

Press release: £25m for 5G projects on the anniversary of the UK's Digital Strategy

- UK-wide testbeds to spearhead efforts to make the UK a world leader in 5G
- Public and private sector cooperation will explore the benefits of 5G for rural communities, tourism and healthcare
- Government highlights progress to date on its strategy to create a digital economy fit for the future

From the Orkney Islands to the West of England, the six projects led by small and medium-sized enterprises (SMEs), universities and local authorities represent the best of UK innovation, resources and expertise.

They will test 5G across a range of applications, including smart farming with drones, using the 'Internet of Things' (IoT) to improve healthcare in the home, increasing manufacturing productivity and maximising the future benefits of self-driving cars.

They are part of a £1 billion commitment through the Digital Strategy to keep Britain at the forefront of connectivity by accelerating the deployment of next generation digital infrastructure and driving forward new 5G business opportunities.

Margot James, Minister of State for Digital and the Creative Industries, said:

One year on from the Digital Strategy, we are delivering on our commitments to create a Britain fit for the future, with a thriving digital economy that works for everyone.

The ground-breaking projects announced today will help to unlock 5G and ensure the benefits of this new technology are felt across the economy and wider society.

Each testbed will receive between £2 million and £5 million in government grants, as part of a total investment of £41m from private sector and other public sector funding, to explore new 'fifth generation' mobile communications technologies that use high frequency spectrum to deliver internet speeds of over a gigabit per second.

Professor Rahim Tafazolli, Founder and Director of 5GIC and leader of 5GUK Networks said:

The 5G Innovation Centre is extremely pleased and proud to have

been able to play a leading part in supporting the DCMS UK 5G testbeds and trials programme. 5G represents a fundamental transformation of the role that mobile technology plays in society, delivering rich new services in sectors such as finance, transport, retail and health. It will drive trillions of dollars of additional activity through the world digital economy and the DCMS programme will ensure that the UK stays at the forefront of this exciting global race.

The [Digital Strategy](#) launched in March 2017 to continually drive the UK's connectivity, telecommunications and digital sectors, and invest in industries, infrastructure and skills. Infrastructure is also one of the key foundations of our modern Industrial Strategy, and both seek to create the conditions for the UK's digital economy to thrive; through overcoming barriers to growth and promoting more high-skilled, high-paid jobs of the future.

A year later, there are nearly 60,000 tech businesses in the UK, we remain the number one location for tech investment in Europe and have cemented our position as a leader in some of the most innovative and strategically important digital sectors.

In particular, the UK's fintech sector is larger than New York's or the combined fintech workforce of Singapore, Hong Kong and Australia. Healthtech, accelerated by needs of the NHS, is also now a thriving digital sector in the UK.

Delivering on its commitments to future-proof the economy through the Digital Strategy, in the last twelve months alone the Government has:

- Delivered more than 2.5 million free digital skills training opportunities with industry as part of the Digital Skills Partnership, with almost half a million new pledges made;
- Reached its target for [95% of premises to have access to superfast broadband](#) by the end of 2017;
- Committed £75 million investment to take forward key recommendations in [the independent review of AI](#), including a new Centre for Data Ethics and Innovation;
- Announced the creation of new AI fellowships and funding for 450 PhD researchers to secure the UK's leading position in the global AI market;
- Confirmed [a £21m investment in Tech Nation](#) to establish regional hubs throughout the country, widening access to Tech City's training, mentoring and development programmes;
- Announced £84m to boost the skills of 8,000 computer science teachers to make sure every secondary school has a qualified computer science teacher by 2022.
- Announced a plan to unlock over £20 billion of patient capital investment in innovative firms by doubling the annual allowance of the Enterprise Investment Scheme and the Venture Capital Trust scheme;
- Supported and funded the [Tech Talent Charter](#), an industry-led initiative committing over 170 industry signatories to diversity in tech;

- Supported the creation of a fantastic environment for early stage tech businesses – there are more than 200 incubators and 160 accelerator programmes located across the UK offering a mix of funding, mentoring and training;
- [Introduced and updated the 5G strategy](#) to deliver high quality coverage where people live, work and travel including setting out actions to ensure that mainline rail routes, major roads and connectivity ‘hotspots’ are 5G-ready.

