



BRITISH ACADEMY

for the humanities and social sciences

Science and Innovation Strategy

Introduction

1. The British Academy welcomes the opportunity to comment on what the scale and scope should be of the UK Science and Innovation system by 2020. Our advice set out in the present document develops the common concerns that we emphasise in the joint statement from all four national academies (Academy of Medical Sciences, British Academy, Royal Academy of Engineering, and Royal Society) of 29 July.
2. The British Academy wholeheartedly supports the joint response, including its central proposition that a stable 10 year investment framework and a broad research base are essential for research, innovation and skills. The advice below provides further detail and illustration, with a particular focus on the circumstances of UK humanities and social science research, and on how these areas of research contribute to the UK's ability to maintain its comparative advantages and respond to national and international challenges.

Summary

3. The British Academy believes that the strategy for UK Science and Innovation should reflect the following principles:
 - **A long-term vision.** Excellent research is a long-term undertaking, which depends on stable funding. The government's current 5-year commitment to research should be extended to at least 10 years, in order to ensure sustained high-quality development of research and national and international collaborations, to keep pace with our competitors, and to deliver growth and prosperity.
 - **A focus on quality.** A focus on excellence must be the primary consideration when investing in research. Only excellent research will ensure the UK maintains its place in the world and continue to deliver significant social and economic benefit to the UK.
 - **The importance of the dual support system.** The high international reputation of UK research, including in the social sciences and humanities, has owed much to its

traditionally strong emphasis on quality within the dual framework of regular and rigorous research assessment combined with competitive bidding. It is essential that we retain and build on the mechanisms that have enabled the UK to be highly effective at exploiting its investment in research.

- **A broad research base.** The breadth of the UK research base is one of its great strengths and the source of its international competitiveness and attractiveness. As so many of the challenges facing society today and in the future require expertise drawn from across the humanities, social sciences and natural sciences, continued investment across the whole breadth of the research base remains essential in enabling the UK's research base to continue 'to punch above its weight'.
4. In what follows we give a number of examples which demonstrate how these guiding principles play out in the humanities and social sciences.

Innovation in a service-based economy

5. The Strategy should recognise that 75% of UK economy is services and the consequent need to develop a richer understanding of the characteristics of innovation and of how it can be applied in the UK's service-based economy. Innovation is not just about the development of new products – it is also about changing the way we do things and being more efficient. Economic growth will rely heavily on the UK's ability to exploit and commercialise research and ideas drawn from across all disciplines, and to innovate in the service sector and the creative industries. "The investments needed to make this happen range from product and service design to developing innovative skills and organisational innovation."¹
6. H&SS research makes direct contributions to innovation and growth in providing crucial expertise and insights for a range of sectors, including:
- the service sector, which comprises over 75% of UK GDP, and includes business services, which is the fastest growing sector in the UK, accounting for over a fifth of UK output, and 1 in 8 jobs;²
 - heritage (museums and tourism etc);
 - the creative industries, worth more than £36 billion a year, generate £70,000 every minute for the UK economy, employ 1.5million people in the UK, and account for around £1 in every £10 of the UK's exports;³

¹ NESTA (November 2009), *The Innovation Index: measuring the UK's investment in innovation and its effects*

² See http://www.theworkfoundation.com/assets/docs/publications/287_Britains%20quiet%20success%20story

³ See <https://www.gov.uk/government/policies/making-it-easier-for-the-media-and-creative-industries-to-grow-while-protecting-the-interests-of-citizens> (February 2013)

7. H&SS research is also a prime source of intangible (and highly valued) economic value. It is of central importance to international diplomacy and trade expansion – both of which are enhanced by a properly developed understanding of cultures in all their dimensions (including tradition, religion, value systems and languages). It helps address vital and urgent questions about faith, identity, and intercultural understanding. This country's admired cultural assets – museums, galleries, music, theatre, heritage etc – rest on a strong scholarly infrastructure maintained by excellent research in disciplines such as the classics, history, art and architectural history and archaeology.
8. H&SS research also makes indirect contributions in providing the cultural, social and educational infrastructures that are needed to underpin growth and economic recovery and wider social and cultural well-being. They deepen understanding of the human condition, communities and their interventions, and challenge widely held assumptions and beliefs. These disciplines also improve people's ability to live fuller, better lives, nurturing a healthy, open democracy.
9. The Strategy should look to capitalise on both the tangible and the intangible contributions made by the research base to innovation and growth.

