

Harwell Quantum Cluster: The UK's gateway to quantum



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The question facing policymakers is not whether quantum will matter, but how quickly the UK can build sovereign capability, attract global investment and accelerate adoption across both the economy and the society? Harwell Quantum Cluster is designed to be the UK's answer to that challenge.

Quantum technologies are now central to the UK's long-term science and industrial strategy. With quantum explicitly recognised as one of the UKRI technology missions alongside AI, future telecoms and engineering biology, the policy environment and the government direction are shifting from research excellence to deployment, capability-building and strategic advantage.

A strategic asset for the UK's quantum leadership

Government has been clear that the UK's competitiveness relies on mission-led infrastructure that can translate scientific excellence into real-world impact. Harwell Campus already plays this role for space, health tech, energy and defence. The Harwell Quantum Cluster extends that model into a field where the UK must build both economic advantage and

national resilience. The Harwell quantum strategy sets out a 10-year plan to do so by:

- Providing shared testbeds and national infrastructure, including the National Quantum Computing Centre (NQCC), to de-risk validation and accelerate adoption across the industry and the society.
- Concentrating cross-sector pilots in areas essential to national missions including secure communications, energy systems modelling, health decision-support in the NHS, navigation and timing systems, and environmental sensing.
- Supporting commercialisation and scale-up by linking early-stage ventures to investors, technical partners, and end-users to accelerate market readiness and business scale up.

- Creating a globally connected gateway for trusted international quantum partnerships.
- Developing a diverse, sovereign talent pipeline for quantum engineering, systems integration and applications to enable business scale up and accelerate economic growth.

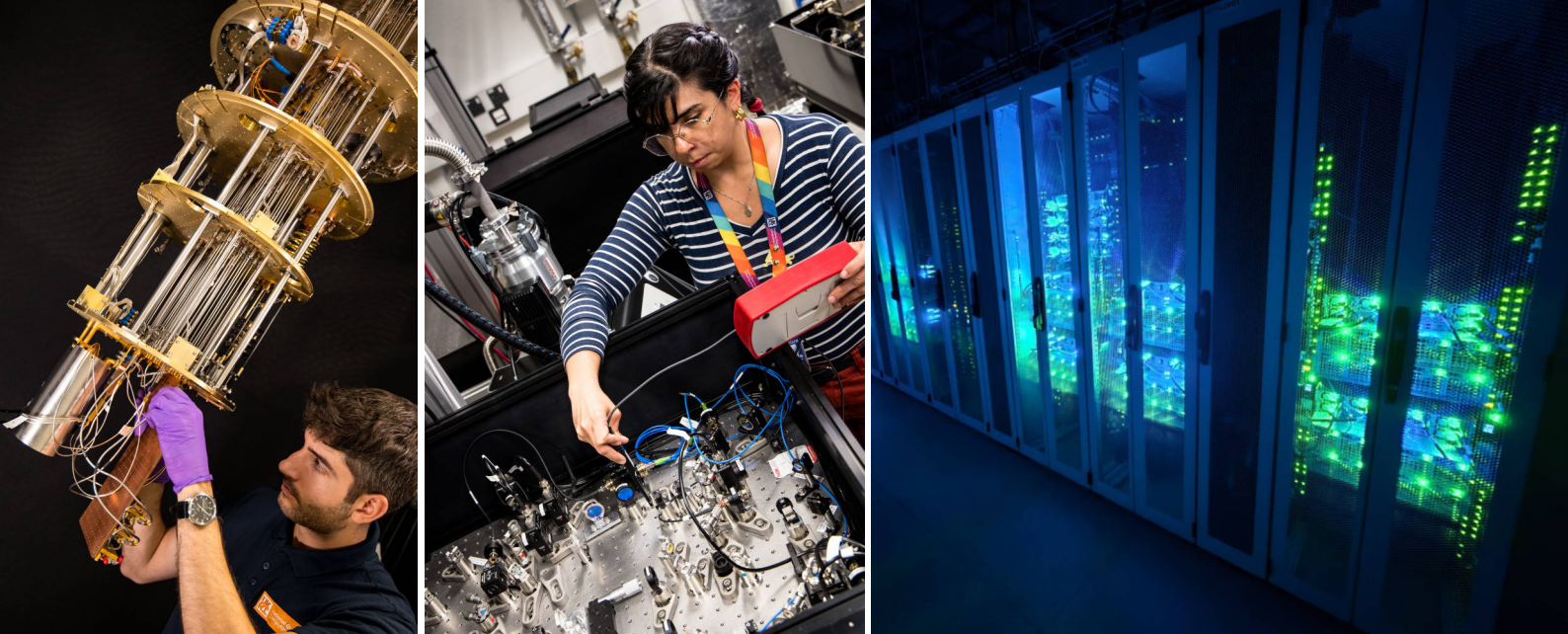
New MoU with Quantum Exponential: Catalysing UK investment into quantum scale-ups

This autumn, the Harwell Quantum Cluster and Quantum Exponential, the UK's leading listed quantum investment vehicle, announced a Memorandum of Understanding to accelerate early commercial deployment of quantum technologies developed at Harwell.