The Digital Strategy also focuses on building and maintaining public confidence in the use of data by businesses, while ensuring the power of data can be unlocked for innovation.

Many organisations still need to act to make sure the personal data they hold is secure and they are prepared for the Data Protection Bill, which will become law on 25 May. It will give UK citizens more control over use of their data, and provide new rights to move or delete personal data.

A new campaign, led by the Information Commissioner’s Office, will prepare SMEs to be compliant with these updated laws for the digital age. It will encourage businesses to access the wealth of free help and guidance available from the [ICO](#).

The Strategy also reflects the Government’s ambition to make the internet safer for children by requiring age verification for access to commercial pornographic websites in the UK. In February, the British Board of Film Classification (BBFC) was formally designated as the age verification regulator.

Our priority is to make the internet safer for children and we believe this is best achieved by taking time to get the implementation of the policy right. We will therefore allow time for the BBFC as regulator to undertake a public consultation on its draft guidance which will be launched later this month.

For the public and the industry to prepare for and comply with age verification, the Government will also ensure a period of up to three months after the BBFC guidance has been cleared by Parliament before the law comes into force. It is anticipated age verification will be enforceable by the end of the year.

The six winning projects in the 5G Trials and Testbeds scheme are:

5G RuralFirst: Rural Coverage and Dynamic Spectrum Access Testbed and Trial

Lead organisation: Cisco Grant: £4.3m

5G RuralFirst, led by Cisco and lead partner University of Strathclyde, will deliver testbeds and trials to exploit 5G benefits for rural communities and industries like agriculture, broadcasting, and utilities, to address the challenges of and build the business case for 5G rural deployment.

Based primarily on the Orkney Islands, and in the farmlands of Shropshire and Somerset, the project will integrate spectrum sharing strategies for 5G; bringing connectivity to rural communities, enabling smart farming in partnership with Agri-Epi Centre (including drones, autonomous farm vehicles and remote veterinary inspections); innovative methods of delivering broadcast radio over 5G working with the BBC, alongside the delivery of 5G connectivity for IoT in utility and other industries in rural areas.

Scot Gardner, Chief Executive of Cisco UK & Ireland said:

5G has huge interest, but now we have to make it real – not just for cities but for everyone, including into rural communities. It is fantastic to see the government investing in research and development that helps the UK to lead in such a crucial space.

Digital economies rely on connectivity so the UK can't sit and wait. We need to be trialling now, understanding what 5G can do right across the UK. 5G RuralFirst looks to do just that. With live trials in Orkney, Shropshire and Somerset it will not only benefit those communities, but help the entire UK better understand what 5G makes possible, as well as the challenges there are in delivering world-class connectivity to all corners of the nation.

5G Smart Tourism

Lead organisation: West of England Combined Authority Grant: £5.0m

This testbed will focus on delivering enhanced visual experiences for tourists using Augmented Reality (AR) and Virtual Reality (VR) technology in major attractions in Bath and Bristol, including the Roman Baths and Millennium Square. Content and technology developments will be provided by the BBC and Aardman with support from the University of Bristol's Smart Internet Lab. It will demonstrate self-provision of 5G and Wi-Fi and innovative mmWave backhaul, and will also address safety issues by providing emergency service capacity through network splicing.

Tim Bowles, West of England Mayor said:

Imagine a virtual Roman soldier showing you around the Roman Baths, now imagine this moving 360 degrees on your mobile phone at a resolution you have never experienced before – that's what 5G technology can offer.

The 5G Smart Tourism bid will allow us to trial some exciting technology at our top tourist attractions, whilst looking at wider and longer-term benefits for our region. This new technology holds the key to a more advanced, sustainable and smart future which will revolutionise the way we all live, travel and work.

Professor Graham Thomas of BBC Research & Development said

Delivering new kinds of experiences in new ways for our audiences is a priority for the BBC. This project is an excellent way to trial ways of doing this using AR and VR technology through 5G.

