Department for Science, Innovation & Technology

Lord Vallance
Minister of State for Science, Research and Innovation
Department for Science, Innovation & Technology
100 Parliament Street
London SW1A 2BQ

www.gov.uk/dsit

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Chi Onwurah MP
Chair – Science, Innovation and Technology Committee
CommonsSITC@Parliament.uk

Dear Chi,

Thank you for your email of 19th February following up on the evidence session held on 11th February. I appreciate the opportunity to provide further information on the matters discussed.

1. Diversity Data: The tables below detail the diversity characteristics of DSIT's workforce, with a breakdown of those in science and engineering (S&E) roles, compared to those in other roles[1]. Those in S&E roles make up 11% of the department's workforce[2].

| **Sex** | | |
|---|---|---|
| | Female | Male |
| Other | 51% | 49% |
| S&E | 58% | 42% |

| **Ethnicity** | | | |
|---|---|---|---|
| | BAME | White | Prefer Not to Say |
| Other | 46% | 51% | 2% |
| S&E | 33% | 62% | 4% |

| **Sexual Orientation** | | | |
|---|---|---|---|
| | LGBO | Heterosexual | Prefer Not to Say |
| Other | 40% | 52% | 8% |
| S&E | 28% | 62% | 9% |

[1] Discrepancies in table totals are attributable to rounding adjustments.
[2] The 'science and engineering' category includes staff who have self-identified their profession within DSIT HR systems as 'Science & Engineering', as well as staff from directorates such as Government Office for Science and Office for Life Sciences, that are clearly labelled as 'science'.

| Religion | | | | | | |
|---|---|---|---|---|---|---|
| | Denomination Declared | Christian Denomination | Agnostic | Atheist | No Religion | Prefer Not to Say |
| Other | 40% | 15% | 9% | 12% | 17% | 6% |
| S&E | 29% | 19% | 8% | 14% | 20% | 10% |

| Disability | | | | |
|---|---|---|---|---|
| | Yes | No | Prefer Not to Say | Not Declared |
| Other | 9% | 43% | 4% | 44% |
| S&E | 6% | 65% | 6% | 23% |

| Social Mobility: Self-Assessment | | | | | |
|---|---|---|---|---|---|
| | Yes | No | Prefer not to say | Don't know | Not Declared |
| Other | 14% | 34% | 4% | 6% | 43% |
| S&E | 17% | 42% | 6% | 7% | 29% |

| Social Mobility: Professional Parents | | | |
|---|---|---|---|
| | Intermediate | Professional | Working Class |
| Other | 7% | 67% | 26% |
| S&E | 5% | 68% | 27% |

| Social Mobility: School | | |
|---|---|---|
| | Advantage | No Advantage |
| Other | 12% | 88% |
| S&E | 10% | 90% |

| Social Mobility: Free School Meals | | |
|---|---|---|
| | No | Yes |
| Other | 80% | 20% |
| S&E | 79% | 21% |

We are unable to provide data on the number of Civil Servants holding science and engineering roles in the department who have experience in the private sector as this information is not something that is collected by the department.

2. Innovation and Economic Growth: There are a number of studies which demonstrate a link between innovation and economic growth. For example:
    a. UK public R&D has been estimated to have an average rate of return of 40% 6 years after the investment is made. In other words, £100 million of public R&D investment could be expected on average to yield, in 6 years' time, an increase in annual private sector productivity worth £40 million (Returns to Public Research and Development - GOV.UK)
    b. An extensive review and meta-analysis of 1,150 estimates from 63 studies published between 1980 and 2021, found that the average rate of return to private sector firms' investments in R&D projects was conservatively estimated at 20% per year. R&D investments by firms also have 'spillover' impacts to other firms, estimated to be as large as the return to the investing firm itself. (Frontier Economics 2023)
    c. In the 6 years after receiving their first R&D grant funding, employment increases in the average business by 21% and turnover grows by 23%. (Vanino et al 2019)
    d. On average, every £1 in Innovate UK grants generates £3.61 of benefits for the recipient businesses. (Innovation and Research Caucus, 2023)

    This shows that a healthy R&D ecosystem that discovers new knowledge and translates it into innovation to support growth is a crucial enabler of achieving the government's missions.

