

How can UKRI stimulate local economies through place-based research funding?

UCL response to Research England [consultation](#)

Summary

A systemic approach

1. To stimulate local economies via R&D activity requires consideration of multiple factors at work, and how they interact. These factors include: local capacity to fully harness funding opportunities, a highly skilled workforce, high quality infrastructure and connections to the wider innovation ecosystem.
2. To leverage the most impact from R&D funding to reduce inequalities will require:
 - Government investment in the wider local infrastructure
 - coordination between R&D funding and wider Government investment in regions
 - development of strong local or regional institutions that have the capacity to engage with and take action relating to R&D projects
 - in depth consultation with local stakeholders with a first-hand understanding of the issues, to stimulate bottom-up solutions with high feasibility and potential for impact
 - coordination and collaboration between research institutions, local government and businesses.

Interregional collaborations

3. The extent of structural inequalities between UK regions is a major barrier to the translation of research and innovation investment and activity into local economic benefits in less economically productive regions.
4. There is potential to stimulate local economic development via funding (such as via the Strength in Places Fund) targeted at supporting interregional collaborations, to harness regions' respective strengths. In particular, partnerships between institutions in research-intensive UK regions can provide research capacity (in disciplines relevant to local economic development) that complements the regional understanding and experience of institutions in less research-intensive areas.

Approaches to funding UK regions

5. Local economic development should seek to encompass a range of aims and metrics, not just productivity in the form of GVA/GDP.
6. Any assessment of the geographic distribution of funding requires the scale and characteristics of the region – such as population size, number (or nature) of universities or concentration of businesses – to be taken into account.
7. Funding decisions should be informed by sufficiently granular evaluations of areas of the UK, to take into account the heterogeneity of UK regions.
8. Investment in infrastructure can stimulate a surrounding cluster of related research and innovation.
9. A mission-oriented approach can provide a valuable framework to support local economic development, including by ensuring a cross-sectoral approach and concrete targets for impact.

Introduction

UCL is London's leading multi-faculty university, with more than 13,000 staff and 42,000 students from 150 different countries. UCL welcomes the questions posed by Research England and we recognise the role that research and innovation can play in local economic development. We seek to take opportunities to foster this, including through our research collaborations, partnerships and initiatives at our UCL East campus in Stratford.

1. Should research be an instrument of local economic development policy?

Research as a key component of the wider system

- 1.1. Research has an important role to play in supporting local economic development. However, **a systemic approach, taking into account interactions and interdependencies between research and other factors**, is required in order to impact the local economy in question.
 - 1.2. A **skilled workforce and strong research base** in a particular field (e.g. life sciences research) can enhance the impact – on local economic development – of R&D activity in that field. The Mayor's Economic Development Strategy for London (2018), for example, incorporates this thinking, by explicitly focussing on core growth areas that "harness the strength of London's research base".¹
 - 1.3. Interfacing between research, innovation and industry can help to **address the UK's significant skills mismatch**, supporting skills development among the lower to medium skilled workforce in post-industrial regions. Countries with larger skills mismatches tend to have lower productivity;² thus investing in skills has significant potential to improve productivity.³ Partnerships and initiatives that stimulate the development of innovation systems can be valuable in supporting skills development (see AMRC example in para 4.3).
 - 1.4. **In order to deliver growth, research must be connected to the wider innovation ecosystem**, as illustrated in the Innovation Lifecycle diagram in Annex 1. Research findings are incorporated into a range of sectors and industries, demand from which stimulates further research. This cycle both promotes growth and leads to diverse societal impact.
 - 1.5. In line with this, **local economic development should encompass a range of aims and metrics, not just productivity in the form of GVA/GDP**. Examples of how to approach this include the UCL Institute for Global Prosperity's citizen-led Prosperity Index, which measures what matters to the prosperity of local communities,⁴ and the Joseph Rowntree Foundation and Manchester University's 'inclusive growth monitor'⁵.
2. Is research capacity sufficiently distributed – or concentrated – in the UK? Do we have the appropriate conception of research excellence for research and development and innovation and place policy? Is research capacity sufficiently leveraged for place agendas?

Regional distribution of R&D funding

- 2.1. There are strong variations in the levels of R&D investment across UK regions. We suggest that any **assessment of the geographic distribution of funding should take into account the scale and characteristics of the region**, including factors such as population size, number of universities, concentration of businesses, or makeup of the workforce.
- 2.2. For example, the golden triangle regions of London, the South East and East of England contain large numbers of universities and researchers, dense populations and a large proportion of the UK economy.

