

Industrial Strategy Green Paper consultation

Written response from **PraxisUnico** and **AURIL**

PraxisUnico and the Association for University Research and Industry Links (AURIL) merged on 1 April 2017 to create the UK's national association for Knowledge Exchange and Commercialisation (KEC) professionals working in universities and public sector research organisations to manage IP, commercialisation activities, and collaborations between academics and external organisations to deliver social and economic impact¹.

1. We welcome this Industrial Strategy Green Paper and in particular the Government's recognition of and commitment to science, research and innovation as the first strategic 'pillar'. Our focus in this response is on the role of Knowledge Exchange and Commercialisation (KEC) Professionals and their role in helping to stimulate innovation, productivity and growth; locally, nationally and internationally².

2. We welcome the new public investment that has been provided through the Industrial Strategy Challenge Fund and the recognition by the Government that public funding should 'crowd in' private. The substantial investment announced in 2016's autumn budget demonstrates confidence in the research base; one of the UK's strongest attractors for overseas investors. The Green Paper puts high expectations on the university sector to deliver innovations for growth, particularly through commercialisation of research.

A wider focus for university-industry interactions

3. We welcome the intention to strengthen support for universities to work with external partners alongside protection of basic science budget but disappointed that there is such a narrow focus on spin-outs in the Green Paper. Government investment benefits the many through universities' deployment of funding through multiple routes to impact: Research collaboration, equipment sharing, consultancy, and skills (PhD sponsorship, KTPs, industry placements and graduate recruitment) are all highly valued by collaborative partners and have seen year-on-year growth in both numbers and revenue³. The breadth of approach to collaboration has been demonstrated in numerous case studies by, for example, the NCUB⁴ but also sector specialists such as the Royal Society of Chemistry whose 'Open for Business' report collected evidence on over 1,000 collaborations across the UK⁵. **Enabling and supporting universities to diversify in knowledge exchange creates more, long-term and secure relationships with industry partners. We would like**

¹ See www.auril.org.uk and www.praxisunico.org.uk.

² PraxisUnico written evidence to the Commons Select Committee Inquiry '[Managing IP and Technology Transfer](#)' September 2016. Dr Phil Clare also represented PraxisUnico at a Committee evidence session.

³ Data for the academic year 2015-16 was released by [HESA](#) on 6 April 2017.

⁴ For example, see 'State of the Relationship 2016' NCUB

⁵ See <http://www.rsc.org/news-events/articles/2016/nov/open-for-business/>

to see recognition that spin-outs are an important but small part of knowledge exchange activity for the majority of universities and that other routes are equally valuable in terms of income and long-term growth.

4. The base of research for external collaboration is being expanded by actively bringing in Arts, Humanities & Social Sciences where there is less formalised IP but opportunities for valuable social and economic impact. The Industrial Strategy focuses almost uniquely on STEM subjects with little recognition of the value (monetary or otherwise) that non-STEM subjects can bring to external partners of all types. The Innovation Caucus project, for example, is demonstrating how social sciences can help companies understand how to innovate, regardless of the technology involved⁶. PraxisUnico ran its first dedicated training for practitioners working with the Arts, Humanities and Social Sciences in December 2016 with very enthusiastic take-up and feedback.

5. In terms of research commercialisation specifically, it is important to understand the difference between collaboration that informs and expands the research base (knowledge exchange) and activities which exploit intellectual property through patenting, licensing and spin-outs (technology transfer). Knowledge exchange is an underpinning factor in many of the Industrial Strategy's pillars and a strategic activity throughout the UK's university sector. Research commercialisation is less common because it is dependent upon a certain level of research intensity and staff resource to drive and support commercialisation activities. The McMillan review of good practice in technology transfer (2015) found that the UK operated at "world class standard in technology transfer practice" but also that there are no one-size fits all policies that work for every technology, or every university, or every place⁷.

6. The Green Paper announces another review of approaches to commercialisation in universities. We hope that it will draw on extensive and recent analysis of the sector by the McMillan Group and the Commons Science & Technology Select Committee and their recommendations. **We hope that this latest exercise will achieve better understanding of technology transfer across the university sector to inform new policy formation. PraxisUnico and AURIL are pleased to support the project team and will encourage members to contribute throughout.**

7. Universities and PSREs are very important 'anchor' institutions in the landscape of the UK with extensive networks among themselves (e.g. in regional groupings), with sector stakeholders, and with regional businesses and employers. A university's mission is linked to the particular context of its place, and although more activity could be stimulated through funding, there are important considerations relating to an institute's research portfolio and appetite for focusing on this particular area of knowledge exchange and commercialisation. So, the role and focus of a modern university in a skills-deprived area may be focused on creating jobs, supporting skills, growing small businesses; a research-intensive university will have different priorities and these will inform negotiations and policy around the range of knowledge exchange and commercialisation activities. Studies by university mission groups University Alliance and the Russell Group illustrate these distinctions well.

⁶ www.innovationcaucus.co.uk

⁷ 'University Knowledge Exchange (KE) Framework: good practice in technology transfer', HEFCE, Sept 2016

What is important, therefore, is to have the right funding and policies in place for universities to develop appropriate activities and diversity into new areas if they see opportunity to.

