Department for Business Innovation & Skills

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Science at the Heart of Government

The UK Research Base delivering maximum impact for the UK

This presentation

- Facts and figures
- Benefits to the UK
- STEM
- Europe
- Highlights in Particle Physics
- Conclusion

UK background

- Science and Innovation Strategy to be published on 3 December.
- In April 2014, BIS issued a consultation on Science Capital which will set the frame for longer term allocations and priorities (FY 16-17 onwards).
- General election on 7 May 2015.
- There is a broad level of agreement across the political spectrum on the importance of science and innovation for the future of the UK economy.

What is the UK trying to achieve?

Public investment in research underpins the UK's competitiveness in the medium and longer terms, sustaining the UK as a knowledge-based economy in the face of growing international competition.

Adds up to a research base which delivers maximum benefit for the UK and the benefits include

- Delivering highly skilled people to the labour market
- Creating new ideas and technology developments
- Developing new businesses

How do we do this?

- The Government's ring-fenced Science & Research budget is delivered by BIS largely through a dual support system of the seven UK Research Councils, and the Higher Education Funding Council for England (HEFCE).

- UK HEIs are world class – with more Universities near the top of international rankings than any country other than the USA.

- Investment in international science and innovation collaboration is critical in maintaining the world class status of the UK's science and innovation base.

Budgets

- Science and research funding has received strong support from the Chancellor, with programme funding ring-fenced within the BIS budget.

- In FY 2015-16 the resource ring-fence is £4.7bn.

- In addition, the capital budget was increased to £1.1bn in 2015-16, rising in line with inflation to 2020-21.

- The capital budget also provides funding for some non-ringfenced bodies to undertake strategic science work, including the Met Office and National Measurement Office.

How we spend

- Government policy on research funding is governed by the Haldane principle – restated by Ministers in 2010. The Haldane principle – the principle that decisions on individual research proposals are best taken by researchers themselves through peer review – has remained a feature of Government policy since the early 20th Century.

- UK universities in receipt of research funding train a large number of graduates and postgraduates, and host a very large number of international doctoral students across a wide range of disciplines. UK universities work closely with business and others. Income from external sources – engagement with business and community – is at unprecedented levels, approaching £3.6bn pa.

STEM (Science, Technology, Engineering and Maths) Skills

- UK research institutes include world-leading facilities which combine flexibility to pursue innovative research with a unique environment for developing outstanding students and early career researchers.

- For Post-graduate taught training, Professional and Career Development Loans remain.

- In 2013 Government announced £75m to support progression into postgraduate taught study (Masters); £25m in 2014-15 and £50m in 2015-16.

How the physics agenda has benefited from openness and engagement in Europe

- The formation of CERN in 1954 – European nations working on a single project.
- EU funding for Research Infrastructure networks including; astronomy, radioastronomy, planetary science, accelerator and detector development and nuclear physics.
- New joint research facilities between European countries with preparatory funding from the EU; FAIR and XFEL, ESS, the European Extremely Large Telescope and SKA.

Wider benefits

- Faster medical imaging: the Medipix hybrid pixel detector developed by a CERN collaboration involving UK researchers and industry leading to faster X-ray imaging and CT-scanning.
- World Wide Web, developed as a tool to enable particle physicists in institutions across the world to share information on the CERN experiments they were undertaking, today a tool for all.

Highlights in Particle Physics (thanks to STFC)

- The UK particle physics community have key roles in all 4 LHC experiments at CERN, enabling a broad science programme.

- We have committed funding for Phase 1 upgrades to ATLAS and CMS to be commissioned in 2018/19, providing R&D funding for the Phase 2 HL-LHC upgrades. STFC provided funds for UK participation in the LHCb and ALICE upgrades.

- Engaging in future opportunities for a next generation long baseline neutrino experiment, a high priority in the European Strategy for Particle Physics, committing funding for a preparatory phase for LBNF at Fermilab, and HyperK in Japan. Continuing to explore neutrino mass and mixing through the T2K, SuperNEMO and SNO+ experiments.

STFC's ongoing activity

- Supports strong and leading UK participation in worldwide LHC Computing Grid (via GridPP), which has been highly successful scientifically and has innovated development of distributed computing on a global scale.

- Reviewing its Accelerator R&D programme to look at the strategic balance of the programme, including the Cockcroft and John Adams Institutes, and STFC's ASTEC Department, and working with the US DOE on the MICE experiment and CERN on AWAKE (plasma wakefield acceleration).

- Funds an active particle physics theory programme, including the Institute for Particle physics Phenomenology at Durham and the Isaac Newton Institute at Cambridge.

Conclusion


Strong support for science & research funding
Aim to be the best place in the world to do science & research
More UK universities in the world's top 100
Broad span of excellence