- 2.3. We note that there is no uniquely authoritative way of describing the geographic distribution of research funding and show, in the figures in Annex 2, several ways of interpreting funding data.⁶ While the East of England receives a high proportion of funding on all measures and the North East, Wales, and Yorkshire and the Humber are consistently low, the pattern of distribution across other regions, including the South East, varies.⁷

Implications of R&D capacity for local economic development

- 2.4. While investment in London and the South East may benefit the national economy, growth in these regions does not tend to spread to other areas of the country.⁸ In fact, the UK is unusual – compared to comparator countries – in the extent to which its regions are economically decoupled.⁹
- 2.5. Research by the OECD suggests that investing and focusing development efforts on all regions, including those with lower productivity, achieves higher overall growth.^{10,11,12} Indeed, evidence from other countries suggests that investing in less economically developed regions does produce an economic return.
- 2.6. For example, in Sweden, substantial investment from the 1980s onwards in less economically developed regions, such as Gothenburg (situated in West Sweden) and Malmö (in South Sweden), has resulted in substantial economic development. In 2015 (latest Eurostat figures), R&D expenditure as a percentage of GDP in West Sweden was higher (3.81%) than in Stockholm (3.78%), while the figure for South Sweden (3.25%) was on par with the national average (3.26%).¹³ A similar transition has taken place in Styria in Austria, where the equivalent 2015 figure was 5.14%, substantially above Vienna (3.62%).¹⁴
- 2.7. However, the extent of structural inequalities between UK regions is a major barrier to the translation of research and innovation investment and activity into local economic benefits in less productive regions. **Local capacity is required to fully harness R&D funding opportunities.** A skilled workforce and high quality infrastructure are essential to this.
- 2.8. Government **investment in the wider infrastructure** (housing, transport, education etc.) is essential to leverage the most impact from R&D funding. A key part of this is the development of strong local or regional institutions that have the capacity to act. Greater coordination between R&D funding and other investment in UK regions would be valuable.
- 2.9. Investment should include both **hard** (such as transport, energy, communication networks) **and soft infrastructure** (systems of industry, education, healthcare and so on), since both influence the capacity for economic development, and their effects can compound each other.¹⁵ For example, poor provision of public transport combined with a lack of childcare services can prevent individuals from entering the labour market.¹⁶

Interregional R&D collaborations

- 2.10. There is potential to stimulate local economic development via funding (such as via the Strength in Places Fund) targeted at supporting **interregional collaborations, to harness regions' respective strengths.** In particular, partnerships between institutions in research-intensive UK regions can provide research capacity and infrastructure that complements the regional understanding and experience of institutions in less research-intensive areas.
- 2.11. Such collaborations should seek to involve in depth consultation with local stakeholders who have a first-hand understanding of the issues to which the research relates, to stimulate bottom-up solutions with high feasibility and potential for impact.

3. How large does SIPF need to be to make a difference? How do we avoid one-size-fits-all solutions?

Funding required to rebalance the UK economy

- 3.1. To effectively stimulate regional economies and improve the regional balance of the UK economy will require a concerted approach and investment across multiple policy areas.
- 3.2. The first report¹⁷ of the UK2070 Commission into regional inequalities, published in May 2019, recommended establishing a UK Renewal Fund of at least £10bn annually over a period of 25 years, to support the “renewal and rebalancing” of the UK.
- 3.3. Notably, the way in which investment is used is as important as the quantity of investment; **evidence-based approaches should be used to stimulate regional development.**

How to avoid one-size-fits-all solutions

- 3.4. Tailoring R&D projects to regions requires the **involvement of local institutions** with a good understanding of the local problems, as described in para 2.11.
- 3.5. Investing in R&D aligned to local industries may lead to greater economic impact. Research in the US has found that long-term employment and pay around universities tends to increase more quickly in industries related to local university innovative strengths, while the impact of university innovation increases with geographic proximity to the university.¹⁸

