# WHY CHAMPION SCIENCE AND ENGINEERING?

CaSE
Campaign for Science and Engineering

**If we are to meet the economic, health, security, and environmental challenges facing our society, policy makers need to champion science and engineering. This short briefing highlights the current evidence for how science and engineering supports...**

## A strong economy

Government investment in science and engineering creates a virtuous cycle, leveraging investment from industry[1], raising productivity[2], and creating more high-value jobs[3]. It is a highly effective way to invest public money to drive economic growth.

- Government R&D grants can stimulate around **30% more self-investment** from industry[4] and for every £1 spent by the government on R&D, private sector R&D productivity rises by 20p per year in perpetuity[5].
- **Innovation was responsible for half of all UK labour productivity growth** between 2000 and 2008, with 32% of that attributable to changes in technology resulting from science and engineering[6]. Productivity growth is essential to raise wages and living standards.
- Increasing public and private R&D spending and tackling the STEM* skills shortage to improve UK business supply chains could add **£30 billion to the UK economy by 2025 by boosting the manufacturing sector and creating over 500,000 jobs**[7].

## High value jobs

A wide range of industries, from manufacturing to digital technology, rely on science and engineering to innovate, grow, and create high-value jobs[8]. Investment and support for science and engineering is essential for the future of the UK's high-tech and knowledge-based economy.

- **20% of the workforce** is employed in science and engineering roles, a total of 5.8 million people in 2011[9]. STEM graduates pay more tax as they earn 20% more on average[10].
- **Growth of innovative UK firms starts with the hiring of more STEM graduates** followed by increased R&D spending, resulting in new products to market and higher sales growth[11].
- **The UK needs 1.28 million new science, engineering, and technology professionals and technicians** by 2020. Failure to meet this could cost the UK £27 billion a year[12].

* STEM stands for Science, Technology, Engineering, and Maths.

## Healthier and happier lives

Science and engineering produces more effective medicines and cleaner energy, generates new technologies and informs government policy. Science and engineering can enable technological improvements and economic growth alongside environmental and social improvements, leading to healthier and happier lives for all[13].

- Global research efforts have led to cancer treatments and interventions delivering health gains equivalent to £124 billion for UK patients between 1991 and 2010 through **prevention, early detection, and improved survival**[14].
- **One million more properties were protected in the floods** of 2013-14 compared to similar floods in 2007 as a result of government-funded research. This saved £2.6 billion of lost working days in London alone and £2 billion in fewer and less expensive insurance pay-outs[15].
- R&D has improved aircraft fuel efficiency by 30% since 1990, saving over 400 million tonnes of $CO_2$ per year, and is expected to **improve efficiency by a further 38% between 2010 and 2050**[16].

"Being at the cutting edge of R&D can help boost exports, attract investment to the UK and drive growth."

**John Cridland, CBI Director-General**

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## The Campaign for Science & Engineering (CaSE) is the leading independent advocate for science and engineering in the UK.

**CaSE calls on the government to increase investment in research, support STEM education from primary school through to university, and set immigration policies that help attract and retain top talent. CaSE's top ten actions to champion science and engineering are available on our website, www.sciencecampaign.org.uk, where you will also find more detailed analysis and recommendations presented in three CaSE briefings.**

**Our mission is to raise the political profile of science and engineering. We passionately believe in the economic and cultural importance of scientific and technological education and development, and the vital need for the funding of this research by government and industry. The strength of our policy advocacy is due to our political networks, independent analysis, broad membership, and responsiveness.**


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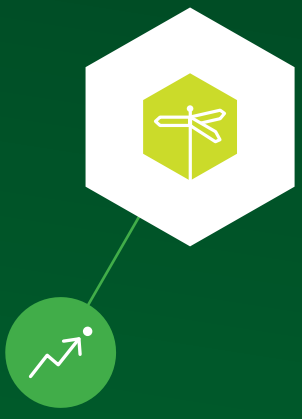


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