

Transforming UK Translation – six years in

In 2017, the Academy of Medical Sciences, Royal Academy of Engineering, Royal Society, and Wellcome launched the Transforming UK Translation (TUKT) programme with a set of [commitments](#) to promote and support the translation of scientific research over ten years. The programme defines translation as outputs and activities primarily taking place in universities and research institutes, ranging from the exchange of knowledge and ideas, the creation and exploitation of intellectual property (IP), and academic-industrial collaborations, to the establishment of spin-out companies, and the development of products, processes and enabling technologies such as research tools and materials.

This document provides an update on the Royal Society's activities, highlighting progress against the TUKT commitments and plans for the remainder of the programme period. For queries, please contact industry@royalsociety.org.

Why does this matter?

Science benefits people and the planet when ideas and discoveries are transformed into practical solutions. From the steam engine to machine learning, scientific innovation powers industry and the economy. It gives us the products and tools that improve lives and create opportunities for people in the UK and globally. It builds our resilience to national and global-scale threats from climate change and biodiversity loss, to manmade disasters and pandemics. It can be accelerated through systemic policy interventions aimed at removing barriers to translation, as well as bottom-up interventions on a smaller scale such as TUKT.

While much has changed at a national and global level to impact the UK's translation environment since 2017, the fundamental challenges identified through the TUKT commitments remain as relevant to policymaking today as they were then.

Transforming UK Translation (TUKT) – eight commitments

A culture that allows research and translation to thrive together.

Commitment 1: We will foster a system that rewards and celebrates translation as part of research excellence. Translation should be an accepted part of the academic endeavour and should be recognised in recruitment, funding, and promotion decisions — publication records are not the only way to assess academic achievement.

Commitment 2: We will encourage and assist the movement of people and ideas between academia and industry. Working across sectors should be the norm and not the exception.

Commitment 3: We will open up training and development opportunities so that all researchers, including those in their early career, can develop their awareness of, and skills in, translation.

Support and investment that nurtures and develops innovative ideas.

Commitment 4: We will work together to ensure that the principal focus of translation is delivering benefits for society, recognising that this includes wealth creation. Those involved in translation, including academics and knowledge exchange professionals, should not simply focus on recovering costs or generating short-term revenue for a university or institute.

Commitment 5: We will support translation activities, including those delivered through a Technology Transfer Office, so there is sufficient resource to work at pace and fully realise the potential of research

outputs. This could include developing appropriate IP strategies; incubating ideas; creating bespoke networks of expertise around projects; and finding the best route to market.

Commitment 6: We will assist in the development of clear and accessible IP policies and practices. These should be harmonised wherever possible so that IP can be utilised quickly and easily to deliver impact.

Commitment 7: We will help to build wide-ranging and trusted networks of people with commercial and entrepreneurial expertise so that researchers and those who support the translation process can access the advice and guidance they need to develop ideas successfully.

Commitment 8: We will support and invest across the translation system. This ranges from small amounts of concept funding which can be accessed with minimal bureaucracy, to patient capital that backs propositions over the long-term and has realistic expectations about returns.

Royal Society progress against the eight commitments

The Royal Society responded to the eight commitments by reviewing its offering and introducing both new and enhanced schemes as outlined below.

Entrepreneurs in Residence

Launched in 2017 the Society's [Entrepreneurs in Residence](#) (EiR) scheme provides opportunities for experienced industrial scientists and entrepreneurs to spend one day a week at a university or institute to expose staff and students to industrial R&D; to provide expert advice on innovation and translation of research; to grow confidence in and understanding of business and entrepreneurship in students and faculty and to also provide career recognition to the awards holders and their professional development.

By end of March 2023, the Society had supported 101 EiR awards at 48 different hosts across the UK. A short review of the impacts of the scheme to date indicated that EiRs have been involved in securing over £47 million in funding for commercial projects, supported over 488 start-ups and spin-outs, and engaged with approximately 20,000 staff and students.

Three of the Society's EiRs have had their award highlighted in an online case study: [Dr Fiona Riddoch](#), [Dr Charles King](#) and [Dr Ceri Batchelder](#). Others have described the impact they have had and how the award has affected them in this [video](#).

Industry Fellowships and Short Industry Fellowships

The [Industry Fellowship \(IF\) scheme](#), which has been running for over 40 years, aims to support the mobility of academic or industrial researchers between sectors. It enables IFs to develop and establish links between the academic and industrial organisations, which may lead to longer term collaborations; supports their career development and that of their team through the cross-sector collaborative research experience afforded; and enhances knowledge exchange in science and technology between industry and academia. In response to the TUKT commitments, the Society in 2018 introduced the Short Industry Fellowship (SIF). This has the same aims as the IF scheme but is awarded for a shorter period of time allowing more flexibility for those who do not wish to commit to a longer period, and so broadening access. From 2018 to 2023, 42 SIFs were awarded. The Society invites all EiRs, IFs and SIFs to join its Industry College which is a growing network of people with commercial and entrepreneurial expertise.

Four IFs, Dr Tiffany Wood, Professor Moi Hoon Yap, [Professor Julie Macpherson](#) and [Professor Katherine Smart](#) describe the difference the Industry Fellowship has made to their careers in this [video](#).