PraxisUnico/AURIL support this diversity through training programmes, practical guides, and knowledge exchange within a professional network.

8. Activity in this area is not confined to universities and there should be more recognition of this in the Green Paper: Catapults, and their role in catalysing applications for research and growing new companies, are scarcely mentioned for example. Private and public research labs are also part of the landscape and need to be included in discussions of commercialisation and enterprise in any Industrial Strategy. The role of UKSPA and its members – science parks, incubators and accelerators – is also important in terms of supporting and growing new businesses: PraxisUnico and AURIL are pleased to work in partnership with UKSPA as part of the commercialisation landscape and we advocate partnerships between universities, sector specialists, funding agencies and local government as the way to address support for innovation and growth across the UK. The forthcoming NESTA database and report on the UK's incubators and accelerators will provide valuable information about business incubation and acceleration provision to compliment similar maps of SME concentration and research intensity produced by Universities UK⁸.

Funding, finance and metrics

9. We have long championed the success of HEIF and the high return on investment it provides to the public purse. We support proposals for its expansion to enable universities to be aspirational and even more proactive and risk-taking in their KEC activities to support diverse partners and projects. HEIF's success is largely due to its flexibility and familiarity: it enables universities to plan and execute KEC activities according to their individual strategies and expansion of the fund will enable them to do more. Security of funding is vital in order to plan long-term for expansion of KEC activities. Many knowledge exchange activities have been funded through European initiatives – particularly in regions that suffer from lack of private investment. This potential loss of funding need to be taken into account as we enter Brexit negotiations and makes the case for increased levels of R&D spending by UK plc more compelling. **We support the expansion of HEIF as a flexible and highly successful model for funding knowledge exchange and commercialisation and enabling universities to expand and deepen their KEC activities. The government should ensure that equivalent funding streams exist in the devolved regions in order to secure parity in UK-wide collaborations.**

10. Dedicated public funds for commercialisation, innovation and societal engagement have played a critical role in assisting the change from IP exploitation to broader knowledge exchange, ensuring that income generation is not the main aim of university commercialisation offices. Public funding allows for continuity of staff employment – important for building relationships and deepening understanding of practice – and has meant that universities can expand their KEC activities without immediately trying to cover their costs.

⁸ NESTA 'Accelerators and Incubators in the UK' April 2017

11. Because of the long-term nature of research commercialisation it is unrealistic to expect that tech transfer teams will be able to generate surpluses to fund their operations in a particular year. In most cases this activity is a net cost to the university. Most offices therefore have a stronger focus on commercial research collaboration with business than on IP exploitation. In their 2012 review of HEIF strategies, PACEC noted that 46% of universities emphasised the need to develop longer-term relationships and strategic partnership rather than single-transactions because they recognised “the mutual benefits of these types of relationships not least the synergies with research and teaching but also the potential for growing repeat, deeper interactions.”

12. Alongside the expansion of knowledge exchange activities, income from the sale of formal IP rights specifically (which HEFCE defines as licensing and spin-offs) continues to rise. In 2014-15 it was £155 million, an increase of 18.5% year-on-year. Income from licensing only saw an increase from £82 million to £103 million in 2014-15, a rise of 25%. At the time HEFCE noted that “*one institution remains responsible for approximately a quarter of income reported under this indicator*”. Income from spin-offs can also be ‘spiky’ with “*a small number of outliers...responsible for a significant proportion of the reported external investment received for staff start-ups and sale of shares in spin-offs*”. Both figures demonstrate the difficulty of measuring sector-wide performance in this area of activity.

13. HEIF (and equivalents) alone cannot support significant growth in the number of spin-outs however. In the absence of sufficient or easily accessible enterprise funding, a number of universities have created investment funds for spin-outs and start-ups: essentially acting as private investors in the absence of traditional venture capital⁹. Recent articles in the general and specialised press have highlighted the success of university seed and investment funds at Oxford, Cambridge and Imperial College for example, hinting at a change in attitudes towards this sector of the market¹⁰. A forthcoming study of university venture funds by Greg Bayes-Brown (Oxford University Innovations) compares approaches and impact on an international scale and will provide useful insights into an important growth activity for certain universities and their partners.

14. Given the depth of expertise around long term investment strategies (Patient Capital) in the university sector we were disappointed not to see university representation in Sir Damon Buffini’s review committee. We therefore strongly support the Commons Science & Technology Select Committee’s recommendation that the Government’s Patient Capital Review “*must engage with the university sector and learn from those universities that have developed patient capital schemes.*”¹¹

15. Similarly, many of our members offer IP and enterprise education for undergraduate and graduate students in recognition of the appetite for and need to increase understanding of this area of research-related activity. We welcomed Professor Tim Dafforn to the PraxisUnico annual conference in 2016 and look forward to engaging with his initiatives under in this area.

⁹ For a discussion see [Patient Capital and University Venture Funds \(UVFs\) in the UK](#) June 2016

¹⁰ [The Times](#) March 22 2017 and Moneyweek, Issue 837, March 24 2017.

