

Government Review of the Balance of Competences between the UK and the EU: Research and Development

Response from the University of Warwick

1. Where has EU action had a positive impact for the UK on research, technological development, innovation or space? What evidence is there for this? Has EU action encouraged national action in any areas?
 - 1.1. EU funding streams for research and development have been, and continue to be, critical to UK universities and to the **support of the excellent science base in the UK**. In turn, this investment in UK research is critical to the growth and global competitiveness of the UK economy. Therefore, the University strongly supports the recent agreement of €70.2m for the forthcoming Horizon 2020 programme and its continued focus on supporting excellent science wherever it is found in Europe.
 - 1.2. The key focus of EU funding on funding **excellent science** has been extremely positive for the UK. The increasing importance of the **European Research Council** is critical in this regard. By supporting fundamental, bottom-up research with a focus on excellence, the EU has created a funding process which is highly competitive and of the highest standard, seen as an international badge of excellence. The ERC has succeeded in funding the best individuals, allowing them the space and time to become worldwide leaders in their field and to build supporting teams around them. This has had the effect of not only supporting the best researchers already in the UK, but bringing in highly skilled individuals and teams from outside the UK and, as importantly, from outside Europe.
 - 1.3. By supporting **collaborative projects**, the EU provides a mechanism for UK researchers to work with colleagues across Europe, building teams with the best fit to address the particular research area and not curtailed by the necessity of having to find UK partners. This, again, supports UK researchers in undertaking the best science possible without being restricted by national boundaries. In addition, it is significantly more efficient for such collaborations to be coordinated through Brussels rather than through individual institutions or national funding bodies each negotiating multiple bilateral agreements.
 - 1.4. Increasingly, the major challenges facing the UK are international by nature (such as the need to develop competitive low-carbon supplies, adapting to climate change, digital security and food security). The EU provides a forum in which resources can be pooled to address these **global challenges**, supporting researchers and innovators to work collaboratively to find solutions to these international problems. The scale and multinational scope of these opportunities offered by the EU could not be matched by UK research funders alone and, therefore, provides a definite added-value.

- 1.5. The EU encourages **mobility of researchers** - both through direct recruitment and through specific funding schemes. The Marie Curie Actions have brought many European and non-European researchers to the UK where they have shared their expertise, and the ERC, combined with the excellence of UK research facilities, has also led to the arrival of a significant number of excellent researchers in the UK. The influx of higher skilled international researchers only serves to enhance the UK's position as a leading provider of higher education globally.
- 1.6. The University strongly welcomes the development of the European Institute of Innovation and Technology (EIT) and the Knowledge and Innovation Communities (KICs) which aim to stimulate growth and competitiveness in the EU through enhanced **innovation**. The UK plays significant roles in two of the KICs – Climate KIC and InnoEnergy. In Climate KIC, a UK-led initiative added a regional component to the EU-devised standard model for the composition of KICs, which has led to the involvement of SMEs, NGOs and local government in the coalition of organisations working towards finding solutions for climate change.
- 1.7. The University welcomes the new **funding mechanism** agreed for Horizon 2020 of 100% direct costs plus 25% for indirect costs, which will move further towards supporting the sustainability of the research base.
- 1.8. It is important for the integrity of its funding for research that the EU is seen to fund excellent science wherever it is found in Europe. Thus care should be taken with awarding preferential funding to the newer accession states in Horizon 2020 not to erode this excellence criterion. However, use of the Structural Funds, and the development of the EUA through initiatives such as the ERC Chairs, are key to **developing research capacity and widening participation** in these newer member states without prejudicing this requirement for excellence.
- 1.9. Through their involvement in EU funding, UK researchers have the opportunity **to influence policy and practice** throughout Europe, thus widening the scope of the impact of UK research. Through these research projects and, for example, involvement in both KICs and European Technology Platforms (ETPs) researchers can build direct links in to the European Commission and have a positive impact on the relevant policy agendas in their areas.
- 1.10. EU laws have helped bolster the requirements for **freedom of expression**, and for non-discrimination, as evidenced (for example) in UUK Report on Freedom of Expression on Campus.
- 1.11. Thus it is important that EU funding is seen as a complement to, and not a replacement for, UK national funding for research. The EU, through providing support to both attract and retain the best international researchers, incentivising collaboration to address global issues, and developing the mobility and skills of early stage researchers across Europe, is funding research in a way that national funding bodies cannot replicate.