London

- 3.6. **R&D funding programmes that aim to stimulate local economies – such as the SIPF – should take into account the heterogeneity of UK regions.** For example, while London as a whole has high productivity compared to other regions, it is a highly heterogeneous region that includes areas of lower productivity. Disparities between the incomes of Londoners are the widest of all regions in England, and nearly two in five Londoners are living in poverty.¹⁹
 - 3.7. For instance, East London has relatively low productivity, and faces issues including poor quality housing and work. However, local GVA figures are skewed by the City of London, making the East London region, as a whole, productive. This lack of granularity makes it difficult to evidence how R&D activities can make a difference to local productivity in London. **Regional or local figures, such as those on GVA, should not be used in isolation** when assessing the potential for R&D to have impact.
4. Can research, development, and innovation collaboration with frontier firms ever improve spatial inequalities? Why are links between frontier firms and local small and medium-sized enterprises important – and what is UKRI’s role in improving these?
 - 4.1. Links between frontier firms and local SMEs are important to enable the adoption of new technology in the UK, which is typically lower than in comparator countries. Such links facilitate the adoption of frontier firms’ innovations by local SMEs, supporting the diffusion of productive technologies into the everyday economy.
 - 4.2. Analysis by the OECD²⁰ has found that the uneven uptake of digital technologies plays a significant role in slowing productivity. While frontier firms’ productivity continues to grow, the “stagnating productivity of laggard firms” constrains the overall productivity of all firms.
 - 4.3. However, collaborations can support the diffusion of innovation. An example is the Advanced Manufacturing Research Centre (AMRC) at the University of Sheffield, which brings together staff at universities and companies, and is based around partnerships with large companies.

Through its partnership with Boeing, the AMRC has attracted high value manufacturing facilities into a deindustrialised region, stimulating the rebuilding of innovation systems.²¹

- 4.4. Innovate UK has a role to play in supporting collaborations with frontier firms and local SMEs, including via the Knowledge Transfer Network, knowledge transfer partnerships, innovation networks and the Business Basics Fund.
5. How do we link the objective of SIPF to reduce inequalities appropriately with wider responsibilities to achieve that i.e. in local partners/bodies?
 - 5.1. As described already, to leverage the most impact from R&D funding to reduce inequalities will require:
 - **Government investment in wider local infrastructure:** Place-based variation in infrastructure can stifle local economic development, exacerbating regional inequalities.²² Investment should include both hard and soft infrastructure.²³
 - **Coordination between R&D funding and wider Government investment in regions:** This should include consideration of wider local or regional strategies relating to economic development, and potential linking of activities via local anchor strategies.
 - The **development of strong local or regional institutions** that have the capacity to engage with and take action relating to R&D projects, and form relationships with research institutions – local authorities currently have very low capacity.
 - **Coordination and collaboration between research institutions, local government institutions, employers and businesses:** Such collaboration has high potential for impact, and fosters strong relationships, leading to further long-term impact.
 - 5.2. An example of the latter is the East London Inclusive Enterprise Zone, which will provide the first dedicated space for disabled entrepreneurs at the Olympic Park. The zone is a partnership between universities, disability organisations, local government and businesses. It aims to “bring a positive impact on the local east London community, creating thriving new businesses, employment and growth, aligning with LLDC and Hackney Council goals”.²⁴
 - 5.3. With respect to regional policy more broadly, consideration should be given to the suitability of Local Economic Partnerships (LEPs) as a basis for policies, considering their geographic overlaps with other organisational geographies; their non-elected, non-institutional nature; and the uncertain political longevity of area-based initiatives in the UK.²⁵
 - 5.4. If LEPs are to be used, it will be important to resolve the ongoing issues associated with their overlapping geographical boundaries. The House of Commons Public Accounts Committee has recommended that the Government set out a clear timetable for resolving this.²⁶
 - 5.5. In the event that the UK loses access to EU structural grant funding post-Brexit, consideration should be given to how this will affect UK regions dependent on this funding.
6. Research, development, and innovation development is complex, network-heavy and evidence-rich. What can UKRI do to improve and embed relevant local capabilities?
 - 6.1. **Investment in infrastructure can stimulate a surrounding cluster of related research and innovation.** For example, research on the establishment of the £380m Diamond Light Source, a third generation synchrotron light source in Oxfordshire, has found that it has “created a highly localised cluster of related scientific research”.²⁷
 - 6.2. The Advanced Manufacturing Research Centre (AMRC) at the University of Sheffield (described in para 4.3) provides a valuable example of investment in network-heavy R&D

infrastructure that strengthens local capabilities. The centre has created new networks between universities and companies, which promote innovation and its diffusion.²⁸ AMRC has also improved skills levels through management training and apprentice programmes.²⁹