Worcestershire 5G Consortium – Testbed and Trials

Lead organisation: Worcestershire Local Enterprise Partnership Grant: £4.8m

A team of 5G and Industry 4.0 experts lead this project – working with Worcestershire LEP, the consortium comprises: Worcestershire County Council, 5GIC at University of Surrey, AWTG, Huawei, O2, BT and Malvern Hills Science Park. With local businesses Worcester Bosch, and Yamazaki Mazak it will focus on ways to increase industrial productivity through preventative and assisted maintenance using robotics, big data analytics and AR over 5G.

It will also have a cyber security aspect, with QinetiQ providing assurances on the ‘security by design’ of 5G and IoT technology. Entrepreneurs will have the opportunity to test 5G capabilities in a new commercial tech accelerator located at the Malvern Hills Science Park.

Mark Stansfeld, Chair of Worcestershire Local Enterprise Partnership and 5G lead for Midlands Engine, said:

We are delighted to have been successful in our bid which will help businesses deliver greater productivity using 5G technologies. This highlights the huge ambition of Worcestershire’s innovative public and private sector, with key Worcestershire employers leading the way in Industry 4.0.

At a time of increasing global competition for trade and investment, we are confident that we can act as a catalyst for technological innovation in the wider Midlands Engine and nationally. We welcome opportunities for collaboration with the UK’s most innovative minds.

Liverpool 5G Testbed

Lead organisation: Sensor City Grant: £3.5m

Sensor City will lead a consortium made up of public sector health suppliers, the NHS, university researchers, local SMEs and a leading UK 5G technology vendor. Funded for one year in the first instance, the project will see high value technologies including low-cost open source 5G networks, artificial intelligence, virtual reality and IoT deployed across deprived communities in the Liverpool City Region test bed. The consortium will use this technology to reduce the digital divide, while measuring the impact on patient monitoring and support, management of loneliness in older adults, aid to

independents living in the home and the facilitation of communication between hospitals and the community.

Alison Mitchell, executive director at Sensor City, said:

Sensor City is proud to lead on what is set to be a truly groundbreaking project with a consortium of like-minded partners. The Government's 5G strategy for the UK presents a fantastic opportunity to transform the lives of many, especially through health and social care, so I think I speak for all partners when I say we're excited to see this work unfold over the next five years.

Professor Joe Spencer of the University of Liverpool said:

A successful demonstration of a 5G testbed in health and social care will see the development of new, innovative and disruptive technologies that will help to bridge the digital divide in the UK, especially in deprived communities.

5G Wi-Fi will not only enable the development of new cost-effective products and services to address real needs and demand, but also bring huge social and economic benefits for the most vulnerable in society, while reducing the demand on hospital-based services.

AutoAir: 5G Testbed for Connected and Autonomous Vehicles

Lead organisation: Airspan Communications Ltd Grant: £4.1m

AutoAir will aim to make 5G technologies available for the validation and development of Connected and Autonomous Vehicles (CAVs) at the UK's premiere vehicle proving ground at Millbrook. Fast travel speeds complicate cell-tower handoff, and autonomous vehicles will require more network bandwidth than is available currently. It will also investigate how these 5G connectivity solutions could be transferable to both road and rail transportation.

The project is based on the accelerated development of 5G small cells operating in both licensed Sub 6 GHz and mmWave bands on a shared 'neutral host' platform which allows multiple public and private 5G operators to simultaneously use the same infrastructure using network slicing.

Paul Senior, Chief Strategy Officer, Airspan Networks and CEO of Dense Air said

We are delighted to have won the UK's 5G competition, as it further validates the 5G network solutions and associated toolsets that Airspan and its partners have created. 5G networks will be critical for the validation and operation of CAVs and the testbed will be both a showcase and blueprint for mass deployment of 5G along the

UK's transport corridors".

Dick Glover, Chief Executive, McLaren Applied Technologies said:

At McLaren Applied Technologies we harness our experience in telemetry, software, simulation and predictive analytics to deliver advantage across the transport industry. Being part of the AutoAir 5G NR Consortium reinforces our commitment to accelerating the UK's mobility challenge of the future, as well as pushing performance, improving reliability and providing progress beyond today's expectations.

