

4 We would be very interested to hear any examples of where our investments have enabled or contributed to local economic growth.

EPSRC invested almost £1m in [the NIRVANA project](#) (2014-17), which provided a transformative step in the development of the UK's mobile wireless network, paving the way for the roll-out of 5G connectivity. Working with regionally-based commercial partners, this collaboration between the universities of Kent and Essex enabled the incorporation of fast, hardware-based, network monitoring, and intelligence (using the monitoring/gathered information) close to the pool of base stations.

This enabled users to more easily and robustly move between cells, adjusting the network's resources precisely to user needs, and optimising and reducing energy use. The technology was subsequently developed by the partners (including BT, NEC, EE, Qualcomm, JDSU and Techgate), thereby contributing to local economic growth.

8. What new approaches could EPSRC implement that might enable universities to contribute to the development of critical mass and the creation and growth of regional clusters? (Please focus here on completely new or more radical ideas and approaches.)

A key to the development of regional R&D is having access to world class equipment and facilities. At the moment, the facilities in many universities are only accessible to researchers and academics within them.

Eastern Arc is in the process of developing its capacity to share its equipment (and wider resources, such as special collections and significant datasets) across the consortium. Equitable access to these for colleagues at all three universities, as well those in commercial organisations based within the region, would significantly help to develop the critical mass and development of our regional cluster.

Putting in place collaboration agreements and protocols to allow access is a necessary first step to this, but it is also necessary to remove the financial deterrents to their use.

EPSRC could help facilitate this by providing funding to cover the costs of colleagues outside a host institution accessing strategic facilities within it. This could include their travel and subsistence costs, replacement teaching costs, technical training, reagents and other consumables, and access fees.

To simplify the process, the funding should take the form of a 'block grant' to a regional consortium (such as Eastern Arc, N8, GW4 or Midland Innovation) to administer on behalf of EPSRC, based on the equipment available and the capacity it has to be used by others.

The overall grants would be small when compared to those provided for new equipment, but they would have a significant impact, helping to move the centre of gravity for strategic, large equipment away from the traditional metropolitan hubs by removing a significant barrier to access.

11. Is there any further information you would like to share with us that might be relevant as we consider the challenges and opportunities related to the UK government's place agenda?

Eastern Arc welcomes the government's intention to 'examine how R&D funding as a whole can best be distributed across the country to help level up every region and nation of the country,'¹ and we agree with the Campaign for Science and Engineering (CaSE) that 'public investment is likely to be even more crucial' after the Covid-19 pandemic.²

However, such an examination needs to be granular, and careful in differentiating significant variations within regions. Although R&D expenditure is, in global figures, highest in London, the south east and east of England³, this is heavily distorted by the location of the six 'Golden Triangle' universities within these regions, which are all within the top ten richest universities in the UK.⁴

The Eastern Arc universities lie within the shadow of the Golden Triangle, and tend to be overlooked when 'levelling up' regional discrepancies is discussed.⁵ They are not alone in this. Many of the former 1994 Group universities are in a similar position.⁶

As with the Research Excellence Framework, the government's place agenda should ensure 'that excellent research continues to be well supported wherever it is found,'⁷ and not just in the larger metropolitan centres. Eastern Arc endorses CaSE's recommendations that 'investment should be focussed on R&D excellence that already exists – even if it is small and nascent', and that 'places should clarify their distinctive strengths and sectors.'⁸

Eastern Arc has a strong case to make for the existing excellence and distinctiveness of its work. Its three constituent universities - UEA, Essex and Kent - were established in the early 1960s as alternative, interdisciplinary institutions, focussing on socially aware, radical and disruptive research and education.

¹ Budget 2020: <https://www.gov.uk/government/publications/budget-2020-documents/budget-2020>

² Campaign for Science and Engineering (CaSE), 'The Power of Place: Maximising the Impact of R&D Regional Investments in the UK' (2020) <http://www.sciencecampaign.org.uk/resource/placereport.html>

³ Ibid.

⁴ The definition of the Golden Triangle varies, but is usually seen as Oxford, Cambridge, UCL, Imperial, KCL and LSE. These are six of the 10 richest universities in the UK, with a minimum endowment of £138m in 2019, with Oxford and Cambridge having over £6bn each.

https://en.wikipedia.org/wiki/List_of_UK_universities_by_endowment

⁵ The issue of the 'draw' of the Golden Triangle is also highlighted in the Research England report, 'Interim Review of the Connecting Capability Fund' (<https://re.ukri.org/documents/2020/interim-review-of-ccf-report/>)

⁶ In the south east, the former 1994 members are SOAS, Birkbeck, Sussex, Goldsmiths, Royal Holloway and the Institute of Education. https://en.wikipedia.org/wiki/1994_Group

⁷ UKRI: 'Final Guidance and Criteria for Research Excellence Framework 2021 Published' <https://www.ukri.org/news/final-guidance-and-criteria-for-research-excellence-framework-2021-publish-ed/>

⁸ Campaign for Science and Engineering (CaSE), 'The Power of Place: Maximising the Impact of R&D Regional Investments in the UK' (2020) <http://www.sciencecampaign.org.uk/resource/placereport.html>

The subsequent strength of both of these pillars of our work is clear [when the results of the REF are mapped against those of the TEF](#): the three members are in the top 10% of UK universities that have achieved the highest scores in both.

Going forward, we undertook a mapping exercise using quantitative and qualitative data to identify [four key strengths](#) that the three universities share. These form the heart of our new [five year strategy](#). They are:

- Health systems, social care and wellbeing
- Human rights, equality and conflict
- Sustainability, natural resources and food
- Culture, connection and creativity.

Within our region, we are already working with commercial organisations to build connectivity, exploiting the potential of the east and south east, its asset base, and facilitating improved harnessing of the combined capacity to support business growth through innovation.

Utilising funding from Research England, we have focused on developing strong relationships between researchers and companies working in the digital creative industries, biotechnology, and artificial intelligence. This programme, [‘Enabling Innovation: Research to Application’ \(EIRA\)](#), has demonstrated what is achievable through regional funding across the R&D spectrum.⁹

However, there is much still to do, and much potential as to what can be achieved. Investment from UKRI, including EPSRC, is a key part of this, and investment in smaller, research-intensive universities that are engaged regionally will inevitably have a more significant impact than investing the same amount in those that are already at capacity.

⁹ EIRA is referenced and its achievements used as case studies in the Research England report, ‘Interim Review of the Connecting Capability Fund’ (<https://re.ukri.org/documents/2020/interim-review-of-ccf-report/>) (2020)