

Higher Education Commission - Public Call for Evidence: University Research & Regional Levelling-up Inquiry



Background:

If applicable, please briefly outline your organisation's current UK-based research and development work. Please include details of collaborative engagements with external partners – such as HEIs, Catapults, OEMs, SMEs etc.

Physiology is the science of life, and research in physiology helps us to understand how the body works in health, what goes wrong in disease, and how it responds and adapts to the challenges of everyday life. The TPS membership is made up of researchers in all areas of this from neuroscience through to endocrinology, nutrition and sport and exercise science. The Physiological Society plays an important role in developing and supporting existing physiologists, and those that are in-training to ensure the talent pipeline of future scientists is as robust as possible. To achieve this, we organise outreach events such as Physiology Friday in schools across the UK as well as offer travel and outreach grants to ensure that early career researchers (ECRs) play a full role in the life and work of The Society.

The Physiological Society's policy work therefore has a crucial role to play in ensuring that the centrality of physiology to health, disease prevention and management is communicated to businesses, public services, charities, policymakers and government to create societal and economic benefit.

Our recent project report Translating Knowledge and Research into Impact brought together physiologists, industry, higher education professionals and policymakers. It shines a spotlight on the specific contributions to knowledge exchange made by physiology; we provide estimates of the level of physiology-related knowledge exchange and explore the activities and motivations of physiologists working with partners beyond higher education. On the basis of the report's findings, a series of recommendations had been made for government, institutions and The Physiological Society aimed at maximising the contribution of physiology and addressing knowledge exchange barriers.

Objective(s):

Who should provide funding and how should it be allocated to maximise R&D activity and economic impact?

With the Conservative Party manifesto committing the UK Government to spend 2.4% of GDP on R&D by 2027 with aspirations to increase this to 3% shortly afterwards, UKRI should continue to fund the UK's world leading basic research base through periods of budgetary pressure. Successes in physiology and knowledge exchange such as the COVID-19 vaccine, stem from sustained investment in the UK's basic research base, and it is crucial that this funding remains in place.

UKRI should foster cross-council translational funding, building on successful schemes such as the Biotechnology and Biological Sciences Research Council's (BBSRC) Follow-on Funding Scheme, the Medical Research Council's (MRC) Biomedical Catalyst, and Innovate UK's Healthy Ageing Trailblazers.

The historic lower levels of investment in institutions outside of the 'Golden Triangle' of London and the South-East of England has had an impact on the wider financial wellbeing of towns and cities in those areas given the spillover effect of universities in terms of employment and encouraging businesses to locate nearby to harness the university's knowledge and facilities. In addition, through knowledge exchange activities such as public

engagement and working with local schools, university departments such as Sport and Exercise scientists play a key role in ensuring that the Government is able to meet its own healthy ageing targets.

How should skills provision and training change to enable greater R&D output?

Ensuring that academics understand the potential for knowledge exchange to translate their research breakthroughs into tangible benefits and that industry and not-for-profit partners understand how physiology can support the development of new products and services should be a key component of a learned society's objectives. In the context of levelling up, this means providing academics in all UK regions, but particularly those outside the 'Golden Triangle', with the skills to make better connections with partners to ensure that opportunities to translate high-quality research wherever it occurs, is not lost.

The Physiological Society is working in partnership with PraxisAuril, the National Centre for Universities and Business (NCUB) and the National Co-ordinating Centre for Public Engagement (NCCPE) to establish a network of physiologist Knowledge Exchange Academic Champions across the UK, with co-chairs drawn from industry and academia. The champion in each higher education institution will promote knowledge exchange opportunities, liaise with central knowledge exchange support, and tackle the barriers faced by physiologists when engaging in knowledge exchange. The network champions will share good practice and lessons learned for developing relationships with external partners.

Learned societies like The Physiological Society should develop knowledge exchange continuing professional development resources for their members, particularly focused on mentoring and upskilling early career researchers, and work with industry partners to develop material that will help members identify where and when external partners can most benefit from physiology knowledge exchange.

A key barrier to increased collaboration and innovation is a lack of time for academics to complete all three of their key roles (research, teaching and collaboration). In reality of course, these three roles are mutually reinforcing so learned societies should work with the Government to develop funding programmes that alleviate time barriers. The UK's withdrawal from the European Union will also require greater engagement with global initiatives such as the Marie Skłodowska-Curie Actions Research Fellowship Programme to enhance the mobility of UK academics and the benefits to their research profiles this brings.

What would enable more collaboration between universities and industry on innovation?

