# Leading UK businesses and researchers in £75 million collaboration to create technologies of the future

- Nine innovative business-led research partnerships backed with over £75 million to develop new technologies
- partnerships led by Unilever, EDF and the Francis Crick Institute will look at accelerating medicine discovery, creating green household products and developing sensor technology for drivers
- part of government's ambition to build back better and drive economic growth and job creation through innovation

Leading UK businesses and research institutions will join forces to develop new technologies, from 3D imaging accelerating medicine discovery, to transforming waste into eco-friendly household products.

Announced today (Friday 2 April 2021) by Business Secretary Kwasi Kwarteng, 9 new partnerships will bring together expertise from some of the UK's most prominent businesses and research institutions to develop innovations in support of the UK's key priorities, such as tackling climate change and boosting medical research.

Backed by a £75.2 million joint investment from government, business and academia, the business-led collaborations will draw on existing industry and research strengths in regions across the UK, from Teesside to Bristol, to create products and technologies that can drive economic growth and create highly skilled local jobs.

Innovations receiving funding today include the development of synthetic biology to improve the cost effectiveness of drugs to treat diseases such as cancer, sensor technology to help reduce distraction for drivers, and converting waste into clean household products such as shampoo.

To mark the announcement, the Business Secretary this week visited the Francis Crick Institute, which is partnering with British pharmaceutical firm GSK in a joint mission to accelerate medicine discovery. There he learnt how the 2 businesses will collaborate by integrating next generation chemistry with new technologies to speed up the development of medicines to help treat disease.

Business Secretary Kwasi Kwarteng said:

> As we build back better through innovation, we are putting the funding and structures in place so those at the top of their field – in business, research and academia – can develop world class products and technologies that could change all our lives for the better. The partnerships we are throwing our weight behind today

> all have innovation at their core.
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> When I visited the Francis Crick Institute this week, it was fantastic to see their ongoing work with GSK to speed up the development of new medicines. The coronavirus pandemic has taught us how vital collaboration is between industry and science and I hope partnerships like this will help in our efforts to prepare for and respond to future pandemics.
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> By bringing together business and research expertise in regions across the UK, we will help to drive local economic growth and create highly skilled jobs, all while cementing the UK's status as a science superpower.

As a result of the new financial support, Unilever will partner with the Universities of Liverpool and Oxford to reduce the carbon footprint of everyday consumer products such as shampoo and laundry detergent. The collaboration will see researchers inventing and designing sustainable materials from waste by using methods such as carbon capture, helping to decarbonise the global chemical supply chain and contribute to the UK's net zero ambitions.

Technology company Ultraleap will partner with University College London (UCL) to develop acoustic technology that allow people to 'feel', 'hear' and 'see' virtual 3D objects and holograms. It aims to demonstrate this in interactive mid-air applications such as VR training simulators, novel user interfaces in cars, digital signage and interactive kiosks. For example, mid-air interfaces can help reduce driver distraction during human-car interactions by enabling buttons, dials and other controls to find the driver who could hold their hand out and feel the buttons to change the audio, answer a phone call or check the navigation.

Today's government funding is being delivered through the Engineering and Physical Sciences Research Council (EPSRC) and is part of the flagship Prosperity Partnerships programme. It builds on the government's commitment to raise economy-wide investment in research and development to 2.4% by 2027.

EPSRC Executive Chair, Professor Dame Lynn Gladden, said:

> To tackle key challenges, such as achieving net zero, and seize new opportunities we need to harness the world-class expertise of both industry and academia.
>
> The Prosperity Partnerships announced today do this by supporting collaborations that will develop transformative new technologies with the potential to deliver societal impact and economic growth.

## Other projects being backed today include

### M Squared, AstraZeneca, Defence Science and Technology Laboratory (dstl) and the University of Southampton

The partnership aims to revolutionise the imaging technologies used to assess how effective new drugs will be in treating various conditions. It aims to develop tools that will provide live, high resolution 3D images on a large scale to determine the impact of drugs in living miniaturised yet realistic versions of human tissue and organs. This would provide an upgrade on current techniques which rely on the invasive and time-consuming process of using fluorescent light to determine their impact. This will help to speed up the process of discovering and bringing more cost effective and efficacious drugs to market.

### EDF, University of Bristol, University of Manchester, Imperial College London and the Science and Technology Facilities Council

The project will harness world-leading expertise to develop the components of digital twins – virtual models of physical entities – that can be used to assess the condition of components of energy generators such as nuclear power plants, and their need for maintenance or remedial work. This will help in the delivery and operation of major low-carbon energy generation buildings, and will create seven new research roles and incorporate 18 PhD studentships.

### FUJIFILM Diosynth Biotechnologies, Universities of Edinburgh, Manchester and York

The partnership will utilise state-of-the-art tools and synthetic biology to improve the development of biological drugs from cells and make production more efficient. These drugs, which bring together genetic material from different sources, have transformed the treatment of life-limiting diseases including cancer, haemophilia and rheumatoid arthritis. As well as the major impact this could have in terms of new drugs to treat various conditions, it represents a major economic opportunity with an increasing portion of all medicines, currently estimated at 20%, being biopharmaceuticals and the global biologics market predicted to reach a value of $319 billion this year.

