

ENGINEERING AND PHYSICAL SCIENCES RESEARCH COUNCIL

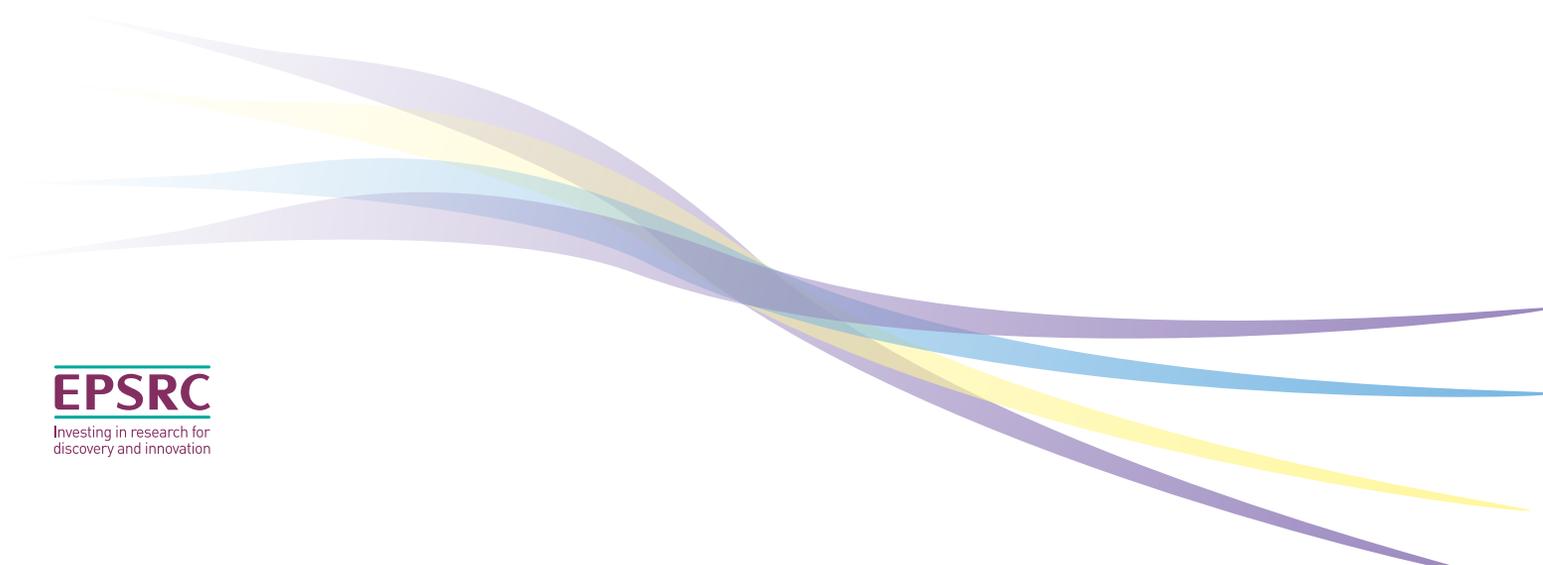
WHAT WE DO

Research, discover, innovate



EPSRC

Investing in research for
discovery and innovation



WHO WE ARE

Successful nations are science nations. They invest in the science and engineering research vital to national prosperity, security and wellbeing.

In the UK, this activity is largely driven by the Engineering and Physical Sciences Research Council (EPSRC). Through sustained investment over five decades, the research we have backed has enabled the UK to consistently punch above its weight internationally.

The challenges we face, however, are many-fold – from tackling cyber-threats, climate change and energy security to ensuring the nation remains healthy and prosperous as our population increases and steadily grows older.

At any one time EPSRC supports a portfolio of research and training of over **£2 billion**

WHAT WE DO

With an annual budget of around £800 million, EPSRC is the largest investor in engineering and physical sciences research and doctoral training in the UK.

Underpinned by a rigorous peer review process driven by research excellence, and developed through close engagement with the research community, business and government, we have a £2.5 billion research and skills portfolio to tackle key challenges of the 21st century.

We also support research that develops our fundamental understanding of the world and helps solve challenges as yet unknown. It is vital that EPSRC continues to sustain support for discovery-led or curiosity-led research, driven by individual investigators in the research community.

Our investments have led to some of the most important inventions and technologies of the modern age – from technology that drives the internet to the MRI scanners and personalised medicine vital to healthcare.

We report to the UK Government's Department for Business, Innovation and Skills (BIS). We invest the funding we receive from BIS in university-based research via the universities or researchers themselves; their ingenuity leads to discovery and innovation with global reach and lasting impact.

■ ■ ■ OUR PORTFOLIO

Our portfolio has an impact across the UK economy and society, and includes a diverse range of research areas, such as advanced materials, medical imaging, robotics, regenerative medicine, photonics and synthetic biology.

