bring people together to resolve differences as an independent funder. The involvement of a broker can be particularly important when those involved in a partnership have limited experience of working with people outside of their sector.

9. R&D clusters provide one way to facilitate collaboration, promote knowledge sharing, accelerate innovation and foster local economic growth. They create an environment that helps cross-sector partnerships to flourish and the close proximity of organisations gives people a degree of career flexibility. We are proud to support the Stevenage Bioscience Catalyst — a £38 million partnership between the Trust, the Government and GlaxoSmithKline. This bioscience park accelerates product development by pioneering an open culture. It has more than 25 tenants including small biotech and life science companies, and Innovate UK’s Cell Therapy Catapult recently announced that it will build its new manufacturing centre on the site.

10. As pharmaceutical business models change and move away from blockbuster drugs, companies are increasing looking to co-locate with academics. In March 2014, GlaxoSmithKline opened its Centre for Therapeutic Target Validation on the Wellcome Trust Sanger Institute’s campus in Hinxton. A week later, the Medical Research Council and AstraZeneca announced the creation of a new joint Centre for Lead Discovery in Cambridge. These are positive steps and will further support collaborative working across sectors.

---

11. The Higher Education Funding Council for England’s (HEFCE) UK Research Partnership Investment Fund has been particularly successful in stimulating collaborative investment in university research facilities. Public funding of £400 million has already leveraged over £1 billion from businesses and charities. The Trust is pleased to be part of this initiative, supporting successful bids from Queen’s University Belfast and the University of Dundee.

Case study: The Trust’s involvement in the UK Research Partnership Investment Fund

The UK Research Partnership Investment Fund (RPIF) was established in 2012. It supports investment in higher education research facilities, and public funding through HEFCE is matched by private investment from industry and charities.

In 2012, Queen’s University Belfast secured RPIF funding to establish a new Centre for Experimental Medicine, building on its internationally recognised Institute of Health Sciences. HEFCE provided £10.5 million, matched by £21.7 million from Atlantic Philanthropies, the Wellcome Trust, the Wolfson Foundation, the Sir Jules Thorn Charitable Trust, Insight Trust for the Visually Impaired, and the Queen’s University of Belfast Foundation.

The centre will develop the university’s strong research base in vision science to include new programmes in diabetes and genomics. It aims to foster a multidisciplinary approach with integrated clinical and laboratory-based research, and encourage commercialisation through partnerships with biotech and pharmaceutical companies. Construction of the new building will be completed later this year and it will be set over four floors in two interconnected blocks.

Construction of the University of Dundee’s Discovery Centre for Translational and Interdisciplinary Research was also supported through RPIF, and will further enhance Dundee’s world-leading drug discovery capability. HEFCE contributed £12 million through the scheme, with leveraged funding from the Bill & Melinda Gates Foundation, the Trust, GlaxoSmithKline, Medicines for Malaria Venture, the Global Alliance for Livestock Veterinary Medicines, the Scottish Funding Council, Scottish Enterprise, and several local charitable Trusts.

The centre will support early-stage drug discovery, provide state-of-the-art infrastructure, and foster interdisciplinary and cross-sector partnerships. It is also home to a research division of computational biology, and will provide around 180 new jobs for Scotland’s life sciences sector.

Barriers to developing long-term collaborations

Metrics for academic success

12. Current metrics for academic success that focus on publications and paper citations can disincentive translation and collaboration with commercial partners. Our recent innovation review found that UK academics were about half as likely to patent as their counterparts in a top US cluster, with nearly a third of British respondents to an associated survey saying that their decision was based on the need for publications “to drive grants or my career”.