5G Rural Integrated Testbed (5GRIT)

Lead organisation: Quickline Communications Grant: £2.1m

5GRIT will be trialling innovative use of 5G technology across a range of rural applications, such as smart agriculture, tourism and connecting poorly-served communities, using shared spectrum in the TV bands and a mix of local ISPs and self-provision.

The aim is to ultimately make high quality connectivity available across Cumbria, Northumberland, North Yorkshire, Lincolnshire, Inverness-shire, Perthshire and Monmouthshire. Here the consortium will develop 5G-ready AR apps for tourists and investigate how high-bandwidth wireless connectivity can increase food production in farming, including through use of AR and an unmanned aerial system.

Steve Jagger, Managing Director of Quickline Communications said:

We feel that 5G can unlock the potential of rural areas through better connections for residents, businesses, farmers and visitors. Our consortium brings together innovative businesses and leading Universities to make the 5G dream a rural reality.

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Notes to Editors:

The [5G Innovation Centre](#) based at the University of Surrey in partnership with leading universities Bristol and King's' College London has developed one of the early cornerstones of the 5G Testbeds and Trials programme for nationwide trials of 5G applications and technologies.

Professor Dimitra Simeonidou, Director Smart Internet Lab, University of Bristol said:

We are delighted to be working towards the delivery of the world's

first end-to-end 5G testbeds with our partners at 5GIC/Surrey and King's College London. At Bristol, we have developed an open and lasting testbed for 5G experimentation in the city's Millennium Square.

We have worked with our Technology partners BT, Nokia, CCSL and Zeetta Networks and have engaged with our Digital Creative sector to showcase the 5G technical capabilities and transformational potential. We are now keen to support the Phase 1 5G Testbeds and Trials projects by offering access to our infrastructure, skills and knowledge

Professor Mischa Dohler, Director of the Centre for Telecommunications Research, King's College London said:

We are proud to have spearheaded UK's 5G innovation and deployment, alongside our colleagues at the 5GIC/University of Surrey and University of Bristol. Our joint efforts have put the UK well ahead of the global competition.

The now subsequent Phase 1 projects are very timely as they will leverage on our innovation and provide the much needed expansion into exciting applications and a wider geography. It will be paramount for the UK to ensure that all these assets will be connected to ensure scale and competitiveness.

Ofcom's 2017 [Connected Nations Report](#) found that: – In 2017, 91% of UK premises can get superfast speeds, up from 89% last year; 840,000 UK premises can now get full fibre services compared to 498,000 in 2016 4G coverage continues to increase with 58% of UK premises obtaining 4G indoor coverage from all four MNOs (compared to 40% in 2016) and 43% of outdoor geographic areas obtaining 4G coverage also from all four (compared to 21% in 2016); – Telephone calls coverage on motorways has increased by 4% to 97% from all four MNOs since 2016 and data coverage on motorways has increased by 8% to 91% also from all four MNOs; – And noted the requirement in the Government's agreement with mobile operators in 2014, that all mobile operators should cover 90% of the UK's geography (for voice calls) by end 2017.

The 2017 [ONS internet users survey](#) found that: In 2017, just 9% of adults in the UK had never used the internet, down from 10% in 2016; Virtually all adults aged 16 to 34 years were recent internet users (99%), in contrast with 41% of adults aged 75 years and over; 90% of men and 88% of women were recent internet users, up from 89% and 86% respectively in 2016; Recent internet use among women aged 75 and over had almost trebled from 2011.

The [Lloyds Bank Consumer Digital Index 2017](#) indicates that over the past year, 1.1 million more UK adults have gained Basic Digital Skills.

According to the [Nominet Digital Futures Index](#) 42% of adults are classed as digitally savvy and there are 58,945 tech businesses with employees in the UK

in 2017.

The UK came first in the rankings of the [Oxford Insights Global Government AI Readiness Index 2017](#), reflecting its world-leading centres for AI research and strong technology industry.

The seven strands of the Government's [Digital Strategy](#) are:

- Building world-class digital infrastructure for the UK
- Giving everyone access to the digital skills they need
- Making the UK the best place to start and grow a digital business
- Helping every British business become a digital business
- Making the UK the safest place in the world to live and work online
- Maintaining the UK government as a world leader in serving its citizens online
- Unlocking the power of data in the UK economy and improving public confidence in its use