■ ■ ■ OUR PEOPLE

EPSRC staff have a comprehensive understanding of the latest research issues and opportunities. They also know how to join the dots between university-based researchers, business and other organisations, both to enhance the body of research itself, but also to accelerate its translation from lab bench to marketplace and realise its benefits for society.

■ ■ ■ STRATEGIC INVESTMENTS

The researchers we support provide the fundamental mathematics, physics and chemistry that underpin all scientific disciplines. They also provide expertise in areas such as materials science, computing and engineering that drives innovation across UK manufacturing and services – from the National Health Service to the automotive industry; telecommunications to defence; food manufacture to flood protection; aerospace to the National Grid.

We are guided by a network of strategic advisory bodies, mainly drawn from academia and industry, ensuring that our knowledge of the research landscape remains at the cutting edge. These networks provide EPSRC's executive body with strategic advice to help us develop, implement and modify plans.

■ ■ ■ DELIVERING NATIONAL PROGRAMMES

Our knowledge and relationships extend across universities, industry and society. This understanding of the wider UK landscape enables us to develop and deliver complex national programmes and high profile research institutes focused on next generation technologies such as big data analytics and quantum technologies.

■ ■ ■ DRIVING THE RESEARCH AGENDA

We play a key role in driving the national research agenda. Over £1.6 billion of our research and training portfolio is directly relevant to the government's growth strategy for the UK.

We also work closely with the other UK research councils on joint projects and cross-theme programmes, tackling global challenges and ensuring a holistic understanding of the research landscape.

BALANCING CAPABILITY

We champion excellence across the engineering and scientific disciplines while ensuring best value for the taxpayer. We only invest in research, training and infrastructure judged as excellent by our proven peer review processes.

By prioritising investment decisions we continue to support a balanced portfolio that reflects the developing strategic needs of the nation.

BUILDING LEADERSHIP

The UK needs strong leadership in research in order to maintain its global competitiveness, and to connect to and influence research activity that happens around the world. We support the development of research leaders throughout the career cycle.

Most careers in engineering and the physical sciences begin with the PhD. That's why every year, on average, we provide support for around 9,000 PhD students, investing over £200 million in doctoral training initiatives. We are by far the largest investor in UK doctoral training.

Ultimately, the researchers we support drive growth and efficiencies essential to a strong economy, and help to ensure the UK remains a leading global research nation, connecting with and influencing research activity around the world.

Their research saves lives, creates prosperity, helps to protect the environment and inspires future generations.

ACCELERATING IMPACT

EPSRC-supported research has led directly to the creation of 400 new businesses employing 50,000 people and contributing £4 billion to the economy in revenue. Among them, Xen, a software company valued at \$500 million in 2007*.

Products and inventions arising from research conducted by EPSRC-supported scientists and engineers include optical fibre techniques without which the internet would still be running at a snail's pace; OLED technology now used in flat panel displays and mobile devices globally; and CMOS sensor technology used in most mobile phone cameras.

In 2011, with EPSRC funding, a UCL team developed the world's first artificial trachea, grown from stem cells, that saved the life of a cancer patient.



■ ■ ■ BROKERING CONNECTIONS

To maximise and accelerate the impact of our investments, we broker connections between academic researchers and research users such as business and charities; we build partnerships, identify future research areas, attract further funding and foster new ways of thinking.

We also align and connect strategies, priorities and investment decisions with those of government and industry to ensure we use our assets and capabilities to maximum effect for the UK. We do this through over 2,800 active partnerships with business and other organisations.

■ ■ ■ WORKING IN PARTNERSHIP

Around 45 per cent of EPSRC-supported research projects are collaborative. These collaborations include strategic partnerships with blue-chip organisations such as Rolls-Royce, BT, Tata Steel, Procter & Gamble and GSK, which give key co-investors access to the university-based knowledge, highly-trained people and high specification facilities needed to enable them to develop new products, processes and technologies.

■ ■ ■ WORKING WITH INNOVATE UK

Innovate UK is a crucial Strategic Partner for EPSRC, and we have a joint portfolio of more than £250 million. Our relationship helps to foster a mutual flow of ideas through channels such as Knowledge Transfer Networks. It also plays an important role in linking research teams with Innovate UK's network of Catapult Centres and Catalysts.

■ ■ ■ CENTRES OF EXCELLENCE

In addition to investing in individual research grants led by adventurous scientists and engineers, we invest in dedicated multi-partner centres of excellence. These include 115 Centres for Doctoral Training, and centres dedicated to developing cutting-edge manufacturing technologies and innovation. All are focused on pooling resources, bringing together industry and academia and providing the tools and skills society and industry need.

Between them our partners are
currently co-investing a
further **£1.7 billion***

EPSRC-supported research has generated **£60 billion** in economic activity and led to **£16 billion** in cost savings in the UK public and private sectors*

INTERNATIONAL WEIGHT

Research is international and many challenges we face are global. It is vital that we take a multidisciplinary and international approach to solving them.