Transforming UK Translation conferences

The first of two meetings built on previous work by the Society on the challenges surrounding the translation of research into successful business outcomes and how they can be overcome. It brought together stakeholders across the innovation chain to discuss some of the problems, best practice, and means of fostering stronger industry-academia relationships, as well as ways in which the Society could help promote effective translation. The report from the conference is [available on the Society's website](#).

The second meeting explored the effects of COVID-19 on translation practices and business-academia collaborations. The main topics for discussion revolved around removing barriers to translation, reducing bureaucracy, recognising the need for urgency, and establishing quick and efficient collaborations. The report from the conference is [available on the Society's website](#).

Key challenges identified at these conferences included the means by which IP generated within universities is exploited, particularly with regard to the perceived value and the contracting speed; the lack of mutual awareness between industry and academic institutional pressures and priorities; the visibility of academic expertise to industry; and the misalignment of provision of skills training at academic institutions and industry needs across several sectors. Instances where these challenges had been overcome often involved the development of long-term collaborative relationships and an established track record of mutual benefit.

Transforming our Future conferences

The Society has continued to deliver industry-facing conferences featuring cutting-edge science from industry and academia which bring together leading experts from the scientific community, industry, government, funders and charities, first launching the scheme in 2015. Since June 2017, the Society has run 30 of these conferences, which have resulted in new collaborations between industry and academia. Links to conference series are [available on the Society's website](#).

Other programme activity

The Society has added business and entrepreneurial training as options in its early career grants including Dorothy Hodgkin, Industry, Newton International, Sir Henry Dale, University Research and Wolfson Fellowships. It has formed a working group chaired by Dame Sue Ion GBE FREng FRS to review ways in which industry representation across the Fellowship could be significantly improved. It has also changed the way that medals and awards are judged, now placing much greater emphasis on the translation of the impact of an individual or team's research and innovation project or programme of work.

Policy activity

Finally, the Society has been actively engaged in influencing systemic change in the areas summarised below. This includes successfully making the case for increased public investment in R&D, feeding into numerous translation-related reviews and consultations, and shaping research culture for the better through the [Resume for Researchers](#) and other activities aimed at normalising a broader definition of scientific excellence beyond academic publications.

UK policy context since 2017

The last six years have seen major upheaval both nationally and internationally. Two external factors in particular – [Brexit](#) and [COVID-19](#) – have had significant consequences for collaborating at the interface between academia and industry, some of which have been positive (for example, the [rapid development and deployment of vaccines](#)), but others negative. At the same time, countries like [China](#) and the [USA](#) have been ramping up domestic expenditure on science and technology, increasing the pressure on the UK to compete for scientific talent and investment.

Relevant policy developments since 2017 include a [UK Government commitment to increase public spending on research and development](#) (R&D) from just under £15 billion a year in 2022 to £20 billion by 2025, while adopting a science and technology-centred approach to growth and security policy through successive Budgets and Spending Reviews. The Government has overseen the launch of [UK Research and Innovation](#) and the [Advanced Research and Invention Agency](#) with missions to “connect [scientific] discovery to prosperity and public good” (UKRI) and invest in high risk-high payoff projects “with potential to produce transformative technological change” (ARIA). R&D has been prominent in devolved decision-making in [Scotland](#), [Wales](#) and [Northern Ireland](#). Similarly, the [Labour opposition in Westminster](#) has committed to “establish an ambitious long-term strategy for science” supported by a [ten year funding settlement](#) that “[creates the predictability] for discovery-led science, but is agile and able to respond to emerging technologies and seize opportunities for the UK to lead in future industries”.

More specific to TUKT, there has been growing emphasis since 2017 on recognising and rewarding the societal impact of academic research through the [Research Excellence Framework](#) (REF). A [Knowledge Exchange Framework](#) (KEF) has been introduced alongside the REF to raise the profile of higher education-business and community interactions. There has been increased interest from policymakers in promoting intersectoral mobility and porosity, as articulated in the Government’s [R&D People and Culture Strategy](#). Other developments include science and technology finance interventions in the form of [British Patient Capital](#) and changes to [pension fund rules](#) and [R&D tax credits](#), the announcement of regional innovation accelerators, investment zones and other policies aimed at ‘levelling-up’ outside London and the Greater South East, and the strengthening of [research security](#) measures intended to protect university IP against foreign threats. There has also been sustained political interest in incentivising IP exploitation, a hotly contested topic addressed most recently in the [independent review of university spinouts](#).

Looking ahead

In 2023, the Society launched of a new five-year programme [Science 2040](#) imagining the future science system and making the case for a long-term investment framework. Sir Adrian Smith PRS is chairing the steering group for the programme with initial workstreams exploring the value of science in terms of economic impact, societal resilience, and public expectations.

Science 2040 is expected to produce an interim report in Autumn 2024 setting out a long-term vision for the future science and translation system. The Society will also continue to inform policy and practice on research culture in academia and industry, while exploring opportunities to influence innovation policy with input from members of the [Science, Industry and Translation Committee](#).

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