

BIS Select Committee Inquiry into Business-University Collaboration:
Written evidence submitted by Imperial College London

Executive Summary

- The global excellence, quality and reputation of an institution are the key factors that most influence the confidence and funding inclinations of bodies outside the science and research base, including those in the innovation ecosystem.
 - Imperial College London is closely aligned to the government's industrial strategy and operates on a national and international scale, attracting investment from industry across the globe.
 - Imperial West, the College's major new campus in White City, is an example of the integration of local, national and international activity in an environment that fosters translation and commercialisation.
 - Jobs and growth are best generated and sustained when clusters of large and small businesses together with universities or research institutions form around core STEM areas with market-facing outcomes.
 - The Higher Education Innovation Fund (HEIF) should be maintained and targeted to support research-intensive universities where it can have most effect. Narrow restrictions on the use of HEIF such as those proposed by Witty should not be imposed as such restrictions would put at risk institutions' ability to use HEIF most effectively in achieving economic and social impacts.
 - It is too early to say if the inclusion of impact criteria in REF2014 has had any positive effect on the way in which institutions translate their research (rather than just on the way in which institutions record this translation). The process of assessing impact in REF2014 is, as yet, untested, and it will be important to ensure that any changes made to the methodology of future research assessments do not put at risk their primary purpose of assessing the quality of research undertaken by institutions.
 - Knowledge Transfer Partnerships (KTPs) are not the only opportunities for universities to work with SMEs. For example, the College runs a successful EPSRC-funded Knowledge Transfer Secondment (KTS) programme which has included SME secondments.
 - Research impact is best achieved through outstanding underpinning research excellence, which in turn attracts the investment required to drive innovation and economic growth.
1. World-class universities with proven excellence in research are major drivers of innovation and economic growth locally, nationally and internationally. The global excellence, quality and reputation of an institution are the key factors that most influence the confidence and funding inclinations of bodies outside the science and research base, including those in the innovation ecosystem.
 2. Imperial College London is closely aligned to the government's industrial strategy and is active in the majority of key sectors and technology areas identified by that strategy, contributing significantly to the building of national capabilities. To this end, the College operates on a national and international scale, engaging with science, technology and innovation leaders wherever they, and their markets, are located. Some of these are local, some are national, and others are located overseas, but are important sources of inward investment in UK research. The breadth of the College's activity in enterprise partnerships across the key sectors and technologies identified in the government's industrial strategy is demonstrated by, for example, partnerships with Intel, NEC, Huawei and IBM on big data, with Syngenta on agri-science, with AVIC, AWE, BP and Rolls Royce on advanced materials, and with Dyson on robotics. The College has attracted investment from industry based both in the UK (e.g. Shell, GSK, Rio Tinto) and overseas (e.g. Pfizer and IBM in the US, Syngenta and EDF in Europe, AVIC in China, and Qatar Petroleum in the Middle East). The College's global reputation as a world-leading centre for research and innovation in STEM subjects makes us an attractive partner for major international corporations, and further engagement with such organisations is thus a key part of our growth strategy. The College has a dedicated team, Corporate Partnerships, to support industry interactions and business ventures, and develop partnerships between academics and industry. In 2012-13, the College received total research income of £46.4M from UK and global industrial sources. The College hosts the Climate-KIC UK co-location centre and is also a core partner in the European Institute of Technology ICT Lab London Node together with UCL, Intel and BT.
 3. Imperial West, the College's major new campus in White City, is an example of the integration of local, national and international activity in an environment that fosters translation and commercialisation. The co-location of research, business and healthcare on this mixed-use 25 acre campus will stimulate new investment in research, yield economic growth and play a leading role in

the regeneration of White City, an economically deprived area of London. Its initial focus will be a £150M Research and Translation Hub, a 42,000m² facility due for completion in late 2015. Several spin-out companies are already being hosted at Imperial West and the intention is to expand such activity there, building on the success of the Imperial Incubator, which currently provides versatile office and laboratory space for early-stage companies at the College's South Kensington campus. Currently, there are 14 physically located companies and 17 virtual tenants all receiving support through the Imperial Innovations Incubator programme. Companies have, while in the Incubator, raised over £220M in investment and grants.

4. Jobs and growth are best generated and sustained when clusters of large and small businesses together with universities or research institutions form around core STEM areas with market-facing outcomes. The College welcomes the "Eight Great Technologies", which are helpful because they give a clear focus for both universities and businesses on the government's priority areas for research and innovation. London is Europe's major innovation hub, and the College plays a central role in connecting to large and small businesses with research and venture funding around science, including in partnership with other institutions such as the Francis Crick Institute. The College also plays an important role in MedCity, which brings together the leading centres of medical research in London, Oxford and Cambridge to translate their research into new healthcare applications for the benefit of patients and the economy. Imperial Innovations, an independent company in which the College maintains a stake, provides technology transfer services for the College's academic staff and students and also builds and invests in technology and healthcare businesses based on research from the College, UCL, the University of Oxford and the University of Cambridge. It has created more than 140 start-ups, generating over 1,000 jobs. The College also provides courses and mentoring for local businesses through its Entrepreneurship Hub and its involvement in Tech City, as well as executive leadership programmes.
5. The Higher Education Innovation Fund (HEIF) is vital in helping universities translate research ideas, knowledge and technology strengths into both economic and social impacts; HEIF should be maintained and targeted to support research-intensive universities where it can have most effect. HEFCE's April 2014 report "*Knowledge Exchange Performance and the Impact of HEIF in the English Higher Education Sector*" shows that between 2003 and 2012 the top 6 most research intensive institutions (a group that includes the College) generated £13.3 of gross additional knowledge exchange income for every £1 of HEFCE knowledge exchange funding, a considerably higher return than the rest of the sector. Narrow restrictions on the use of HEIF such as those proposed by Witty should not be implemented because such restrictions would put at risk institutions' ability to use HEIF most effectively in achieving economic and social impacts, both locally and on a broader scale.
6. One effect of including impact criteria in REF2014 has been to increase the burden on institutions when preparing their submissions, While its inclusion has encouraged institutions to better track, articulate and quantify the impact of their research, it is too early to say if it has had any positive effect on the way in which institutions actually translate their research. It should also be noted that the process of assessing impact in the REF2014 is, as yet, largely untested. It will be necessary to wait until the methodology is fully tested before decisions on the weighting of impact in future research assessments can be taken. Any changes made to the methodology of future research assessments must not put at risk their primary purpose of assessing the quality of research undertaken by institutions.
7. Knowledge Transfer Partnerships (KTPs) are not the only opportunity for universities to work with SMEs. For example, the College runs an EPSRC-funded Knowledge Transfer Secondment (KTS) programme which is flexible, responsive, and allows for the two-way flow of individuals. This has so far funded 57 secondments involving 50 different organisations, 22 of which have been SMEs.
8. In conclusion, the experience of the College, with one of the widest ranges of international business collaborations of any UK university, is that research impact is best achieved through outstanding underpinning research excellence, which in turn attracts the investment required to drive innovation and economic growth. Policy and funding should, therefore, be directed towards the further concentration of research funding on research institutions of proven excellence and with appropriate critical mass, breadth and multi-disciplinary capacity to address local and national challenges and compete internationally.