2. Where has EU action had a negative impact for the UK in these fields? What evidence is there for this? Has EU action prevented potentially useful national action in any areas?

UK industry has not always fully seized the opportunities for collaborative R&D at a European level. They do not access academic capabilities in Europe often, whilst European companies, to their advantage, are more proficient at accessing capability in UK universities. Some countries target EU funds through intermediary bodies e.g. the Fraunhofer Institutes in Germany. There are fewer examples of this happening in the UK, although of course the Catapults will look to do this. The EIT and KICs provide significant opportunities for engagement but SMEs, in particular, will need support to access these opportunities.

3. How and where has UK engagement with partner countries or international bodies, both within and outside the EU, been helped or hindered by EU involvement?

Whilst the research funding available from the EU is immensely important to UK Universities, EU funding is only available for selected third countries (either through Associated Country status or low-income international collaboration partner countries). Partner institutions from countries which do not fit either of these categories are expected to source their own funding for participation in EU projects. Many find this difficult or impossible to achieve, meaning institutions from these countries are often reluctant to participate in consortia. Thus, identification of the best partners for projects is often undertaken on the basis of who can receive EU funding, rather than because they provide the best scientific quality research or intellectual compatibility with the project – consortia often become groups of partners from the best geographic fit rather than being driven by excellent science.

Nevertheless, EU programmes have positively supported the development of partnerships beyond the EU's borders. Through the allocation of significant resources to collaborative projects with developing world countries, the Framework Programmes have allowed both UK and low-income country research institutions to build profile and reputation in ways that would not otherwise have been possible.

In addition, non-research focused programmes such as Erasmus, with their main focus on student exchange, have also brought researcher colleagues into formal contact with each other, from which numerous research activities have emerged and produced significant results.

4. What benefits or difficulties has the objective of a European research area (ERA) delivered for the UK?

The objective of the ERA has encouraged greater mobility of researchers which, given the UK's leading position in higher education in Europe, has been largely beneficial. With their excellent international reputations, UK research institutions have been able to attract some of the best researchers from around the EU. It has also stimulated, through initiatives such as the Marie-Curie schemes, a vibrant community of early stage researchers that engage at a European level, and who will be key to the success of the ERA.

In addition, the objective of the ERA provides a mechanism to achieve 'critical mass' through which European researchers can compete worldwide. This is of particular importance in research areas with high entry costs e.g. those that depend on large/costly infrastructure or facilities. By promoting collaboration and the sharing of facilities at the European level, such infrastructure can be more efficiently utilised and thus the cost of research can be more competitive worldwide.

More negatively, the expansion of the EU into countries with less well developed higher education sectors runs the risk that political considerations (e.g. the capacity of the accession states to participate effectively) will be given undue weight when addressing what should be purely research-driven priorities.

5. How has the EU sought to coordinate the policy instruments at its disposal across different policy areas to create an enabling environment for researchers and innovators? How successful has this been?

The EU funds a wide proliferation of schemes and mechanisms etc. and there are cumbersome processes across many of its policy areas. Whilst simplification of these mechanisms has long been an aim of Framework programmes, any such simplification achieved is often of benefit to the Commission rather than to the institutions it funds. Similarly, within ERDF, a regular changing of rules within the duration of projects makes it very hard for organisations to operate effectively. This proliferation of schemes and bureaucracy, in comparison with UK based research funding, is often a disincentive to researchers competing for EU research funding.

Future opportunities and challenges

6. What could the EU most helpfully do to promote scientific and technological progress and innovation (including in the space sector)?

- a. How could the EU use its existing competence differently to deliver more in your area?
- b. How might a greater or lesser degree of EU competence deliver more in your area?
- c. How could improvements to existing EU activities make them more effective and efficient?

