

STRENGTHEN SCIENCE & ENGINEERING TO SUPPORT THE UK'S FUTURE

As the UK prepares to leave the EU, more than ever we must play to our strengths. Here CaSE sets out our vision and calls on Government to use its levers to cultivate an environment in which science & engineering will thrive.

The fruits of science & engineering enrich all our lives. In an increasingly competitive global economy, they will also be the drivers of future innovation, productivity gains, and high-value job creation.

SIX PRIORITY AREAS FOR GOVERNMENT

- 1 EDUCATION
- 2 IMMIGRATION
- 3 COLLABORATION
- 4 INVESTMENT
- 5 REGULATION
- 6 EVIDENCE

HOW DOES UK RESEARCH & INNOVATION BENEFIT INDIVIDUALS AND SOCIETY?

142,000 new STEM jobs by 2023

Engineering supports 14.5m jobs – 55% of UK employment

STEM graduates earn on average 20% more

62% of new digital jobs are outside London



Firms that persistently invest in R&D have 13% higher productivity

Public R&D investment boosts industry-level productivity and crowds in investment

CREATE HIGH-VALUE JOBS

BOOST PRODUCTIVITY

STRENGTHEN THE ECONOMY

BENEFIT US ALL



Sectors across the economy depend on research & innovation

Technology that drives 95% of smart phones, 80% of digital cameras & 35% of all electronic devices was developed in the UK

Aircraft are 75% quieter than 50 years ago and are predicted to be 65% quieter again by 2050

Cancer survival rates in the UK have doubled in the last 40 years





1. EQUIP PROVIDERS TO DELIVER HIGH-QUALITY STEM EDUCATION AND TRAINING THAT IS OPEN TO ALL

TEACHERS

Develop an evidence-based strategy to improve recruitment and retention of teachers, particularly specialists in subjects with shortages such as maths, computing, engineering and physics

CAREERS

Implement a robust and fully-funded school careers strategy

FUNDING

Deliver sustainable funding for higher education, maintaining real-terms funding for high-cost STEM subjects

APPRENTICESHIP LEVY

Reform the apprenticeship levy so that targets, funding and scheme rules work together to develop more highly-skilled STEM workers, and give employers sufficient flexibility



2. CREATE A MIGRATION SYSTEM THAT SUPPORTS MOBILITY FOR EXCELLENCE, SKILLS, EDUCATION AND COLLABORATION

POST-EXIT RIGHTS

Confirm rights to reside and work in the UK for EU nationals currently working in science and engineering

SMOOTH TRANSITION

Maintain current migration rules for EU nationals until a new system can be effectively delivered

VISA-FREE TRAVEL

Ensure UK scientists and engineers can work in the EU following Brexit without requiring a visa, and vice-versa

LONG-TERM IMPROVEMENT

Design an evidence-based immigration system that is fair, fast, transparent and flexible to meet the UK's skills needs and research priorities

Promote the UK as a place to learn, earn, and contribute, and work to combat the current hostile climate towards migrants

SHORT-TERM REFORM

Remove the annual cap on Tier 2 visas for non-EEA skilled workers and reform Tier 5



3. GROW THE UK'S LEADERSHIP AND COLLABORATION IN RESEARCH & INNOVATION INTERNATIONALLY

INTERNATIONAL STRATEGY

Create a cross-government international strategy to promote and enhance research and innovation, including through trade deals, international development, and participation in multinational programmes

EU PROGRAMMES

Seek UK participation and influence in priority EU R&D programmes and their networks, including Horizon 2020 and its successor





4. INVEST AT A LEVEL AND IN SUCH A WAY AS TO ENHANCE THE UK'S RESEARCH & INNOVATION ENVIRONMENT

ROADMAP TO 3%

As part of the Industrial Strategy, create a roadmap for R&D investment to reach 3% of GDP by 2030 in partnership with the private sector

Set an interim milestone to increase public investment in R&D to 0.7% of GDP by 2022

PROCUREMENT

Revise public procurement requirements on turnover and 'billable work' to grow SME and start-up participation

TRUSTED PROCESS

Embed transparent, trusted processes for setting research and innovation priorities to inform high-level funding decisions in UKRI

BALANCED FUNDING

Increase Quality-Related funding in proportion with total UKRI research funding levels to maintain the dual support system

ACROSS THE UK

Replace EU structural funds with domestic funds that support R&D capacity building



5. DELIVER A STABLE REGULATORY ENVIRONMENT THAT FACILITATES TRADE, ACCESS TO MARKETS, AND INNOVATION

PRIORITISE STABILITY

Prioritise stability and harmonisation of regulations and standards for science & engineering

INFLUENCE

Seek continued influence on EU and international regulation that impacts on UK science & engineering

INNOVATION

Embed the Innovation Principle in the Government's approach to regulation

Create standard principles for 'sandboxes' to test potentially ground-breaking innovation



6. CHAMPION THE USE OF EVIDENCE AND SCIENCE ADVICE IN ALL GOVERNMENT DECISIONS, DOCUMENTS AND MESSAGING

ROBUST STRUCTURES

Establish robust science advice structures in the Departments for Exiting the EU and International Trade

SCIENTIFIC ADVISERS

Ensure there is a Chief Scientific Adviser in every government department

LEADERSHIP

Take a lead on transparency and good use of evidence across all Government messaging, policy and publication of data

Publish the underpinning body of evidence when policies are announced

Publish all independent evaluations within 12 weeks of the date of completion

A VISION FOR UK SCIENCE & ENGINEERING

WHAT WOULD A THRIVING UK ENVIRONMENT FOR RESEARCH & INNOVATION LOOK LIKE?

CULTURE

Challenge and independent thought are encouraged and supported in our schools as in the public square. There is a culture of integrity, transparency, and openness in research. Appropriate oversight and intervention sit alongside independence and autonomy.

PEOPLE

The science base is as strong as the people in it, not just the institutions and equipment they use.

The UK develops its home-grown pipeline of people with science & engineering skills to fill workforce needs. Science & engineering attract a wide range of UK citizens into study and work to meet skills needs, to provide fulfilling careers for individuals, and well-paid jobs for the economy.

The UK is open and welcoming to researchers, innovators and specialist technicians amid fierce global competition for talent and skills. Migration policy facilitates global recruitment into UK industry and academia, and international mobility.

INVESTMENT

The UK is a highly efficient research nation. Constrained funding levels inevitably tend toward risk averse funding decisions. So research & innovation investment is at a level that can support quality ideas, not just safe ideas, and provides enough flexibility to commit to longer term projects and emerging priorities.

Long-standing principles are upheld, including allocating funding for research by peer-reviewed judgement of excellence wherever it exists; the dual support system; and the Government guiding priority-setting with the research community determining which projects receive state support.

DIVERSITY

Diversity brings resilience and spurs innovation. The UK fosters a breadth and diversity of funders, investment instruments, settings for research & innovation, disciplinary strengths and people. There is the potential to lead the world in new research areas and create new markets.

CONNECTIVITY

The UK is a global research & innovation hub. The science base is an integrated ecosystem of universities, research institutes, charities, colleges, funders, and companies of all sizes. These organisations do not exist in isolation from each other, from their locality or from the rest of the world but are connected.

Borders aren't boundaries to collaboration and trade. Collaboration nationally and internationally is facilitated through the funding, tax, regulatory and migration environment.

INFRASTRUCTURE

From facilities and equipment to transport and digital infrastructure, appropriate structures and systems work together to support science & engineering.

Research & innovation infrastructure requirements will never be static and so robust processes are in place at a regional and national level to assess, coordinate and act on such needs to create, upgrade, maintain and replace infrastructure.

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