Press release: New funding puts UK at the forefront of cutting edge quantum technologies

- The UK will establish a new National Quantum Computing Centre in the race to build the world's first universal quantum computer
- quantum technologies include a new generation of sensing, imaging, timing, navigation, communications and computing devices and is already helping us to crack new codes and understand human cells better
- through our modern Industrial Strategy we are driving the development of the most potentially revolutionary, cutting-edge technologies, and accelerating their adoption in real-world, industrial environments in order to realise their benefits for business, consumers and wider society

The UK has taken another step forward in the international race to become a quantum superpower with a £235 million funding boost. This includes establishing a new National Quantum Computing Centre, a quantum challenge to bring technology to markets and boost the economy, and new centres for doctoral training to upskill future experts.

These new technologies will help address the medical, environmental, security and societal challenges of the future. They are the next generation of sensing, imaging, timing, navigation, communications and computing devices, using sub-atomic particles to take computing performance far beyond the abilities of existing 'classical' technologies.

Quantum sensors will see things we currently cannot see: the buried pipes and cables that cause costly delays to construction projects or the light from hazards obscured by mist or fog. Quantum computers will perform in a way classical computers will never be able to perform, for example:

- rapidly cracking previously unbreakable codes
- investigating the complex interaction of cells in the body
- or analysing complex weather systems

Quantum sensors and clocks will enable navigation in areas where satellite signals from GPS and Global Navigation Satellite Systems are unavailable.

Business Secretary Greg Clark said:

> There is a huge future for cutting edge science in the UK which is why we are investing in ambitious technologies, like quantum, in our modern Industrial Strategy.
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> Quantum technology has already developed sensors that can visualise the invisible deep underground, and see round corners. It makes the impossible, possible and now we are backing UK innovators to

continue this world-leading work.

The National Quantum Technologies Programme, which has been in place since 2014, was extended with a £235 million investment announced by the Chancellor at Autumn Budget. This is on top of the £80 million announced in September for the continuation of 4 quantum development hubs and means the UK's pioneering programme will receive £315 million between 2019 and 2024. Delivered through UK Research and Innovation, the individual projects being taken forward are:

- a new National Quantum Computing Centre to be established, that will provide the equipment and expertise necessary to develop the underlying technologies for workable, scalable machines; enable the development of software; and enable companies to exploit the insights they bring for competitive advantage
- a Quantum Challenge (i.e., the ISCF Wave 3) that will seek to commercialise quantum technologies in industries across the economy
- a new training and skills package, including Centres for Doctoral Training, that will inspire people to consider careers uncovering the opportunities that will come with quantum technologies

Digital Secretary Jeremy Wright said:

> The new National Quantum Computing Centre will allow businesses and universities to pave the way for the development of this emerging technology in the UK and help solve problems today's computers are unable to address.
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> With this new funding for the National Quantum Technology Programme, alongside Industrial Strategy Challenge Fund commitments, we are extremely well placed to realise the commercial and social benefits of this groundbreaking innovation.

Quantum technologies will impact all aspects of our daily lives and will be powerful tools in the hands of scientists addressing the medical, environmental, security and societal challenges of the future. The UK is in a world-leading position and will benefit from the prosperity and security these new technologies will bring.