Structures and incentives: excellence driven competition

10. The UK's research base - the most productive and efficient in the G8 and one of the areas where the UK is a world leader - plays a vital role in fostering innovation and growth, in positioning the UK so it can compete successfully with other leading countries, and in enabling the UK to respond to the national and global challenges that it faces now and in the future. **Maintaining the ring-fence** has enabled the research community to make strategic plans and parallel investment to enhance the research base, and has facilitated the development of long-term collaborations and partnerships.
11. Similarly, the dual support system has contributed to the success of UK research. This success owes much to the balance between two funding streams – institutional QR (quality related) funding and project funding, principally allocated by the research councils. QR supplies a large share of total funding available for H&SS: it is of particular importance in these disciplines where much research is carried out by individual scholars, and does not need the same degree of strategically organised major project funding as is common in other disciplines. It is essential that we retain and build on the mechanisms that have enabled the UK to be effective at exploiting its investment in research. The British Academy strongly advises that **the current balance between QR funding and project funding for both the humanities and the social sciences should be sustained. It has delivered excellence across the UK research base.**
12. The British Academy (and the three other national academies) remain concerned that the UK's levels of investment in research are not keeping pace with that of our international

competitors, which ultimately may be damaging to the foundations of long-term growth.⁴ Indeed, a recent BIS report stated that:

“a key priority for the UK is to increase its ability to exploit cutting-edge global research. In this context, the UK’s consistent pattern of relatively static and low R&D investment is a lost opportunity: it risks jeopardising the breadth and depth of science excellence required to underpin our industrial success and the capacity of our firms to absorb and apply new knowledge and ideas; and hence missing out on the benefits available from the enormous, and growing, global investment in science and innovation.”⁵

The same report concluded that a level of R&D spend consistent with securing future economic success is likely to be closer to the 2.9% average of comparator countries – UK R&D spend was 1.72% of GDP in 2012 – and that public sector expenditure may need to rise more sharply in the short to medium term.

13. Government funding of the research base creates an environment that encourages private sector investment. As a report from the House of Lords Science and Technology Committee said: “Studies have shown that there is a broad correlation between levels of public and private investment in research in a particular country: a low level of Government funding is commonly associated with a comparatively low level of private investment, and public spending on research encourages private investment. This correlation has significant implications for public research funding decisions.”⁶
14. Public investment in research encourages further investment from business, as public investment provides the vital underpinning infrastructure that business investors seek. The lack of a long term strategy for research combined with wider uncertainties related to government policy deters business investment. Business investors are unclear where and whether to invest given the uncertainties and lack of a long term government policy in key areas, such as renewable energy; facilities for the elderly etc. **It is important that government funding is maintained to provide critical leverage for the UK research base, especially as any cuts in funding are unlikely to be compensated by an increase in income from other sources.**
15. The British Academy considers the distinction between ‘pure’ and ‘applied’ research to be unhelpful and should not be over-emphasised in the Strategy. Research labelled as ‘fundamental’ or ‘basic’ can create unforeseen opportunities. Similarly, ‘applied’ research can lead to fundamental discoveries. Supporting a diverse range of ‘pure’ research, often through response mode funding, is crucial to the success of more

⁴ See *Fuelling Prosperity*, pages 5 -6 under the heading, “Watching out for the Competition”.

⁵ Allas (2014), *Insights from international benchmarking of the UK science and innovation system*
<http://www.gov.uk/government/publications/science-and-innovation-system-international-benchmarking>

⁶ House of Lords Science and Technology Committee. *Setting priorities for publicly funded research* (April 2010), p.10.

strategic ‘applied’ research and vice versa. Research is an interactive and cumulative process, where results and discoveries in one area trigger developments in another, regardless of how the research domains are labelled.

16. While the returns on investment in research are long term and often difficult to quantify with precision, there are many sound reasons to believe they are high. For example, in the arts and humanities, a study estimated that for every £1 spent on research by the AHRC (Arts and Humanities Research Council), the UK gains £10 of immediate benefit and another £15 to £20 of long term benefit.⁷
17. The Strategy should also give due weight to the role of our world-leading universities in sustaining excellence in UK research. For example, 90% of the UK’s top ranking publications have come from research conducted from within universities and not from specialist institutes. The UK is fortunate in having so many world-leading research universities – it has six of the world’s top twenty universities, where there is a unique confluence of research, training, teaching and a mix of disciplines, pure and applied, STEM and H&SS, which encourages interdisciplinarity.