Under the MoU, Quantum Exponential and the Harwell Quantum Cluster will co-develop an investment pipeline focused on companies using Harwell facilities, testbeds and technical capabilities. A new £100 million funding window will be targeted at hardware, sensing, networking and other quantum enabled technologies from Harwell's incubation and demonstration programmes and other Harwell Quantum Cluster affiliated companies. Joint demo days, investor showcases, and technical due-diligence programmes will operate on-campus, giving quantum ventures access to investors with specialist expertise and realistic adoption timelines. The partnership will support mission-aligned pilots, helping ventures secure early revenue through links to public-sector buyers, regulated sectors, and large-scale industrial partners across the wider Harwell ecosystem. This MoU is not just a campus announcement; it is a policy



The National Quantum Computing Centre, a purpose-built facility hosting multi platform quantum computing infrastructure and the UK hub dedicated to accelerating the development and adoption of quantum computing technologies.



Left to right:

NQCC scientist working on a dilution refrigerator, preparing cryogenic hardware used to cool quantum processors to millikelvin temperatures, for superconducting qubit operation.

NQCC scientist adjusting optical components and fibre connections on a photonic experiment used for quantum information research.

Illuminated server racks inside the NQCC data centre housing the control electronics and infrastructure that support quantum experiments

signal. It demonstrates how public infrastructure and private capital can co-operate to accelerate technologies identified as strategically important by Government. It responds directly to the call, repeated in several recent parliamentary committees and industry forums, for greater mobilisation of patient capital, de-risking of deep tech, and clearer pathways between UK research strengths and economic outcomes.

The UK needs quantum deployment, not just discovery

The UK is globally respected for quantum science, but leadership in the next phase will depend on:

- De-risking early adoption in sectors where performance, security and trust are paramount.
- Building sovereign capability in hardware, networks and high-value supply chain components.
- Linking quantum to applied missions, from environmental modelling to secure infrastructure.
- Attracting long-term private investment, complementing UKRI, DSIT and defence funding streams.

By providing interdisciplinary testbeds, co-located infrastructure and end-user

access, Harwell reduces barriers that typically slow quantum progress: fragmented supply chains, long iteration cycles, high capital costs and regulatory uncertainty.

The cluster is expected to support up to 100 quantum-focused companies, alongside over £1 billion of inward investment, creating a national capability that benefits the whole UK, similar to the regional innovation models from the Yorkshire bioeconomy to Scotland's built-environment innovation ecosystem.

A policy model for the UK's Emerging Technology Strategy

The UK must now demonstrate not only research excellence but investability, scale and system-level capability, three features that international investors and partners identify as prerequisites for quantum deployment. Harwell offers a replicable model that is a place-based asset with capability concentration. As seen across other sectors such as bioeconomy clusters, net-zero manufacturing hubs, regional AI accelerators, place matters. Harwell's integrated ecosystem reduces fragmentation and ensures that quantum innovation is not happening in isolated pockets.

Quantum will require new standards, procurement models, supply-chain assurance, and responsible innovation

frameworks. Harwell provides a testbed environment where these can be developed collaboratively, in line with POSTnotes on quantum risks, responsible data use and interdisciplinary regulation. The Quantum Exponential MoU is a practical demonstration of how the UK can attract market-led investment into deep tech while retaining sovereign capabilities in sensitive technologies.

With the market moving rapidly in North America, Europe and Asia, global partnerships will be essential. Harwell's track record across space, energy and life sciences, positions the quantum cluster as the UK's international front door.

Looking ahead: The UK's moment of opportunity

The International Year of Quantum Science and Technology in 2025 provides a platform to demonstrate the UK's strengths in quantum science and technology. But momentum must be sustained beyond the year itself. By expanding infrastructure, scaling talent programmes, and deepening public-private investment partnerships, the Harwell Quantum Cluster is ensuring that quantum technologies deliver economic, security and societal benefits for the whole UK. Quantum is no longer a future challenge, it is a present strategic opportunity. Harwell is building the place where the UK can seize it.