    Basic curiosity-driven research forms a key part of that ecosystem as an input that delivers novel breakthroughs and transformative discoveries. While there is no direct short-term link to the government's missions - you can't predict what impacts investigation to create new knowledge will bring or when - multiple studies attest to the link between knowledge creation and long-term economic growth (e.g. Moyo and Phiri 2024; Pinto and Teixera 2020). Important modern innovations that have raised living standards are underpinned by much earlier discovery research. mRNA-based vaccines, so crucial during the COVID-19 pandemic, drew on curiosity-driven research by Katalin Karikó and her team that for years was considered as having clear practical applications. The discovery of Viagra built on work from a chance discovery of Robert Furchgott when investigating the relaxation of blood vessels in the rabbit. Modern machine learning, a core component of recent artificial intelligence advancements, is underpinned by 20th century research into artificial neural networks. This was recently recognised by the fact that four of the seven engineers awarded the 2025 Queen Elizabeth Prize for Engineering were pioneers in neural network research.

    We need to make sure the UK's R&D system continues to produce fundamental discoveries. The government will do this by continuing to invest in the UK's world-class discovery research strengths, and by empowering researchers themselves to push back the knowledge frontier. This new knowledge will promote long-term economic growth nationally, but cannot be linked to specific local growth impacts, as the economic value of knowledge creation emerges over time in unpredictable ways and not always in the same place. High quality basic curiosity-driven research benefits UK regions where it is conducted through the attraction of world-class research talent and continued investment in local R&D ecosystems. But good basic research often needs a critical mass of infrastructure, so activity and supporting investment will not be spread evenly. The

government will protect and promote the best basic curiosity-driven research wherever it is found to maximise its contribution to growth for all UK citizens.

3. Innovation Clusters Map: We engaged extensively with stakeholders from central and local government, academia and the private sector to inform the development of the Innovation Clusters Map, which was published in February 2024. Since then, the map has been accessed over 1,800 times by 1,400 unique users.

   Based on the feedback we have received so far, we are planning several enhancements for version 2 of the map, which we aim to publish by the summer:

   1. **Improved sector coverage** - Currently, our sector coverage includes both Standard Industrial Classifications (SICs) and Real Time Industrial Classifications (RTICs) to provide a comprehensive view of the innovation landscape. This enables us to both monitor established sectors defined under the 2007 SIC framework and to identify emerging innovative clusters through RTICs, capturing dynamic areas such as quantum computing and clean technology that traditional classifications might not adequately reflect. We are exploring ways to expand sector coverage by aligning with government's industrial strategy and DSIT's priority sector definitions. This includes developing new clusters for these sectors and broadening the scope of the RTICs (and sub-RTICs) we include, such as incorporating the newly developed space RTIC.

   2. **Improved functionality** - We are also exploring options to improve the functionality of the map, such as enhancing filtering capabilities to provide more tailored insights and additional institutional overlays helping users better understand the innovation ecosystem supporting each cluster.

   3. **Improved data (metrics and longitudinal)** – Live data integration is unfortunately unfeasible at this point as real-time innovation metrics are unavailable and even foundational datasets are released on scheduled intervals rather than continuously. However, we are updating the clusters in the map and investigating possibilities for enriching the underpinning data by connecting clusters to additional sources through company reference numbers (such as patent data). This could provide deeper insights into cluster performance and characteristics. Additionally, we are exploring options for introducing longitudinal cluster data to the tool to show how clusters change over time.

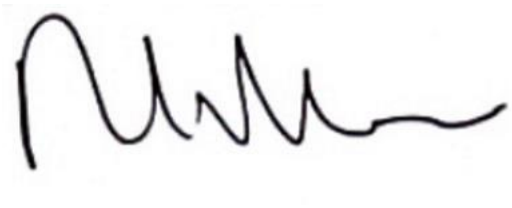
   This approach will ensure that we maintain data integrity and consistency while incorporating valuable new data. We will continue to engage widely with stakeholders to make sure version 2 of the map is as insightful as possible, and we continue to welcome suggestions on how best to do this via innovationclusters@dsit.gov.uk.

4. UKRI Independent Review: You raised implementation of Sir David Grant's independent review of UKRI. At the evidence session, Alexandra Jones mentioned that the review was

discussed at a meeting of UKRI's Board, which Sir David attended. I have attached the published minutes of the relevant Board meeting, which I hope will be valuable for the Committee.

Thank you once again for the opportunity to provide this information. I look forward to continuing our collaboration and updating you on our progress.

Yours sincerely,



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