¹¹ House of Commons Science & Technology Select Committee inquiry ‘Managing IP and Technology Transfer’, March 2017.

R&D investment

16. We need now to see evidence of confidence in the UK's rich research base by UK investors. ONS data reflects the low level of UK industry investment in R&D: the CBI has joined successive calls for R&D to increase to 3% of UK GDP, highlighting the economic and social benefits of innovation and the significant role of the UK's research base in attracting external investment¹². Despite this, UK business levels of R&D spend have stagnated for more than a decade.

17. Business needs to be more open to using universities as a source of ideas and use the incentives provided through the tax system and funding programmes to increase engagement: The BIS Innovation Survey 2015 demonstrates the relatively low importance given by businesses to external sources of information for innovation, knowledge and R&D particularly from 'institutional' sources including universities and public research labs¹³. Research by the Enterprise Research Centre (ERC) in 2016 found that value in the technology licensing market is "*driven by a small number of large firms who engage in scientific research*" and was used as a complement to internal R&D rather than as a unique source of innovation¹⁴. The Dowling Review of business-university collaborations (2015) recommended that universities should be considered as a key partner in the delivery of an industrial strategy but also emphasised the need for monitoring of demand-side R&D levels since "*the UK suffers from low levels of business investment in R&D, which poses a potential barrier to collaboration*"¹⁵.

18. Insight into industry R&D models is valuable for universities wanting to develop or expand industry engagements. One of PraxisUnico/AURILs most popular member-benefits are industry-sector events that bring academics, KEC professionals and industry together: the chemicals company Croda hosted a highly successful visit in March and we have an ongoing series of events through the Defence Academic Partnership (DAP)¹⁶. These events provide valuable insight into corporate R&D strategies and motivations for engaging with research organisations. **We would welcome a review of industry approaches to collaborative R&D to provide greater understanding in the university and research community around R&D models and ways to engage most effectively with external partners.**

Spreading best practice and creating dialogue

19. PraxisUnico and AURIL are helping their members across the UK by equipping universities and research organisations with the skills they need to make best use of their KEC resources. PraxisUnico's training model is based around sharing experience and best practice across the sector and between individuals. We run a dedicated 'Directors' email discussion list so that practitioners can call upon advice and experience for day-to-day or one-off decision making. This complements

¹² CBI 'Now is the time to innovate: the road to three percent' March 2017

¹³ [UK Innovation Survey 2015](#), Department for Business, Innovation and Skills, March 2016.

¹⁴ ERC Research Paper No.43 'The market for Technology Licensing in the UK', April 2016. While the paper does not discuss the source of technology licensing, it provides useful insights into the characteristics of demand for technology licensing in the UK market.

¹⁵ The Dowling Review of Business-University Research Collaborations, July 2015, p.57

¹⁶ See the [PraxisUnico website](#) for further information

annual face-to-face meetings. For smaller offices, with broad but shallow remits, this access to trusted advice is key.

20. PraxisUnico and AURIL became a single organisation on 1 April 2017. This will provide a platform for even better professional support for knowledge exchange and commercialisation supporting both technology transfer and improved collaboration between university and industry. The value of regional representation, special interest groups, and sector-specific skills for our members will be considered in support of their own expansion and improvement. Above all, we emphasise the need for dialogue when considering new initiatives and models for the successful treatment of IP in research, collaboration and commercialisation. **Sector stakeholders must be brought together – businesses, academics, business groups, sector specialists and funders – to share understanding of what is needed to create more demand for UK commercialisation ideas, greater investment in early stage research, and longer-term commitment to sustain spin-outs and start-ups.**

21. PraxisUnico/AURIL is supporting members by contributing to the nation debate on the Industrial Strategy and its implementation. A single organisation will help to deliver government aspirations for increased university-business interactions by working closely with sector stakeholders and funders. PraxisUnico members work every day to provide expert advice, identify opportunities, and source funding for research-business collaborations and innovative company creation. Working at the interface between research and business, they have a unique view of the strengths of the current systems in place for supporting innovation, and of the stresses and strains that can hamper collaborations and company creation and growth. They are not adverse to change, but want to be part of the conversation that determines what changes are to be made. We will draw on their expertise to inform Government through this Green Paper and concurrent consultations on the SBRI and Patient Capital.

22. As stated in our submission to the Commons Science & Technology Select Committee, our overarching recommendation to Government is to endorse and support the recommendations made by the McMillan Group in its review of technology transfer. These acknowledge the success and strengths of UK technology transfer and the role of KEC professionals who support a very wide-range of activities with diverse external organisations. We fully support the need for continuous improvement and are actively working with stakeholders to achieve this. Above all, universities need to have stability of policy and funding in order to plan for the long-term: we are in a period of intense instability and so caution against dramatic changes to a sector which is working well in difficult times.

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Tamsin Mann, Policy Officer
PraxisUnico / AURIL
St John's Innovation Park
Cambridge
www.praxisunico.org.uk
www.auril.org.uk