Talent

18. The British Academy welcomes the focus in the Strategy on ‘talent’ and the need to ensure that the UK has the right balance of skill levels and disciplines for the future of science and innovation. Given the global competition for excellent researchers, it is essential that the UK remains a leading place for the most talented researchers to work, and one which is able to attract, nurture and retain the very best researchers both from the UK and from elsewhere in the world. The best researchers will produce the best research in the future and will drive the projects targeted at national priorities.
19. There is a growing demand for individuals to be equipped with the skills that can be employed in different contexts: for research, or in industry and commerce. Non-STEM and STEM skills are equally vital.
20. High quality H&SS education is essential if we are deliver a highly skilled workforce capable of responding to the needs of a twenty-first century society. The funding of excellent individuals is particularly important for the humanities and social sciences when so much of the research necessarily depends on individual excellence rather than on the work of large teams. These researchers need to be resourced properly if they are to reach their full potential, and there needs to be sufficient funding and support at key stages across research careers. Funding for H&SS postgraduate research students and early career researchers is essential to ensure that there are adequate numbers of

⁷ AHRC (June 2009), *Leading the World: the economic impact of arts and humanities research*, p. 3. <http://www.ahrc.ac.uk/News-and-Events/Publications/Documents/Leading-the-World.pdf>

appropriately trained people both to replenish the research base and to provide the high-level analytical and communication skills that are in demand from employers.

21. In H&SS, there are particular and acute skills shortages – languages and quantitative skills – that are having a detrimental impact on the health of the research base and also on the UK's ability more generally to compete internationally and exploit the data revolution. The UK competes in a global marketplace and is disadvantaged by its longstanding skills deficits in languages. According to CBI, 70% of UK firms believe that foreign language skills benefit their businesses. Similarly, every discipline is affected by the revolution in data production, capture and analysis. The need for a good grasp of mathematical and quantitative skills is pressing. The UK needs to develop a cohort of social scientists with the skills needed to develop the methodological approaches and insights that the challenges of 'Big Data' will bring.

An international focus

22. The British Academy welcomes the aim of including an international focus in the Strategy. In this context, we would like to stress the importance of international collaboration and partnerships. UK higher education is one of the most international parts of the UK economy. UK researchers must engage with the best researchers from overseas in order to enhance their own research and to exploit the full potential of internationally renowned research.
23. The quality of UK research on international topics, from global warming to comparative literature, is widely recognized. If this degree of success is to be maintained, the adequacy of access by researchers at all levels for a variety of purposes (coming to the UK as graduate students, taking up posts in the UK, and full engagement in collaborative research activities) should also be reviewed carefully to ensure that the research base is not damaged by an over-restrictive approach.
24. There need to be further incentives to encourage researcher mobility and international engagements. The recently established 'Newton Fund' is a welcome development which should lead over time to long-term collaborations between UK researchers and those in the fifteen 'Newton Fund' partner countries.
25. Universities should ensure that they use a wider definition of "internationalisation" rather than focus simply on the recruitment of overseas students, and should ensure that internationalisation (in its broadest sense) is at the heart of their strategies, and that the growing internationalisation of the graduate jobs market is taken fully into account.
26. It is important that the UK continues to attract the very best international students and researchers. The global competition for international students is intense. The best researchers (whether from home or overseas) will produce the best research. BIS estimates that international students contribute over £9bn a year to UK economy. These

students make significant social, cultural and economic contributions to their host university and the wider economy. And the long-term relationships are no less significant.