We use our comprehensive knowledge of the UK research landscape and our understanding of the global scene to enable the best UK researchers to work with the best partners in the world.

We work with overseas funding agencies to make the most of worldwide funding opportunities and to maximise the flow of the best people, driving global excellence.

In turn, the research teams we support attract the cream of international talent, at all stages of their careers.

WORKING WITH US

We have in-depth knowledge of the people and the research taking place within the academic community. We can help business find potential R&D partners; enable research groups to develop exciting partnerships with scientists and engineers across disciplines, and establish national and global connections – taking research to the next level.

EQUALITY AND DIVERSITY

The long-term strength of the UK research base depends on harnessing all the available talent. As an investor in research and training, we remain committed to attracting the best potential researchers from a diverse population into research careers.

OUR VISION

We want the UK to be acknowledged as the best place to research, discover and innovate. This vision is supported by two goals emanating from our 1994 Royal Charter:

Research and discover:

For the UK to be positioned as an international research leader, where discovery thrives and our support generates the highest quality research in engineering and the physical sciences

Research and innovate:

For the UK's excellent research base and talented researchers to work with us to accelerate innovation for the benefit of society

400 new businesses created, employing
50,000** people and contributing
£4 billion** to the economy in revenue

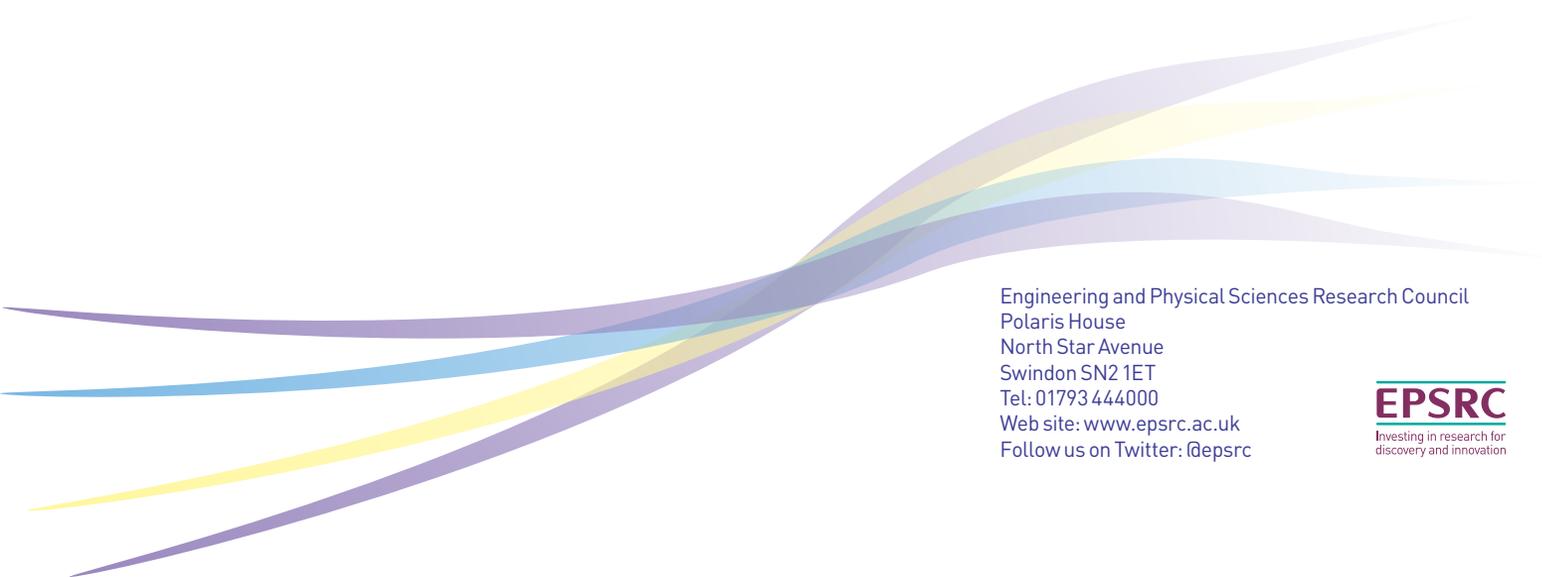
OUR STRATEGIC PLAN WILL:

- Deliver a portfolio of world-class research by internationally regarded leaders
- Support more extensive and rapid exploitation of research outcomes
- Maintain the UK's reputation for excellence and keep it at the heart of global research and innovation
- Nurture the next generation of skilled researchers and innovators and provide the knowledge and skills vital to a healthy, sustainable and prosperous society

Over **2,800** organisations are involved in collaborative EPSRC grants

* HEFCE Research Excellence Framework 2014

** Estimates based on the figures provided for a subset of spin out companies identified in HEFCE Research Excellence Framework 2014



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EPSRC
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discovery and innovation