

## Response to UK Department for Business Innovation & Skills' consultation on the 2020 vision for science & research

Response prepared by RSS Policy and Research Manager on behalf of the Royal Statistical Society.

### 0. Background to this response

0.1. The Royal Statistical Society (RSS) is a learned society for statistics, a professional body for statisticians and a charity which promotes statistics for the public good. Public funding has a crucial role in the development of data access, skills and infrastructure, and associated with this is a need for statistical and data analytical skills in academia and in industry.

### 1. "Big data" capabilities

1.1. The UK's mathematicians, scientists and social scientists should be taking a lead in the development of 'data science', gathering new knowledge from 'big' data sets which are collected routinely in the digital age. Skills and capabilities are the main pinch point that may prevent UK data science from advancing further. BIS should aim to match capital spending with revenue spending, to develop the necessary skills for the future. The Department's vision for science and research begins to recognise a variety of needs in this area, which span data analytics, management and infrastructure.

1.2. The new Turing Institute is expected to boost new research in ways of collecting, organising and analysing big data. We think that the more multidisciplinary it can be the better. Alliances across STEM and social science subjects are needed to champion a broad, necessary analytical skills base across universities, government and industry.<sup>1</sup> It has already been announced that the Institute will work with other investments, including the Open Data Institute which focuses on innovation and training, and the Catapult Programme which can support collaborations around the country.<sup>2, 3</sup> Benefits from the Institute's research should be shared as widely as possible.

1.3. The consultation asks about the balance between capital requirements for individual research projects in comparison to large scale or international investments. For 'big data'

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<sup>1</sup> UK Department for Business, Innovation and Skills (2014) *News story: plans for world class research centre in the UK* [webpage]. Available at: <https://www.gov.uk/government/news/plans-for-world-class-research-centre-in-the-uk> (accessed: July 2014)

<sup>2</sup> Open Data Institute (n.d.) *About the ODI* [webpage]. Available at: <http://theodi.org/about-us> (accessed: July 2014)

<sup>3</sup> Technology Strategy Board (2013) *Welcome to the catapult programme* [webpage]. Available at: <https://www.catapult.org.uk/> (accessed: July 2014)



and for statistics in general, individual research projects and institutions would be more useful. However, we would question the scope of the consultation, which prioritises project work in general. This perhaps overlooks important cross-cutting needs. For statistics and data science, skills are a key pinch point. For example, e-skills UK surveyed more than 1,000 employers in 2013 and found a growing need for large employers to cope with growing volumes of data, as well as an associated shortage of data-related skills.<sup>4</sup> In universities, quantitative skills have been identified as a key area for development in the social sciences, and the small proportion of STEM students pursuing maths and physics has been raised as a concern.<sup>5, 6</sup> As more people are needed who can work on a routine basis with 'big' data sets, support for people should be recognised as a key requirement for growth.

## **2. Growth in longitudinal data and open data**

- 2.1. BIS should give explicit support to longitudinal data series, so that more of the UK's development can be tracked over time. The value of these new investments will appreciate over time. We also need to improve access to what we already hold. The RSS finds for example that access to archived economic data is impossible in some cases.
- 2.2. BIS-funded projects and training should help to continue improvement in the supply, integration, interpretation and use of open data. Non-disclosive data can quite easily be made public, and can have a multiplier effect as businesses and individuals benefit from the knowledge base. The skills to work effectively with open data may be an area for capital funding to address.

## **3. More sophisticated data sharing**

- 3.1. The Administrative Data Research Network (ADRN) has been newly launched by the Economic and Social Research Council, setting in train a responsible process by which de-identified data can be safely provided to non-commercial researchers, with safeguards applied both in terms of de-identification and a system of accreditation. The setting up of the ADRN and similar research labs should aid understanding of both the capital costs and the benefits of this approach to data sharing. Increased transparency in the sharing of sensitive data for research purposes should be supported, and this will have ongoing capital requirements, mainly in terms of skills and training, and perhaps also in terms of setting up of new secure labs and secure rooms.

*Response submitted 7 July 2014*

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<sup>4</sup> Survey of 1051 employers, E-skills UK (2013) *Big Data Analytics: Adoption and Employment Trends, 2012-2017*. November 2013. Research sponsored by SAS.

<sup>5</sup> British Academy (2012). *Society Counts: a British Academy position statement* [online]. October 2012. Available at: [http://issuu.com/thebritishacademy/docs/society\\_counts/1?e=0](http://issuu.com/thebritishacademy/docs/society_counts/1?e=0) (accessed: July 2014)

<sup>6</sup> Chapter 4: Supply and demand in STEM Higher Education. In: House of Lords Science and Technology Committee (2012). *Second Report: Higher Education in Science, Technology, Engineering and Mathematics (STEM) subjects* [online]. July 2012. London: HM Government. Available at: <http://www.publications.parliament.uk/pa/ld201213/ldselect/ldsctech/37/3707.htm> (accessed: July 2014)

