RDI Landscape Review - Invitation for Views Submission

February 2022

To	Department for Business, Energy and Industrial Strategy (BEIS)
From	The Physiological Society

Background:

The Physiological Society (The Society) is Europe's largest network of physiologists, at the forefront of science for 145 years. 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.

Our membership includes academics operating in higher education settings as well as researchers in industry and other public bodies. We support research, teaching and knowledge exchange activity and therefore have a broad view of the research and development ecosystem in the UK.

Learned societies such as The Physiological Society play an important role in the UK's Research, Development and Innovation (RDI) Organisational Landscape. Learned societies are usually formed and run by, and for, their members and therefore have a unique role within the UK's RDI landscape. As well as supporting researchers directly in their career development, The Society holds regular scientific conferences and publishes scientific papers in our journals. The UK's strong learned society sector is one of the primary reasons for the broad strength of UK science. As the 'voice of the discipline' learned societies are uniquely placed to bring together scientists in a range of settings who are united by their determination to advance science.

Therefore we believe that any review of the UK's RDI landscape should consider the learned society sector's place within it.

In 2021 The Physiological Society convened a range of organisations to consider how the UK's RDI landscape could be improved in order to:

- Improve the RDI landscape for interdisciplinary research
- Increase knowledge exchange activity by placing it at the heart of the RDI ecosystem

This paper presents a summary of the findings of these projects that will be useful to the RDI landscape review.

Objective(s):

- Put physiology at the heart of improving the RDI landscape for interdisciplinary research
- Ensuring knowledge exchange is central to the UK's research and innovation ecosystem
- The Society would welcome the opportunity to discuss the role of learned societies as part of the UK's RDI landscape, and how we can support the continued development of UK sciences skills base and infrastructure

Society response:

Improving the RDI landscape for interdisciplinary research

The role of interdisciplinary research to address research questions posed by global social, economic, ecological and political changes is widely recognised. However, the RDI landscape in the UK often stifles rather than supports interdisciplinary research.

In 2021, The Society commissioned Research Consulting to undertake a review of how the RDI landscape in the UK could better support interdisciplinary research, with a specific focus on the next iteration of the Research Excellence Framework (REF). We brought together a range of sector organisations including Research England, The Royal Society and Russell Group. The work and recommendations were informed by a representative set of participants drawn from across the research community, these included academics and institutional research leaders, research managers, representatives from funding bodies, publishers and industry.

Over time interdisciplinary research can re-shape the RDI landscape creating new fields that build from interdisciplinary origins and combine skills that were previously disparate.

Our review identified a number of underpinning issues affecting the RDI landscape for interdisciplinary research, including:

- Longstanding concerns over interdisciplinary research including within national research assessment in the UK (dating back to research assessment exercises in the 1990s).
- Trust and confidence in peer review for interdisciplinary research is an underpinning issue, and the discipline-led unit of assessment structure influences the selection of IDR for submission to REF.
- A growing imbalance between the significance and pervasiveness of mission- or challenge-led research in the wider funding landscape and the extent to which this is reflected in the discipline-led REF.
- The difficulties in identifying and understanding the extent of interdisciplinary research through bibliometrics.
- That interdisciplinary research is complex with many sub-types and features that influence the risks researchers face in undertaking it, and our ability to understand and segment issues with greater focus.
- The need for a better understanding of interdisciplinary research and research teams for effective review and assessment.

Building on the wider evidence and perspectives on interdisciplinary research, the report identified a number of recommendations for action to improve the RDI landscape for interdisciplinary research in the UK, including:

- Professional and learned societies should develop activities to support and facilitate the development of interdisciplinary collaborations with a broad array of different disciplines (“near” and “far” disciplines).
- Trust and confidence in peer review should be addressed by funders and publishers working together to identify specific measures to enhance capacity and capability for interdisciplinary peer review across all types of review.
- Addressing ongoing perceptions of negative impacts on career development for researchers involved in interdisciplinary research. There is a lack of evidence that provides an up-to-date perspective on this.

- The next REF should adopt a structure which explicitly identifies and rewards interdisciplinary research. It should introduce flexibility to allow individuals whose research and outputs straddle discipline-based assessment structures to be returned to multiple units. This recognises the breadth of the research teams in which they operate and the outputs generated from this.

