

[News story: Quantum leap: prototype devices will be ready in 2 years' time](#)

Advancements in quantum technologies are predicted to have a big impact on our lives – from creating navigation systems that can operate without GPS to new cameras that can see around corners.

To help accelerate progress in this field, the government is funding 4 projects that will use the latest quantum technology to develop prototype devices. Projects will receive a share of £20 million from the Industrial Strategy Challenge Fund, delivered by [UK Research and Innovation](#).

It follows the Chancellor's announcement of [up to £235 million of further support](#) to develop the next generation of transformative quantum technologies in the [Budget 2018](#).

This includes a new national quantum computing centre, additional investment in the next wave of the Industrial Strategy Challenge Fund, and a training and skills package.

Leading the development of quantum technologies

Projects will receive funding to develop quantum prototypes in 4 fields.

Surveying underground before you start digging

[RSK](#) will lead a project with a consortium of businesses and universities to use quantum sensors to detect objects underground. Initially, the technology will be used by road-working companies, but it could also be used in the rail network.

Precise timing

Manufacturer [Teledyne e2V \(UK\)](#) will lead a project to develop a pre-production prototype of a miniature atomic clock.

It will enable services such as energy supply, transport and mobile communications to function in the event of disruption to the current standard timing service, Global Navigation Satellite Systems (GNSS).

Secure encryption

[Toshiba Research Europe](#) will lead a project to develop the UK supply of low-cost integrated chips, which will enable more secure transmission of data using new encryption technologies.

Keeping data safe

Another encryption project will be led by [ArQit](#). It will create advanced

receivers to pick up quantum key signals. These keys are used to keep data safe by using quantum technology to let companies know if the data they are transmitting has been accessed.

Making the impossible possible

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.

The projects announced today will benefit ordinary people around the country, from easing traffic congestion to offering more data security for online transactions.

Quantum technology has already developed sensors that can see around corners, and make the impossible, possible. We are backing world-leading innovators to continue this important work.

Working across industry, academia and government

Roger McKinlay, Challenge Director for Quantum Technologies at UK Research and Innovation, said:

The rise of quantum technologies will bring a huge impact on all our lives. In order to secure the UK lead in this area, and make sure that companies based here and UK jobs take a significant share of this opportunity, we must continue to work across industry, academia and government to achieve innovation.

This is why the government's investment of £20 million through these 4 successful, pioneer challenge-funded projects will put prototype quantum-enabled devices into the hands of users.