Quantum is the next big tech revolution, and Oxfordshire is at the heart of it.

- One of the world's largest centres for quantum science
- Home of the National Quantum Computing Centre
- Emerging Quantum Cluster
- More than £150 million in quantum-related funding

OXFORDSHIRE: LEADING THE WAY TO A QUANTUM FUTURE

OxLEP
driving economic growth

OXFORDSHIRE'S QUANTUM LANDSCAPE

QUANTUM IN THE UK

The 10-year, £1 billion National Quantum Technologies Programme is supported through a mix of public and private investment. Facilitating quantum technologies, it is making the UK a major global centre for their development and commercialisation.

- Oxford is one of the world's largest centres for quantum science.
- Oxfordshire has already attracted more than £150 million in quantum-related funding[1], putting it on a par with other emerging ecosystems such as Quantum Valley in Canada, Munich Quantum Valley, Quantum Delft, and Chicago Quantum Exchange.
- The University of Oxford leads the Quantum Computing and Simulation Hub (QCS Hub), a collaboration of 17 universities supported by over 25 national and international commercial and governmental organisations.

UK NATIONAL QUANTUM COMPUTING CENTRE

The UK National Quantum Computing Centre (NQCC) is at Harwell Campus, a £93 million project to create a flagship facility for harnessing the exciting potential of this technology.

Due to open in 2023, the Centre will provide space for over 120 researchers from academia, industry, government, quantum partner organisations and start-ups.

OXFORD

Oxford University has a distinguished history in the field of quantum technology and quantum computing, and there are more than 50 groups involved in quantum science and technology. This includes work on fundamentals, materials, quantum technology, as well as initial work on applications of quantum computing to areas such as climate change, quantum chemistry and computational biology. The EPSRC- funded hub in Quantum Computing is led from Oxford, and groups in the University are playing key roles in programmes using quantum

1. Source: KTN survey

UK National Quantum Computing Centre, Harwell

Oxford University Department of Physics

Diamond Light Source at Harwell Campus

technologies for fundamental physics, where success would transform some of the 'big science' approaches in this area.

An Oxford Quantum Institute is being developed in order to capitalise on its globally recognised strengths in quantum science, technology and innovation.

HARWELL CAMPUS

The growth of interest in Harwell's Quantum Cluster is making the campus the UK's top location for cultivating quantum-related enterprises with key organisations such as at RAL Space, STFC Cryogenics and the Central Laser Facility.

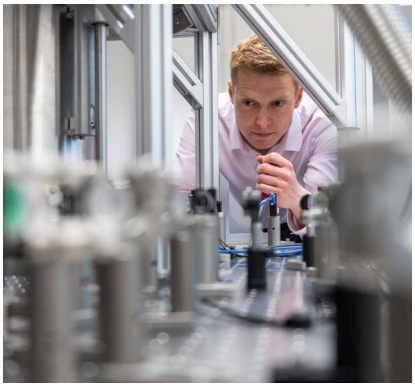
QUANTUM COMPANIES

There have already been several exciting spin-outs from the University of Oxford:

©Oxford Quantum Circuits

Oxford Quantum Circuits has delivered the UK's most advanced quantum computer and is seeking funding for the next stage of its development.

Quantum Dice is developing the world's first compact source-device independent quantum random number generator.



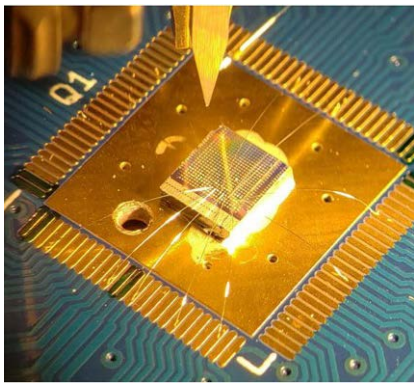
Oxford Ionics: John Cairns

Oxford Ionics aims to create the most powerful, accurate and reliable quantum computers that will transform the world of medicine, finance and much more.

ORCA Computing is developing a new approach to quantum computing with its proprietary quantum memory technology to leverage an industry-standard infrastructure.

A number of international quantum companies have an Oxford base:

Cold Quanta, a US firm, is leading a consortium of companies to develop three projects in quantum atomics, including work on a ground-breaking quantum positioning system.



Quantum Motion Technologies is leveraging silicon to deliver scalable quantum computing. Based in Oxford and London, its investors include Dutch backer Inkef Capital, Oxford Science Enterprises and the London, US and Australian IP Group.

© Nabor Godoy/Rigetti

RIGETTI COMPUTING

The Californian-based tech company chose Abingdon as its base to build a UK-based quantum computer.

Rigetti is leading a £10 million consortium comprising Oxford Instruments, quantum software start-up Phasecraft, the University of Edinburgh and Standard Chartered.

"By providing access to quantum hardware, the collaboration aims to unlock new capabilities within the thriving UK ecosystem of quantum information science researchers, start-ups, and enterprises." – Chad Rigetti, founder and CEO.

ENABLING TECHNOLOGIES

Oxfordshire is the global leader in cryogenics, the production and behaviour of materials at very low temperatures. Cryogenics is a critical enabling technology, offering the ultra-low thermal environments required for quantum computing.

