Factsheet 12: British Success in EU Science, Research and Higher Education

Summary

- The European Union plays a key catalytic and funding role in British science and research, enhancing know-how, research collaborations and knowledge-sharing networks. EU engagement is strengthening our innovative capability and competitiveness.
- Britain has achieved a fundamental reorientation of EU resources away from agriculture and towards programmes to tackle the challenges of the 21st Century. Britain is a big net beneficiary from the EU's science and research programmes – which account for a quarter of public funding for research in the UK.
- The strength of our university and research base makes the UK uniquely placed to exploit the EU's scale and networks, enhancing our leading position in cutting edge research.
- Erasmus Plus promotes study exchanges in education, in workplace training and apprenticeships, thereby enriching student courses and work experience.
- Leading figures in British universities (led by Professor Stephen Hawking) have warned about the dangers to science and research from leaving the EU.

How EU investment in research has accelerated

EU research investment adds significant value to Britain's research base. It provides extra funding, encourages research collaboration and develops shared facilities in critical areas where large-scale capital investment is required. The first EU Research Framework programme (FP1) was launched in 1984 with a budget of €3.3bn. By contrast, between 2014 and 2020, planned EU expenditure on research, development and innovation will be €120bn. Horizon 2020 reflects the policy launched at the 2000 Lisbon Summit, and strongly supported by the UK, of shifting resources into enhancing competitiveness and away from agriculture. The first fruit of this approach was Framework Programme 7 (FP7), which ran from 2007-2013, with a budget of €56bn. 2007 also marked the launch of the European Research Council (ERC) a globally leading programme to support long term "blue sky" projects.

Making the EU an area in which knowledge, technology and researchers circulate freely.

Other EU programmes encourage network building and researcher mobility. The European Research Area, launched in 2000, aims, for example, to complement the Single Market for goods and services with a single 'knowledge area', in which researchers, scientific know-how and technology circulate freely. Marie Skłodowska-Curie Actions (MSC) have enabled thousands of researchers to develop their skills in other countries and disciplines. Joint Technology Platforms and Public Private Partnerships are leveraging investment into technologies and sectors that are critical for Europe's future – such as innovative medicines, fuel cells, and cleaner, quieter aircraft. Structural funds are awarded to less prosperous UK regions for research projects, and especially infrastructure.

UK success in exploiting EU Research Funding

From 2007–2013 the UK received €8.8bn EU funding for research, development and innovation, the fourth largest national share. This included €1.9bn of structural funds for research and innovation. From FP7 alone, the UK was the second largest recipient after Germany, securing €6.9bn. Of all 28 Member States, only the Netherlands received a higher proportion of FP7 funding relative to GDP and population size.

The UK receives a greater amount of EU research funding than it contributes. Over the period 2007 – 2013 the UK Office of National Statistics (ONS) reported an indicative figure for the UK's contribution to funding EU research & development of €5.4bn. During this time, the UK received €8.8bn in EU funding, a positive balance of €3.4bn.

An analysis by software company, Digital Science, has found that 41% of public funding for cancer research in Britain along with 62% of nanotechnology comes from EU sources.

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Funding from the European Research Council (ERC) and Marie Skłodowska-Curie Actions (MSCA), is awarded solely on the basis of scientific excellence. The UK was the top performer amongst all participating countries. UK based researchers received €1.7bn in ERC grants, 22.4% of the budget. Over the same period, through Marie Skłodowska-Curie Actions, UK-based researchers received €1.1bn, or 25.5% of the programme budget.

In 2013-14, UK universities received £687m of research income from EU sources.

EU Support for Enterprise and Knowledge Transfer

Business funded 45% of UK R&D in 2007-2013. With strong UK endorsement, the Horizon 2020 programme has brought together all EU programmes for business support and knowledge transfer. This new generation of EU funded projects support companies in commercialising research-based products and services. The European Parliament successfully advocated that a higher share of projects should be dedicated to assisting research intensive small enterprises, resulting in simpler and less bureaucratic approaches. Associate countries are able to participate in Horizon 2020 work but were a post-Brexit Britain to seek such a status it would have to fund the net benefit which the country currently enjoys – a substantial extra cost for what we already have.

The European Institute of Technology is an independent body of the European Union set up in 2008 to spur innovation and entrepreneurship. It brings together leading higher education institutions, research labs and companies to form cross-border partnerships – Knowledge and Innovation Communities (KICs) - that develop innovative products and services, start new enterprises, and train a new generation of entrepreneurs. The UK plays a leadership role in the KIC programmes.

The EU boosts British success in international research collaboration

British collaboration with other EU Member States has increased at a faster rate than with other partners. In 1981, 43% of the UK's international output comprised UK-Europe collaborative papers; by 2012 this had risen to 60%. UK and European researchers pool their knowledge, infrastructure, data and resources to achieve more together than they could alone. European programmes help UK researchers collaborate with talent across the world, not just in the EU – recognising that global problems require global solutions. Inside the EU, we are, however, part of the strongest knowledge-producing region in the world.

Education - Enhancing the learning experience

The EU has no Treaty competences over national education policies. However, it plays a valuable role in monitoring educational outcomes across Member States.

The long established Erasmus programme provides opportunities for large numbers of UK students, academic staff and researchers to experience living and working in continental Europe. The number of UK students participating in Erasmus has risen steadily and stood at over 14,000 in 2012–13. Erasmus is the single largest source of funding for UK students working or studying abroad. It enables them to broaden their studies, build networks and absorb other languages and cultures. The programme also supports students from other EU countries to study at UK universities.

Over 200,000 UK students and 20,000 university staff have benefited from Erasmus exchanges.

Under the Erasmus Plus scheme, launched in 2014, the EU has consolidated its programmes for young people in education, workplace training and apprenticeships to broaden and enhance their experience in other EU countries. Erasmus+ has a 40% increase in funding compared to the predecessor Lifelong Learning programme, with €14.7 billion in grants over 7 years targeting opportunities for over 4 million people. There is a stronger focus on improving young people's job prospects and tackling youth unemployment.

What leading British scientists and university leaders say

In February 2016, 103 academic leaders warned that leaving the EU could 'undermine the UK's position as a global leader in science, arts and innovation'. On 30th May, Professor Sir Stephen Hawking led 150 Fellows of the Royal Society in warning that leaving the EU would be a 'disaster' for British science and universities. Professor Hawking said: *'Students come to study here from EU countries and our students can go to other EU universities. The exchange of people enables skills to transfer more quickly and brings new people with new ideas. Without this exchange we would become more culturally isolated and insular and ultimately more remote from where progress is being made.'* On 11th June, 13 Nobel-Prize winning scientists – including Professor Peter Higgs who discovered the Higgs boson particle in 2012 – warned that the prospect of losing EU research funding is a 'key risk' to UK science, adding that over 80 per cent of UK scientists want Britain to stay in the EU.

Recently over 100 leaders of the UK's £60 billion Life Sciences sector - which provides over 200,000 skilled jobs - warned that inward investment and job creation would be seriously damaged by leaving the EU. Since 2012, the UK has secured over £5 billion of inward investment in Life Sciences, in large part because of our membership of the EU.