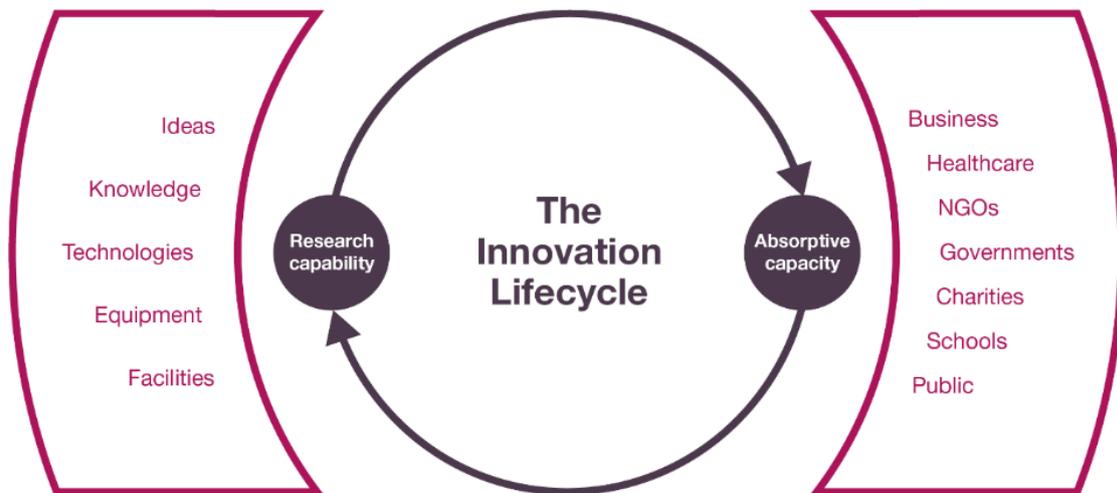
- 6.3. In the context of stimulating local economies, we would **encourage use of the mission-oriented framework**, which provides an approach to solving problems that is cross-sectoral, cross-actor and cross-disciplinary; addresses societal value; and has concrete targets for impact.³⁰ For example, the Manchester Local Industrial Strategy seeks to use a mission-oriented framework to deliver a commitment to de-carbonise Manchester by 2038.³¹
 - 6.4. **We would welcome support from UKRI to engage with sectors that do not tend to fund R&D.** While some sectors invest substantial funding in R&D, others – such as the legal sector – do not, despite potential to benefit significantly from R&D. Increasing such sectors' R&D investment could serve as an important contributor to meeting the 2.4% target.
 - 6.5. **Longer grant application periods would support the creation of new partnerships tailored to funding calls.** Short application periods preclude the development of new partnerships and strong collaborative applications. Responsive partnerships tailored to funding calls would complement the existence of longer-term, strategic partnerships.
7. Experimentation is critical in developing new policy approaches. Inherent in this is that some projects will fail. How do we both celebrate successes and tolerate and learn from failures?
 - 7.1. Investment decisions based on cost-benefit analysis typically discourage risk-taking, despite its potential for impact. Such analyses can fail to capture longer-term, unpredictable benefits. Public backlash when investments lead to failures can discourage risk-taking further. There is a need for evaluation capabilities that integrate user research, social experiments and system-level reflection, rather than just taking a cost-benefit approach.³²
 - 7.2. **A portfolio approach can enable risk-taking.** For instance, after the US Government invested \$500m in both Solyndra and Tesla, Solyndra went bust, for which the US Government was highly criticised.^{33,34} A portfolio approach would have highlighted that the profits made by Tesla more than offset the Government's losses associated with Solyndra.
 - 7.3. Practically, funders can incentivise risk-taking in research and innovation by:
 - earmarking a proportion of funds for high-risk projects, such as those that take novel or exploratory approaches
 - not penalising institutions whose past projects have not produced the “desired” result³⁵.
 - 7.4. More broadly, a culture change is needed whereby less emphasis is placed on “positive” results. Publishing and sharing data on “null” results should be valued – it informs the research community of unexpected results and prevents duplication. We would encourage UKRI to incentivise the use of registered reports, which have an important role to play here.

