RUSSELL GROUP

# Strengthening security and building UK resilience

The UK is facing wide-ranging and rapidly shifting threats. Research and innovation being carried out at our universities is helping transform the way the UK is able to anticipate and respond to risk associated with everything from cyber-attacks to climate change, health and much more.

Russell Group universities will continue to work closely with government, businesses and others as we seek to secure a strategic advantage for the UK through science and technology.

## Tackling global challenges through innovation

Technological breakthroughs drive economic growth, but they also mean the nature of the threats we face as a nation are evolving constantly. R&D and innovation activities at Russell Group universities help give the UK the tools it needs to keep us all safe while remaining flexible enough to respond to new and emerging dangers.

Transforming UK resilience to cyber threats

In 2017 the **University of Cardiff** launched the Airbus Centre of Excellence in Cyber Security, a leading research unit for cyber security analytics which uses applied data science and artificial intelligence methods to boost our understanding of cyber risk, threat intelligence, attack detection and situational awareness. As the first centre of its kind in Europe, this resource is positioning the UK as a leader in cybersecurity analytics and AI insights on cyber threats.

Global threats like climate change have no quick solutions, but Russell Group research is playing a fundamental role in the UK's race to Net Zero and boosting the security of our energy supply. Energy is an area where the UK has an opportunity to gain a strategic advantage through science and technology, and boost domestic resilience to international supply shocks.

Using AI to mitigate climate change risks

The **University of Exeter's** Joint Centre for Excellence in Environmental Intelligence utilises AI to address climate and biodiversity change. It is working with a city council to explore how to make buildings safe during heatwaves, and collaborating with The Alan Turing Institute, the energy futures lab at **Imperial College London** and the **Universities of Edinburgh and Warwick** on decision-making approaches for energy security and net zero.

## Preparing for the next global crisis

The UK's ability to respond quickly and flexibly to the pandemic was testament to the strength of our universities and wider R&D ecosystem, but also the result of the decision of successive governments to invest over many years in fundamental, blue skies research that helped us prepare for a future emergency.

Quality Related (QR) funding and similar funding streams in the devolved administrations allow universities to invest flexibly in emerging areas of technology where UK leadership will be the best defence against unforeseen risks.

Strategic investment in vaccine development

Having identified future pandemics as a key global threat, the **University of Oxford** used QR funding to help establish the Jenner Institute in 2005, specialising in vaccine development. Decades' worth of investment meant the team working on the SARS virus was already in place and able to be rapidly re-deployed at the outbreak of Covid-19, allowing the team to quickly develop a safe and effective vaccine that allowed the UK economy to reopen safely.

Russell Group universities also work with the Ministry of Defence and other partners to ensure the UK's defence forces have the capabilities they need to respond to new and emerging threats.

Supporting armed forces medics

It is often difficult logistically for the military to source blood of the right type in war situations. Experts at the **University of Bristol** NIHR Blood and Transplant Research Unit are working with Defence Science Technology Laboratory to produce universal blood types that store better.

## Making the UK a soft power superpower

UK universities are home to more than 600,000 students from around the world and in 2021 more than 1 in 4 countries around the world had a Head of State or of Government who was educated at a UK higher education institution. By creating strong people-to-people links, enhancing understanding of UK values and boosting positive perceptions, international student recruitment also boosts our ability to attract international businesses to the UK and drive new, strategically valuable research collaborations.

Secure international research collaborations have been at the heart of the success of UK university research, with the strength of our R&D ecosystem attracting top global talent to build research careers here and drive inward investment.

## A secure future for the UK

UK universities have a vital role to play in strengthening our national resilience and ensuring we can respond quickly and effectively to new threats as they emerge.

The decision to protect R&D investment at the 2022 Autumn Statement was a positive step that will help deliver on ambitions to secure a strategic advantage for the UK through science and technology.

In order to build on this and maximise the positive impact universities have on our national security, the Government should consider:

Boosting investment in R&D funding streams such as QR which have a track record of delivering technological advances which enhance UK resilience.

Turbocharging innovation by backing proven schemes such as the Higher Education Innovation Fund (HEIF) which have led to successful breakthroughs in strategically important fields of research.

Addressing funding gaps in strategically important emerging areas of research through a deep tech seed fund – providing patient capital to ensure vital innovations can be developed in the UK.

Doubling down on efforts to bring leading global talent to the UK to support strategically important work by tackling visa bottlenecks and continuing to enable international research collaborations with trusted partners by minimising red tape and bureaucracy.