### Lubrizol and the Universities of Nottingham and Warwick

Chemistry is fundamental to the UK’s manufacturing industries and is at the heart of most products that we rely on every day. Chemicals company Lubrizol will partner with the University of Nottingham and the University of Warwick in its ambitious mission to decarbonise the speciality chemicals industry. Through its unique smart molecule design and energy resilient processes, it will use its chemistry to reduce the carbon footprints of everyday consumer products such as soaps, athletic wear, medicines and cars.

### Shell, Imperial College London and Diamond Light Source

The path to net-zero CO2 requires both innovation and optimisation of new

technologies across the energy cycle from generation to storage, as well in mitigation such as carbon capture. This partnership aims to improve the efficiency, stability and longevity of systems by controlling the complex interfaces – the area where 2 interacting substances meet – on which these technologies rely, delivering a pathway to meet the UK's ambitious targets for the energy transition.

### BBC, University of Surrey and Lancaster University

Personalised media experiences, which are tailored to users' preferences and their device, have the potential to create 100,000 jobs and drive annual growth of £2 billion to the UK by 2030. This partnership will build on the BBC's work in this area, whilst harnessing the universities' expertise in audio-visual AI and software-defined networks, together with the ability to run large-scale trials. The goal of the project is to develop systems that produce and deliver personalised experiences for millions of people whilst maintaining cost and energy efficiency.

## Notes to editors

### Quotes from businesses

Andy Topping, Chief Scientific Officer at FUJIFILM Diosynth Biotechnologies:

> We are delighted with the partnership we have with the University of Edinburgh and it is aligned with our core purpose to advance tomorrow's medicines. We are a supporter of great science in the United Kingdom. This an exciting project that will allow us to understand, model and ultimately design CHO cells to be more efficient.

Richard Slater, Chief R&D Officer, Unilever:

> To achieve the UK's net zero goal by 2050 we need a transformation of the global chemical supply chain. This partnership is an important milestone towards this, driving forward important research on new renewable and biodegradable materials for everyday products, such as laundry detergents. We're delighted to bring together our world-leading scientists alongside those from the University of Liverpool, the University of Oxford, and our other partners, to tackle this issue.

Sinead Lynch, Chair, Shell UK said:

> Shell has a target to become a net zero energy business by 2050, in step with society. I am delighted that Shell is part of this exciting research programme, which will play an important part in

> delivering efficiencies and improvements that will ultimately support Shell, and many others, to reduce greenhouse gas emissions.

Tony Wood, Senior Vice President of Medicinal Science & Technology at GSK, said:

> Industrialising this technology expands our work with the Crick and directly supports GSK’s R&D ambition to improve industry success rates by developing more genetically validated targets. Together we will integrate cutting-edge functional genomics and machine learning technologies with next generation chemistry to identify novel targets and help more patients.

Dr Ionel Nistor, Head of Nuclear R&D at EDF, said:

> EDF is looking forward to starting work with our academic and industrial partners on this project which brings together a unique combination of expertise. SINDRI will develop digital tools to help the UK nuclear sector and other industries to reduce costs and ensure safety when designing, building and operating strategic assets.

Dr Orestis Georgiou, Director of Research at Ultraleap, said:

> Inspired by swarm-robotics and 5G innovations, our partnership aims to achieve breakthroughs in sound-field control and distributed platform architectures. In effect, these advancements will help establish us as leaders in spatial computing and human-computer user interfaces, but will also open up new applications for our company to explore.

Andy Conroy, Controller, BBC Research & Development said:

> Working closely with our partners, this project aims to position the UK media industry as the global leader in delivering personalised media experiences to audiences. The ambition is to build on the BBC’s pioneering work in this area, so that in the future, even more media experiences will adapt to a person’s viewing and listening needs and interactions.

Mark Davies, Senior Director Research & Development at Lubrizol said:

> In a transforming world, Lubrizol provides innovative solutions by market driven research and technical foresight. We are excited to

> partner with leading academics in sustainable chemistry allowing us to discover and then accelerate early Technology Readiness Level (TRL) opportunities guided by our mission to help the world Move Cleaner, Create Smarter and Live Better.

## About Prosperity Partnerships

The Prosperity Partnerships are supported through an investment of £22.9 million from EPSRC, £38.3 million from industry in cash and in-kind contributions, and £11.4 million from universities. An additional £2.6 million will be invested in two partnerships through UKRI's Biotechnology and Biological Sciences Research Council.

The partnerships announced today bring the total number of Prosperity Partnerships funded to 39 since 2017. £110 million has been invested by UK Research and Innovation, £131 million leveraged from 70 businesses, and £33 million from universities, bringing total investment in Prosperity Partnerships to £274 million.

The Engineering and Physical Sciences Research Council (EPSRC), part of UK Research and Innovation, is the main funding body for engineering and physical sciences research in the UK. By investing in research and postgraduate training, we are building the knowledge and skills base needed to address the scientific and technological challenges facing the nation.

Our portfolio covers a vast range of fields from healthcare technologies to structural engineering, manufacturing to mathematics, advanced materials to chemistry. The research we fund has impact across all sectors. It provides a platform for future UK prosperity by contributing to a healthy, connected, resilient, productive nation.