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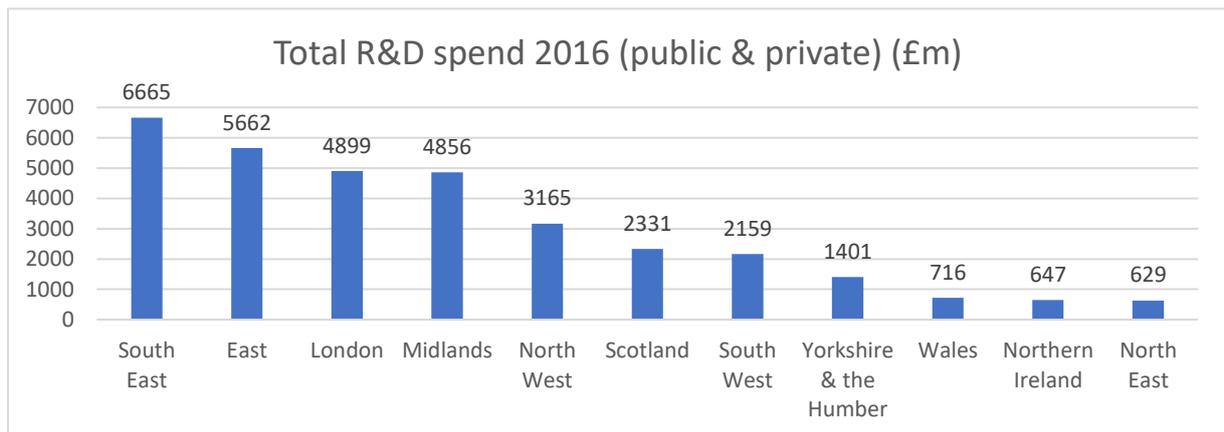
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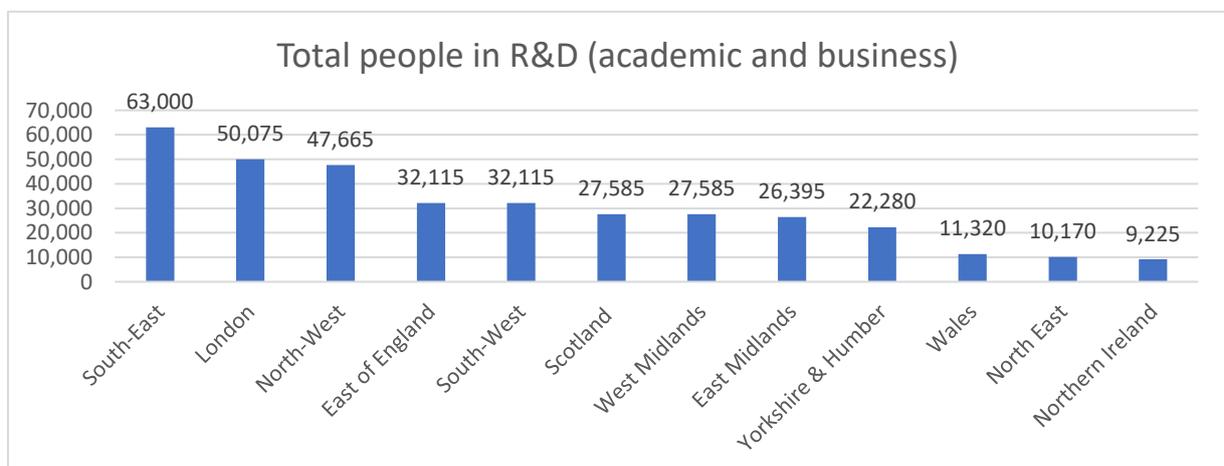
Annex 1: The Innovation Lifecycle



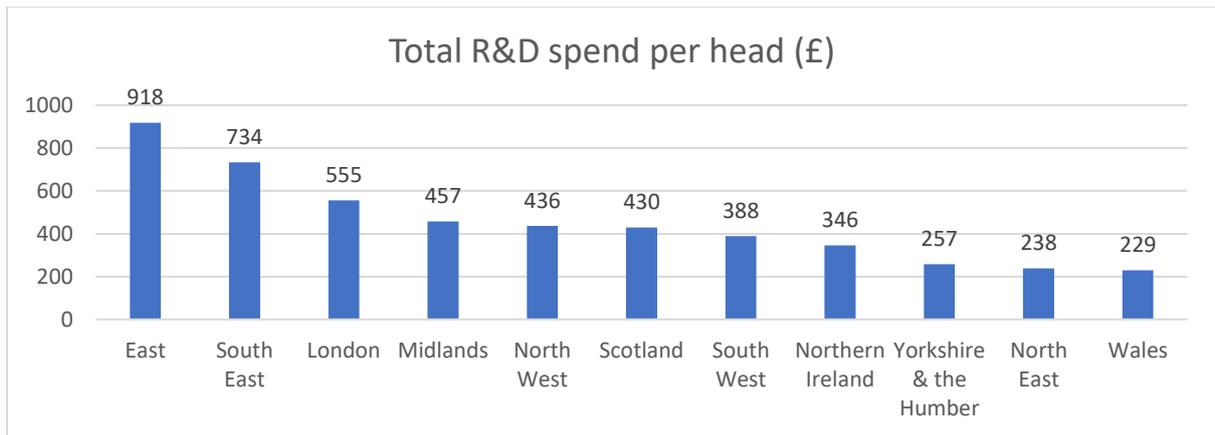
Annex 2: Regional distribution of R&D funding, UK