Our interdisciplinary research report is available to download here: www.physoc.org/policy/research-landscape-and-funding/interdisciplinary-research

Putting knowledge exchange at the heart of the UK's research and innovation ecosystem

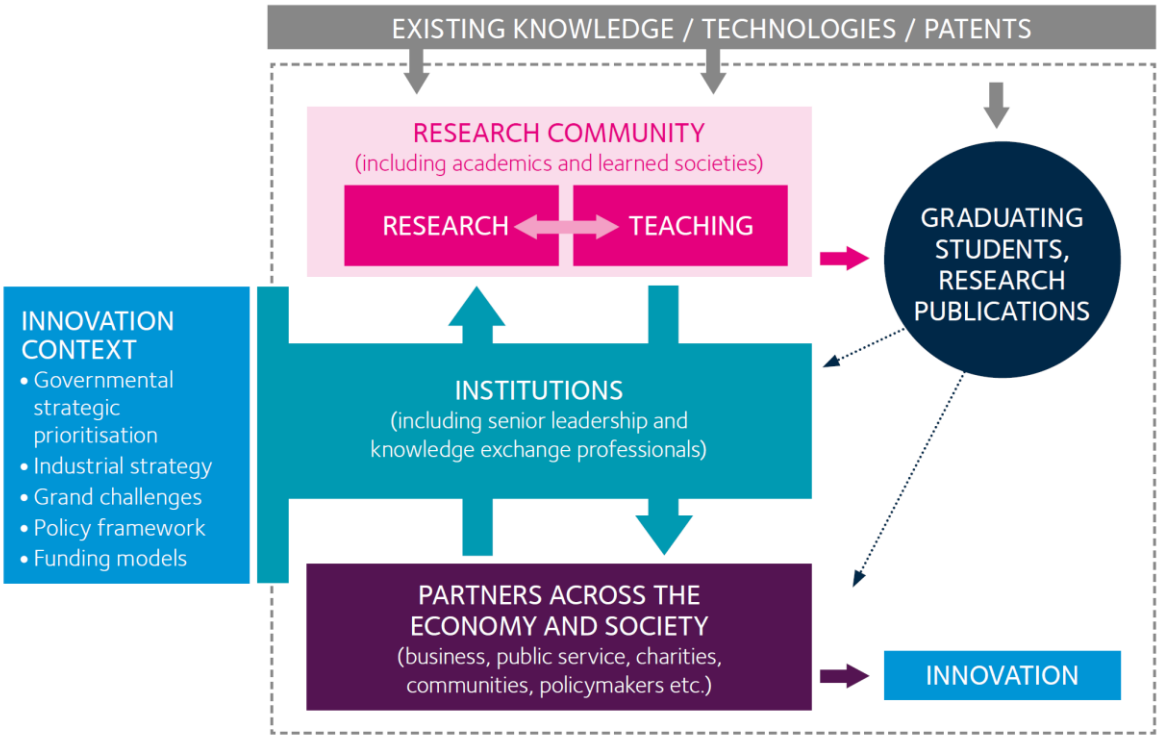
There is no doubt that research makes a huge contribution to society and the economy well beyond the laboratory. The Society welcomed UKRI's 2020-21 Corporate Plan in which collaboration across disciplines and challenges was emphasised, stating that *'the research and innovation system is complex and multidimensional and must be considered holistically'*.

In order to ensure that the UK is best placed to lead the response to future challenges, now is the time to foster networks between universities, industry and the whole RDI ecosystem. By focusing investment on improving these partnerships, the interdisciplinary networks essential to knowledge exchange will be catalysed to maximise its societal and economic benefit.

In 2021, The Society carried out a research project in partnership with the National Centre for Universities and Business (NCUB) into knowledge exchange activity. The project assessed the impact that physiology makes to knowledge exchange. To this end, it can be said that physiology is a significant contributor to knowledge exchange income for those institutions that provided us data, with an average of 11% knowledge exchange income related to physiology.

The knowledge exchange ecosystem (see figure 1 below) depends on interactions between the research community (including academics and learned societies etc.), institutions (including senior leadership and knowledge exchange professionals) and partners across the economy and society. This is set within an innovation context that is shaped by overarching policies such as funding models and government priorities.

Figure 1 Overview of stakeholders involved in knowledge exchange (adapted from Public and Corporate Economic consultants)



Everyone involved in the UK's broad research and innovation ecosystem has an important role to play in improving interconnectivity to build a thriving system that connects discovery to prosperity and public good. To do this, knowledge exchange must be placed at the heart of the research and teaching ecosystems.

The project demonstrated a new way of benchmarking a specific discipline against previous national approaches to understanding knowledge exchange among the academic community. This understanding will be valuable as part of a review of the broad RDI landscape. It showcased the variety and value of knowledge exchange, as well as highlighting the need to ensure that universities and businesses alike recognise the importance of – and nurture - collaboration across sectors.

The Society has been able to work across the RDI landscape to respond accordingly to address specific areas of opportunities and weakness with respect to physiologists conducting knowledge exchange. We are working in partnership with NCCPE and NCUB to establish a network of physiologist Knowledge Exchange Academic Champions to promote knowledge exchange opportunities. There are also broader lessons for the system as a whole. For example, it was clear from data gathered for this project that institutions having staff in departments with a clear responsibility for knowledge exchange and external impact had a better understanding of both strategy and operational context.

We also recommended that 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.

Our knowledge exchange report is available to download here: www.physoc.org/policy/knowledge-exchange/translating-knowledge-research-into-impact/

Next steps

We would welcome the opportunity to discuss the role of learned societies as part of the UK's RDI landscape, and how we can support the continued development of UK sciences skills base and infrastructure.