13. It is important to celebrate, reward and recognise the range of behaviours that contribute to a flourishing research environment. These include collaborative, cross-disciplinary and cross-sector working, advisory roles, entrepreneurship and mentoring activities. There should be flexible career paths for researchers at all levels, where industrial and entrepreneurial experience is encouraged and incentivised, more re-entry support for those who wish to return to academia, and other mechanisms that promote a ‘revolving door’ between universities and companies. HEFCE should also consider how it can incentivise collaborative working and translation through the Research Excellence Framework.

http://www.hefce.ac.uk/whatwedo/rsrch/howfundr/ukrpif/
Awareness of the commercialisation process

14. The Trust’s innovation analysis highlighted that there is a lack of awareness of the commercialisation process among many academics. Training programmes could help to address this by increasing knowledge and understanding of translation and patenting, and equipping researchers with the skills they need to collaborate with commercial partners. Innovation advisor and mentor networks could also play a role in facilitating connections between academics, business representatives, investors and clinicians. This would enable researchers to better access commercial expertise and advice, and help drive a pipeline of marketable innovations.

15. More specifically, academics often lack the expertise to deliver effective concept testing — a few critical experiments to demonstrate that an innovative or high-risk idea has commercial potential. These could include a few in-vitro tests to assess drug efficacy and potential differentiation, an assessment of safety hazards, studies to establish general applicability, an evaluation of market potential and pricing, and some analysis of the regulatory process to assess rough clinical development costs.

16. To enable the selection and implementation of these kinds of experiments, academics need to be able to access expertise and advice. An innovation advisor network could again play a key role in facilitating this; supporting researchers to turn their ideas into commercially-attractive propositions, backed by robust tests that can help secure follow-on finance.

The role of University Technology Transfer Offices

17. Technology Transfer Offices (TTOs) have the potential to act as a gateway between academia and industry and occupy a unique position in the innovation ecosystem. However, they often prioritise revenue over innovation. This can lead to overvalued IP and licencing terms that disincentivise deals. Being empowered to focus on impact and run as a cost centre for venture philanthropy would enable TTOs to better meet the needs of their very different customers: academics, businesses and investors.

18. The most effective TTOs act as a broker between academics and industry or other sources of private capital. They make connections, catalyse successful collaborations, and help companies of all sizes to better access university expertise and skills. Their staff have both academic and commercial expertise, have the capacity and capability to guide researchers through translation, and invest money and time to create customised commercial solutions.

19. Current metrics for success — such as patent filings and numbers of spin-out companies created — do not encourage TTOs to focus on exploiting knowledge for public good. Exemplary TTOs consider levels of engagement with researchers and end-users, the speed and volume of knowledge exchanged, quality of filings, and indicators of economic efficiency. They do not have a ‘one-size-fits-all’ approach to IP and carefully consider the decision to spin out research versus incubating it to a point where it is less risky and more attractive to follow-on investors.

Non-commercial research and VAT

20. Under EU legislation, construction of a new building is normally subject to VAT. However, by derogation, a UK charity is eligible for zero-rating if the facility is used entirely for a ‘relevant charitable purpose’ such as grant-funded blue skies research — this status must be maintained for the first 10 years following the building’s completion. As a concession, HM Revenue & Customs will allow up to 5% of commercial activity before this ‘entirety principle’ is jeopardised. This was reduced from 10% in 2009. This limit on commercial activity in new buildings disincentives interaction between academia and industry. It does not encourage a revolving door between sectors, or collaboration and sharing of expertise — activities which underpin the translation and commercialisation of research.
21. When planning for the construction of a new charity building, provisions can be made to ensure that different areas are reserved for different purposes, and are taxed appropriately. For example, a proportion of the building could be designated ‘commercial’ and house the staff restaurant, hireable auditorium facilities and an industry lab. This would incur 20% VAT on construction costs which would be recoverable. Subject to discussion around shared entrances and lifts, the rest of the building could be categorised as ‘non-commercial’. This would be zero-rated and up to 5% of activities undertaken could be commercially-focused. However, this solution only has practical applications if there is a clear and identifiable strategy for usage that will not vary within the first 10 years after a building’s construction.