The UK Government, through the Department for Business, Energy & Industrial Strategy, the Department for International Trade and UK Research and Innovation (UKRI), should invest in establishing a Global Coordinating Centre for Healthy Ageing Research and Development to focus on identifying world-class productive knowledge exchange between academia and public and private sectors to meet major future societal challenges such as the ageing society. This will ensure the UK becomes the international partner of choice for academic discovery through to the commercialisation of the innovative new products and services that will flow. This will fully realise the benefits from the UK's world-leading physiology research into the mechanisms underpinning ageing and knowledge exchange in the area. It will also promote opportunities for physiologists to engage with regional and global networks to address shared challenges, attract further investment and talent, and increase productivity in the UK health economy.

In support of this goal, the UK Government and devolved administrations should also increase investment for knowledge exchange between now and 2024 through Higher Education Innovation Fund (HEIF) allocations and devolved equivalents in other parts of the UK, in line with the commitment to increase R&D funding.

Should national agencies, including UKRI and its component organisations - Research Councils and InnovateUK - better take the needs of local communities and economies into account in policy and funding decisions - and if so, how?

Learned societies such as The Physiological Society have an important role to play in facilitating national agency engagement with local communities, listening to their needs and identifying areas of strength in their R&D base. The Physiological Society has members in all regions of the UK and the majority of the UK's higher education institutions which would allow us the opportunity to take feedback from members about how to address some of the barriers to levelling up in their region.

What should be the primary focus of the UK Government's Advanced Research and Invention Agency (ARIA) in order to maximise economic impact?

A girl born in the UK today has a 1 in 3 chance of living to 100, and the chance of living to 100 will double in the next 50 years. Healthy life expectancy, which is the number of years lived in good health, has also increased, but not at the same rate as life expectancy. This means people are living more years in poor health. Our ageing population, with greater proportion of life spent in poor health, will increase costs for the NHS and means we need to change how we approach work, finances, health and care, and housing. We must therefore ensure that greater focus is given to keeping people healthier, for longer.

Public funding through a new agency such as ARIA is needed to develop high-risk, high-reward, fundamental biological research that requires significant financial input and time to be allowed to reach fruition. This will feed new ideas, discoveries, technologies, products and services in crucial areas such as health and ageing which has application beyond the UK's borders to large markets such as India and China which face similar challenges regarding ageing populations. There is a huge appetite and need for more discovery research funding in the UK research community.

The distinctive feature of ARIA would be its focus on pursuing innovations with transformative potential, combining high-risk with high-reward. However, a new research agency distributing public money must be focused on innovation with societal benefit and there is a significant opportunity to tie this to the 'levelling up' agenda through patient-public engagement and engaging with businesses which invest in different regions. It should also harness opportunities in interdisciplinary research to deliver on agreed national priorities, such as challenges involved in meeting the Ageing Society Grand Challenge.

In the devolved nations, what is the appropriate division of responsibility for research, development and innovation between the devolved administrations and the UK government? How well do current arrangements work?

Wales

To maximise the appeal of Wales for future investment, the Welsh Government should facilitate a collaborative and coherent offering from Welsh Higher Education Institutions (HEIs) to make R&D partnerships in Wales more attractive to private investment.

We support the Reid Review's call to increase the visibility, coherence and impact of research and innovation in Wales by creating a single overarching brand for its innovation activities. This highly-visible branding of Welsh R&D needs to be accompanied by appropriate collaboration between HEIs to ensure that there is an agreed infrastructure in place to support this national promotion of R&D capabilities.

The Welsh Government and Higher Education Funding Council for Wales (HEFCW) should work with Universities Wales to establish a joint protocol for collaboration between HEIs in Wales that can act as an initial framework to make it quicker and easier for individual collaborations to take place. As Strength in Diversity suggests this protocol covers issues regarding intellectual property (IP), risk-sharing across capital-intensive facilities, employment of staff across multiple institutions and costs associated with consortia-led funding bids.

Scotland

Scotland has great strengths in both discovery and commercialisation of biotech – collaboration between the UK’s leading physiologists would see an economy of scale where the UK is able to lead the world in not only prolonging life but adding healthier and happier years for every generation.

Building on strategic investment in Edinburgh’s BioQuarter and the BioHub in Aberdeen, the Scottish Government should engage with UK Research and Innovation (UKRI), in establishing a Global Coordinating Centre for Healthy Ageing Research and Development to focus on identifying world-class productive knowledge exchange between academia and public and private sectors to meet the challenges associated with an ageing population.

The Scottish Government should place R&D at the heart of a new Scottish Industrial Strategy with the aim of building a strong home grown R&D industrial base and a large-scale research-intensive economy in order to retain more of the benefits of R&D within Scotland and attract more talent and investment from around the globe.