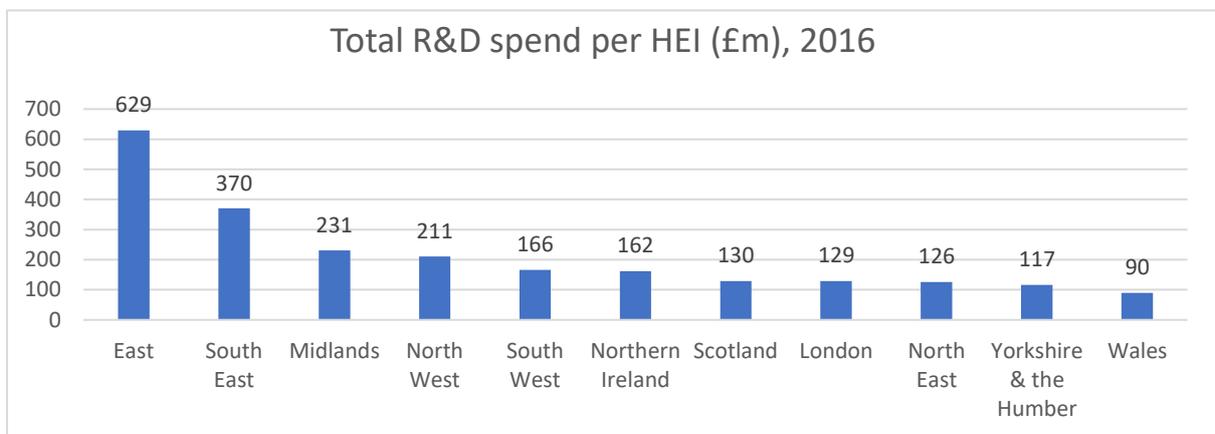
Source: Office for National Statistics



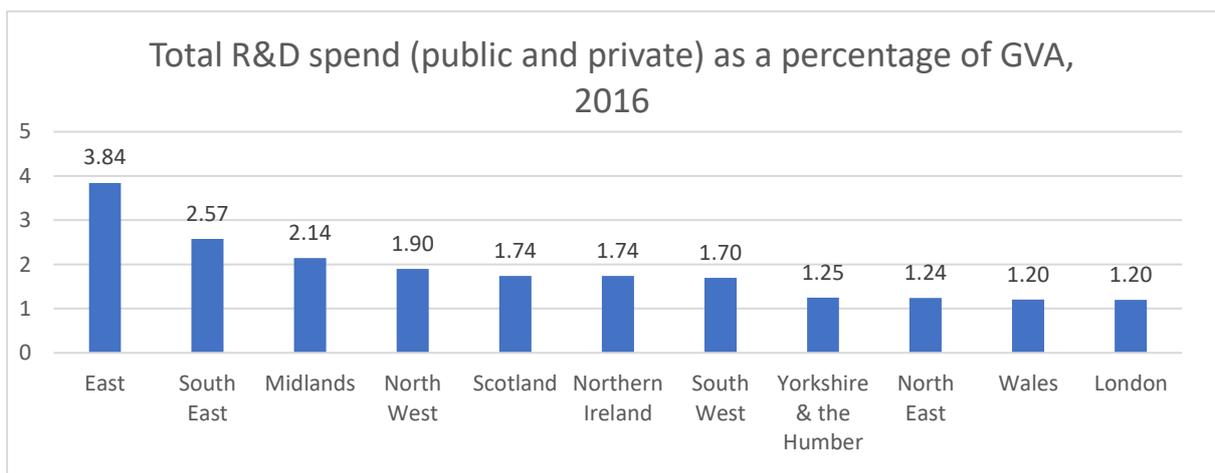
Source: Royal Society



Source: Office for National Statistics, Statista



Source: Office for National Statistics, HEFCE



Source: Office for National Statistics

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