22. There are a number of actions the Government could take to address this limit on academic-commercial collaboration:

   o Amend regulations so charity buildings only incur construction VAT on any specific periods that exceed the 5% cap on commercial activity.

     If a charity crosses the 5% threshold at any point in the 10 years following a building’s completion, it loses its zero-status and cannot revert back. For example, a biotechnology company could work in a charity facility for three years on a specific research project. While it may be appropriate for the building to incur VAT during this period as it exceeds the limit on commercial activity, it does not revert back to zero-rating for the remainder of the 10-year period, whether or not it is within the 5% allowance. Alternatively, commercial activity could be measured cumulatively over a number of years to avoid this ‘cliff-edge’ effect.

   o Introduce a new funding stream to reimburse VAT on charitable buildings where commercial research activities occur.

     If a charity research facility paid VAT on construction at 20%, either because it could not meet the 5% condition during the build or subsequently failed to meet the test, the Government could initiate a new funding stream to compensate for the associated VAT charges incurred. Interactions with industry wouldn’t be limited, and businesses could co-locate with charity-funded researchers as appropriate. This rebate would be at the discretion of the UK Government, and the European Commission has confirmed that this falls outside of EU VAT legislation.

23. The research sector is increasingly looking to optimise its effectiveness by sharing equipment and resources. This enables efficiency and costs savings, and increases cross-sector partnerships. However, VAT regulations can disincentivise this collaborative approach. If a company charges a charity or university to use a piece of equipment, this would include VAT that the not-for-profit partner could not recover. However, the real issue occurs when different organisations use each other’s equipment or resources in exchange. Even if no charge is levied, this is viewed as a ‘barter arrangement’. VAT is incurred and this cannot be recovered by charities.

24. Social investment is the use of funds by charities to achieve both a financial return and a social good. This activity can be used to promote collaboration between academics and businesses, for example through programme-related investments to a spin-out company. In general, the Trust does not feel restricted in making such investments by current law. However, our size makes it easier for us to access the necessary resources and bear the risks that can be involved. Smaller funding charities may not feel as confident as law and policy in this area can be unclear.

25. In September 2014, the Law Commission made various recommendations proposing changes to legislation on social investment. We urge the Government to adopt these amendments. Broadly speaking, they include: the introduction of a new statutory...
power to make social investments which would apply to all charities; a revision of Charity Commission Guidance CC14 to reflect the legislative changes outlined by the Law Commission and explain what charity trustees should consider when making a social investment; and a review and amendment of legislation and guidance concerning approved charitable investments and loans by HM Revenue & Customs to reflect the definition of social investment and the proposed new statutory power.

26. The Trust also broadly agrees with the Law Commission’s proposed ‘checklist’ for charity trustees making social investments. However, we do not think that this should be enshrined in statute, but rather set out in guidance to allow for greater flexibility and trustee discretion.

**Innovation uptake across the NHS**

27. The NHS is a key end-user of biomedical innovation, and collaboration between researchers, clinicians and industry is critical in this space to ensure that new treatments are adopted across the Health Service as quickly as possible. Academic Health Science Networks should play a key role in delivering this by bringing together academic, clinical and commercial expertise to develop and share best practice.

28. The Association of Medical Research Charities’ *Vision for research in the NHS*\(^7\) sets out a helpful framework in this area and describes how treatment uptake can be improved, and how the Health Service can better support research and offer patients the opportunity to be involved. A new NHS procurement strategy\(^8\) was also published in 2013 which says that the NHS should be responsive to innovative solutions and ideas from industry. The strategy is a welcome start but implementation must be monitored.

29. The Trust would be happy to meet with the Dowling Review Team to discuss any of these points in more detail if this is helpful, and would be pleased to input further as your thinking develops.

---

\(^7\)Association of Medical Research Charities Vision for research in the NHS (2013) [http://www.amrc.org.uk/blog/our-vision-research-nhs](http://www.amrc.org.uk/blog/our-vision-research-nhs)