27. The UK is fortunate in that it is currently the second most popular destination for international students. But it cannot take this for granted – competition, on many dimensions, is intensifying. The UK government’s international strategy aims to grow the number of international students by up to 20% in the next four years. There is a tension between this aim and the government’s policy on student visas, where considerable reductions will be necessary to meet the government’s target of reducing net migration to ‘tens of thousands’ by 2015.
28. While the global pool of international students continues to grow, the numbers coming to study at the UK have fallen. As noted by Universities UK: “the total number of non-EU students enrolled on higher education courses in the UK in UK higher education fell in 2012-13 for the first time since HESA began collecting this data in 1994-95”. There has been a marked decline in students from India (which traditionally is the second largest market for UK higher education), where numbers fell by 25% in 2012-13 and by a total of 45% over the two years 2010-11 to 2012-13.
29. Perceptions about the difficulties of securing a student visa and of the UK’s attitudes to international students can be significant factors when students determine where to study. We are also aware of reports of international students feeling humiliated by the processes we employ and the difficulties that they have encountered when seeking a student visa. While we welcome recent government statements, including those from the Prime Minister, encouraging international students to study at the UK, we consider the UK to be placed at a disadvantage by not implementing policies akin to those that have been developed by many of our competitors (such as USA, Germany, France, Canada and Australia) to attract the most talented international students. We risk losing out not only to traditional Anglophone competitors such as the USA and Australia but also in Europe such as Germany, the Netherlands, Switzerland and France which are significantly expanding their international graduate recruitment. The perception remains that the UK is ‘closing for business’. This perception if left unchecked could severely limit the UK’s ability to attract the very best to the UK, which would be damaging to the health of our world leading higher education and research base.

Research Infrastructure

30. For H&SS, data are often the ‘large infrastructure’ that enable important research in many of these areas to advance. The UK’s investment over time has resulted in the longest-running longitudinal studies in the world, which are the envy of our international competitors. The British Birth Cohort Studies, for example, began in 1948. These historical datasets, which become ever richer over time, inform the development

of robust evidence-based policies and strengthen policymaking. The British birth cohort studies and Understanding Society are world-leading datasets – their depth and breadth are invaluable in furthering research, policy and practice. They are ‘jewels in the UK’s research crown’. In view of their importance, every effort should be made to ensure that they are maintained and enhanced in the future.

31. Similarly, libraries and research collections advance research, lead to important new findings, heighten research efficiencies, and the findings from many of these projects can often strengthen government policymaking. While the level of investment in H&SS infrastructures is low, the return is high.
32. These ‘infrastructures’ need to be supported by a cohort of highly skilled people and need to be properly resourced on a recurrent basis.

Business investment

33. The 2008 White Paper, *Innovation Nation*, drew attention to the way in which the UK “excels at ‘hidden innovation’ – in its leading services sectors and creative industries.”⁸ It also called for better measures of business innovation, “especially for forms of innovation that do not involve R&D or the creation and development of new technologies and for non-R&D intensive sectors. This includes marketing, business model and managerial innovations.” H&SS research obviously makes significant contributions aimed at helping business to innovate and remain competitive.
34. ‘Innovation’ itself is a concept that was developed by social scientists, and its successful development in the UK relies on effective input from a range of disciplines across H&SS. Expertise in these disciplines can inform the development of effective strategies to advance Innovation. Some of the questions that need to be addressed include: how we might develop a better understanding of how IP is used in innovative processes, and the optimum balance between private property rights and openness; how we might use competition to increase innovation (an example highlighted by the LSE Growth Commission was the lack of competition in retail banking); how to stimulate greater R&D investment from SMEs, which form the fastest growing sector of the economy. The Strategy also needs to consider how to improve the way in which Innovation, especially ‘hidden innovation’ is measured, and how to evaluate innovation policies. One issue here is how quantitative techniques might be used to assess what innovation policies (and business policies in general) work. How might policy and policy interventions be designed to enable policymakers to assess whether they work or not (e.g. making data more accessible, randomized trials, keeping application data and looking at unsuccessful as well as successful applicants)?
35. The Strategy should seek to encourage the development of stable, coherent and transparent innovation policies and practices. “Innovation will be more likely to proceed where actors are more confident rather than more confused, and where evaluations of

⁸ Department for Innovation, Universities and Skills, *Innovation Nation*, White Paper, March 2008.

sovereign and policy risk favour commitment rather than withdrawal...Certainty is not on offer but unnecessary uncertainty can be reduced. A fundamental lesson is that government-induced policy risk can be a major deterrent to both innovation and investment.”⁹

31 July 2014

⁹ Boyd R, Finighan G, Green F, Stern N, *Innovation, Risk and Government: Perspectives and Principles from the Social Sciences* (July 2014)