

## **Balance of competences between the UK and the European Union: Research and development**

### **Summary**

The Met Office has significant experience in collaborative research and development ventures and projects nationally and on the EU and wider European stage. Although the various EU funding apparatus provide a welcome and valuable method through which to access shared knowledge and benefit in many R&D efforts, there are a number of issues that exist which either detract from the benefit or present a significant obstacle to the efficient pull through of science to user specific services.

A key benefit to Member States from their involvement in EU funded and directed R&D projects should be the ability to effectively and efficiently support the networking and transfer of skills, science and knowledge of existing capabilities – to further understanding, move the science forward, effect seamless pull-through to focused services and enhance existing national capability. In addition, the decision as to where to focus funding opportunities should be taken in consultation with Member States in order to identify the real need and capability gaps.

However, the lack of recognition and accommodation of existing national capabilities and funding mechanisms is a significant issue. Research & Development funded and coordinated at EU level must build on national capability, either through filling known gaps that could not otherwise be funded or by developing the research faster and more efficiently than could be achieved by a single Member State. There are, however, a number of instances where EU projects, utilising significant resources, are beginning to duplicate existing national capabilities – early warning systems for environmental hazards being one such area.

Similarly, the proposed output of centrally funded and coordinated projects do not always take full account of the genuine need of the end-user. Not marrying the user requirements to the project scope, funding and objectives at the outset results eventually in services that cannot meet the expectations of users and science that is not entirely focused on need.

The following answers to the specific questions posed by BIS provide some examples of the Met Office's experience of these issues.

### **Impact on the national interest**

#### **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?**

Framework Programme (FP) research and development funded projects provide valuable access to third-party funding of growth to support and add to national funding. In addition, the projects allow the Met Office to exchange knowledge with European partners as well as gaining access to expertise from outside the UK. Both of these outcomes contribute significantly to accelerating R&D work, leading in turn to improved or earlier delivery of services to users.

The main areas of Met Office engagement have been in Climate/Earth system modelling; marine modelling; observations – including the FAAM joint Met Office/NERC research aircraft; and numerical weather prediction - particularly for aviation.

Over the past decade the Met Office EU funding from the Framework programme series has grown from ~£0.75m pa in 2000 to ~ £2.5m pa.

**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?**

In the Met Office's experience, EU action, particularly through R&D funded projects, takes a long time from preparation to starting – this is particularly true of the Commission's review and contract negotiation processes which can be very protracted. This lengthened timescale has a negative impact on R&D compared to national R&D funded actions in that they may become misaligned. In addition, the effort involved in accessing and taking part EU funded projects presents such a burden that Member States may join only projects of a size and benefit judged to warrant such a protracted process and resulting increase in effort. Smaller projects may therefore be overlooked despite having the potential to fill an albeit smaller, or lower priority, gap in capability.

In some instances dedicated funding can also lead to potentially negative impacts. This has been the case, for example, with funding directed towards the Commission's Joint Research Centre (JRC) Directorate. The JRC, through central FP6 and FP7 funding, has developed and tested a range of pre-operational early warning services for environmental hazards. These were delivered as part of the JRC's responsibilities directly to the Commission Directorate, DG ECHO. However, there have been instances where services have been delivered to Member States without always taking due account of national systems and capabilities. This lack of coordination with national responsibilities and requirements means that funds were used in some cases to duplicate existing capabilities. This can lead to confusion stemming from what becomes multiple sources of information and advice which in situations involving natural hazard emergencies could have a detrimental impact on the speed of response.

The situation is slowly changing, though only as a direct result of active relationship building between the Met Office and the JRC and recent interactions between GO-Science and the JRC.

**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?**

**4. What benefits or difficulties has the objective of a European research area (ERA)<sup>25</sup> delivered for the UK?**

**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 Integrated Infrastructures Initiatives (I3s) and European Strategy Forum for Research Infrastructures (ESFRI) are EU R&D policy instruments that have been partially successful in creating an enabling and coordinating environment across Europe. I3s projects have been beneficial in funding research time and flight hours on the UK FAAM research aircraft across Europe and ESFRI has provided enabler funding for the establishment of some key infrastructure coordination projects across Europe. These projects include MOSAIC (atmospheric chemistry measurements on commercial airlines); PRACE (next generation computing across Europe); and EURO-ARGO (European contribution to the global array of floats for ocean observations).

However, the EC has not provided funding for the purchase and maintenance of these infrastructures which presents a significant burden and challenge to Member States. PRACE has also tried to provide a universal HPC architecture for the future across a range of different “grand challenges” but the reality is that not all of these challenges require the same architecture – this is certainly true of weather and climate prediction.

Through the European Institute of Innovation and Technology (EIT) and the Knowledge and Innovations Communities (KICs), the EC has sought to inject public investment into PPPs to stimulate more private sector engagement and innovation and growth. However, it is not clear to the Met Office, as a world-leading climate modelling and policy advice organisation, that the Climate KIC has been successful to date. The Climate Service market is still immature and there are also a range of other climate service orientated activities supported by the Commission that are not yet fully joined up - including, for example, the Joint Programme Initiative (JPI) on Climate and the Copernicus Climate Service developments.

## **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)?**

- **How could the EU use its existing competence differently to deliver more in your area?**
  - Facilitation of better representation from customers/users would increase focus on project outcomes and also ensure project outcomes were properly aligned to user needs.
  - The application and outreach of EU instruments and EU funding in H2020 - the science to service agenda – could be improved,
  - Better appreciation and understanding of national activities and programmes would improve understanding of where the EU/Commission can add value or fill known gaps.
  - More support and funding directed towards key underpinning infrastructure through ESFRI would be welcomed on large scale infrastructure projects – for example observations and HPC.
- **How might a greater or lesser degree of EU competence deliver more in your area?**
  - The EU competence needs to continue to be synergistic and responsive to any change in level of national competence. This is a prerequisite to any change in level of EU competence.

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

Centralisation of service development is in danger of eroding national programmes and national funding. In the longer term this will have a negative impact on the level and quality of services the R&D supports. The Single European Sky (SES) and the Single European Sky ATM Research (SESAR) are examples of where the EU is pushing for efficiency savings through rationalisation and centralisation. Long-term, centralisation of services and the supporting R&D puts at risk the level and quality of services. Efficiency savings through centralisation can have a negative impact on the level of critical infrastructures required to deliver the services, and a reduction in competitive science which will slow the development of improved services.

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

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

EU and national funding cycles are not well aligned. The EU works on a seven year cycle at present with Member States typically on a three to five year cycle. This can lead to a lack of coordination in priority setting – particularly important in areas requiring the matching of EU funding with that of Member States. The Met Office has experienced this directly in the climate JPI and in other related JPIs.

Science advice, and research and development outcomes, are important elements in defining and developing policies. The EU needs to understand, support and add value to national policies but EU understanding of national policies is often insufficient. We are aware of examples on climate change adaptation, civil protection and risk assessment. This leads to less effective use of EU investment in support of Member States by ultimately constraining or lessening the benefit from R&D outcomes.

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

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