

CaSE contribution to the Science and Innovation Strategy

22nd August 2014

The Campaign for Science and Engineering (CaSE) welcomes the opportunity to contribute to the Department for Business, Innovation and Skills' Science and Innovation Strategy. CaSE is the leading independent advocate for science and engineering in the UK. Our contribution has been developed in consultation with our membership of over 100 organisations from across the sector (see Annex 1).

CaSE welcomes the Government's commitment to create a strategy for science and innovation that spans Parliamentary terms.

Below are summarised the overarching principles which are of greatest importance to the sector and on which there is broad consensus. Attached are three documents which provide more detailed evidence and recommended actions on three themes: Science and Engineering Investment, Education and Skills, and Science and Engineering in Government (see Annex 2, 3 and 4).

Strength of the science base

The UK science base is an integrated ecosystem which encompasses all disciplines of science, engineering, innovation and technology, and a wide range of sectors including higher education, industry, Small and Medium Enterprises (SMEs) and investors. The extraordinary and well-documented success of the UK science base is founded on historic strength, past investment and valued principles for allocation of funding.

CaSE believes the UK should aim to have a healthy and thriving science base in which all parts of this integrated system are well funded and performing optimally. This will generate growth, inward investment and progress. UK government and business investment in the science base is low compared to other leading scientific nations. The UK science base performs well in spite of underfunding, but it is widely agreed that this situation is unsustainable and that investment is required to ensure future strength.

Investment in the sector

The science and engineering sector is united in calling for the government to create a long-term plan that sets an upward trajectory for investment. This investment will enable the UK to reap the economic and societal rewards of its strength in science and engineering, driving UK innovation and creating skilled and valued jobs. An upward investment trajectory, at least matching growth, is essential to keep our international collaborators and competitors in sight. Over the last five years, the UK has stood still while our competitors raced ahead, and we must now accelerate our investment or risk losing the competitive advantage we have from our historic strength in science.

For this investment to be used efficiently, resource and capital must be tied. Thus, the UK can create world-leading facilities that run internationally competitive research programmes; rather than paying for equipment that stands unused because of lack of research funds to use it. Government should aim to provide the underpinning investment in the science base that creates 'well-funded labs'. This attracts research programme investment, for example from medical research charities or companies collaborating with academia, where the terms of the third party allow them to invest only in research and not in underpinning infrastructure.

Breadth

A vision for the UK that uses our strength in science and engineering to drive our future prosperity must be broad: across government, geography and discipline. Such a vision requires support across government, from provision of skills via education and immigration policy to regulation, licensing and procurement agreements for the science sector, for example by the NHS. Science and engineering make valuable contributions to policy-making across government. CaSE advocates transparency in the process of considering evidence in policy-making. Geographical breadth of vision is required to ensure that the benefits of investing in science and engineering are reaped across the UK, by local economies and by individuals.

The UK's great strength is in creative academic discovery leading to innovation. Discovery imparts a national competitive advantage in being ahead of the curve. The breadth of the UK's strength across disciplines must therefore be protected, enabling discovery to emerge in unpredicted places. The range of our excellence stimulates new ideas at the boundaries and enables researchers to quickly capitalise on their advantage by easily recruiting experts in diverse fields. The ecosystem of science and engineering in academia, technology transfer, innovative businesses and investors all integrate to convert that creativity into tangible benefit. Therefore we must guard against over-specialisation because it risks weakening our strength in breadth. The UK must be a place which is nimble and responsive; where researchers have the potential to become world-leading in any area of new research and capitalise on that advantage.

Principles for funding research

The pre-eminence of the UK across science and engineering disciplines is founded on long-held principles of allocation of funding for research by peer-reviewed judgement of excellence. The Haldane principle refers to the value of research being conducted independently from Government. It has developed to state that the research community should determine which projects receive state support via the Research Councils; whilst Government may guide priority-setting according to a range of criteria. The former Science Minister, David Willetts, stated in 2010 that holding to this principle "has been crucial to the international success of British science."

People

The science base is as strong as the people in it, not just the institutions and equipment they use. There is fierce global competition for talented people and an active transfer market of scientists and engineers across the world. The UK must be able to attract and retain talented people into its research companies, charities and universities. This requires migration policy that facilitates global recruitment into UK industry and academia and entices talented people here.

Furthermore, the UK needs to develop its home-grown pipeline of people with science and engineering skills to fill workforce needs. Too many research-intensive companies say they can't recruit graduates with the skills they need from the UK. Attracting a wider range of people to study and work in science and engineering will help meet our country's own skills needs, will provide fulfilling careers for our own workforce, well-paid jobs for the economy.

The UK government is guardian of one of the most high-performing and successful science bases in the world. CaSE welcomes the Science and Innovation strategy as an opportunity to shape investment in this national asset well into the future.