TALENT

With its two universities (University of Oxford and Oxford Brookes), a highly-educated workforce and thousands of people working in R&D, innovation and commercialisation, Oxfordshire continues to attract the brightest talent from around the world. To learn more about how the UK is investing in future scientists and quantum engineers visit Quantum City, with partners from the UK National Quantum Technologies Programme.

QUANTUM'S POTENTIAL

The new generation of quantum computers could transform complex tasks and dramatically increase capabilities in fields from drug development to autonomous vehicles, space, robotics and climate change.

QUANTUM IN NUMBERS

$450-850 billion*

Estimated increase in global productivity that will be driven by quantum by 2040.

$2.8 billion**

Total global investment in quantum start-ups in 2021. Between 2013-2020 it was $1.8bn. These figures do not include investments made in established companies such as Google, Intel, and IBM, or government spending.

$5.9bn**

Total private investment in start-ups.

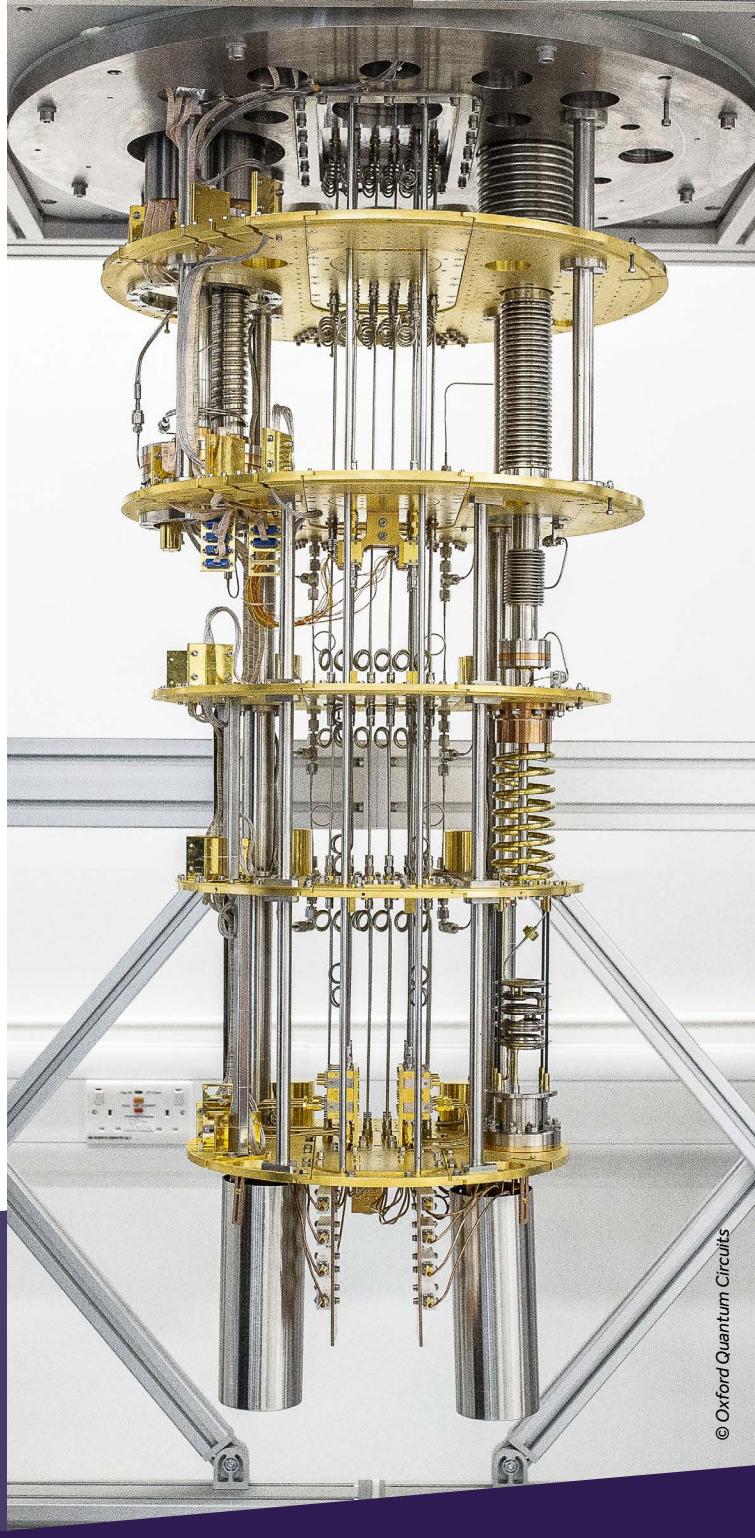
$23.5bn**

Total public investment committed to date.

**Source: Boston Consulting, May 2019*
***Source: The Quantum Insider*

"The UK will become the world's first quantum-ready economy by using the latest technology, attracting the brightest and best talent, and encouraging world-leading companies to invest here."

Amanda Solloway, UK government science minister, 2021.



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INVESTOR SUPPORT

Learn more about investment opportunities in Oxfordshire including energy and future mobility here. For further support, please contact our inward investment team.

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Oxfordshire Local Enterprise Partnership

HM Government

OxLEP driving economic growth