6.1. It is vital that EU research funding maintains a balance between funding bottom-up, excellent research and responding to global challenges, and that through both mechanisms it develops the reality of the European Research Area (ERA). The EU should continue to promote 'excellence' as the main criterion for supporting research, thus driving up the standard of EU research, and continue the excellent work of the European Research Council in this regard.

6.2. The size and scope of the EU's research and innovation programmes suggest that the EU is well placed both to bring together the best research and business expertise in order to tackle the major challenges facing the world, such as de-carbonising transport. In addition to the Commission itself, other organisations such as Research Europe have an important role to play in regard to this agenda. Research Europe, for example, exists to promote the collective interests of the Research Funding and Research Performing Organisations of Europe and should be supported in this mission.

- 6.3. The global challenges on which current research is increasingly focused, need not just EU, but global solutions. Hence the EU has an important role to play not just in promoting and supporting European researchers, but in working with funding bodies worldwide to coordinate the research response to these global issues. Here, the Global Research Council (GRC) is likely to become increasingly important. Comprised of the heads of science and engineering funding agencies from around the world, the GRC is dedicated to promoting the sharing of data and best practices for high-quality collaboration among funding agencies worldwide.
- 6.4. The EU should act to bring about the greater efficiency of Europe's research infrastructure. In addition to the economies of scale achievable through the better coordination of the research effort, the EU could coordinate some aspects of research infrastructure on a Europe-wide basis. Such a development, in specifically defined areas, would maximise the return on investment and avoid duplication of effort. This is particularly so in areas of very costly research infrastructure which would ordinarily be beyond the means of individual countries or small groups of institutions.
- 6.5. Finally, the EU should extend its promotion of greater collaboration between researchers and industry. In particular, it should seek to develop mechanisms through which researchers and end users can come together to identify common interests. Whilst ETPs and KICs are effective at promoting collaboration involving large corporations, greater activity is required to secure the participation of smaller businesses, especially SMEs.

7. Where might future EU level action be detrimental to your work in this area?

Any reduction in EU funding for research and innovation would have serious negative consequences - not just for the UK research communities, but also for the UK and EU economies. It would not only be detrimental to universities but also to UK industries, with a knock on negative impact on growth and competitiveness.

8. Where might action at national rather than EU level be more appropriate / effective?

Action should be at a national level, unless there is added value from conducting it at an EU level. Thus it is appropriate to take action at an EU level to create an ERA that both attracts the best researchers worldwide, and coordinates a European research response to addressing important global or European issues.

9. How could EU and national policies and funding streams interact better?

As already mentioned above, in relation to international coordination, greater synchronisation between the EU and the UK over responding to global challenges is vital. By enhancing the coherence of schemes and funding streams in this regard, duplication of effort could be avoided and more funding released to focus on addressing these key areas.

10. What impact would any future enlargement of the EU have on this area of competence?

Regardless of any future enlargement, EU initiatives should continue to focus on funding excellence wherever it is found. The success of the UK in securing EU research funding means that the EU will remain a key funder of UK research capacity, as long as excellence is at its core. In addition, enlargement would provide a wider pool for collaboration and recruitment through EU funding schemes such as the ERC and Marie Curie.

However, it is possible that enlargement would increase the influence of non-research political priorities which impact upon the EU's research and innovation strategy, and this would have a negative impact on the UK science base.

11. Are there any other points you wish to make which are not captured above?

Should the UK leave the EU, even if this were accompanied by an agreement to 'buy in' to the Research & Innovation programmes (e.g. Horizon 2020), the UK research community would be left with little influence on the determination of EU research priorities. In addition to the obvious detrimental effects to the UK research base, there would be a significant knock-on effect on the capacity of UK business and industry to compete globally.

Although not focused on R&D, the EU ERASMUS programme has had immeasurable benefits for the UK. The Erasmus programme is vital for the maintenance of undergraduate language degrees with a compulsory year abroad. The benefits to students' learning and to their language skills, their intercultural awareness and international outlook in a globalised world are immense. In addition, the academic exchanges have broadened and enriched universities' teaching and research, and promoted exchange of ideas and methodologies which often lead on to collaborative research projects.