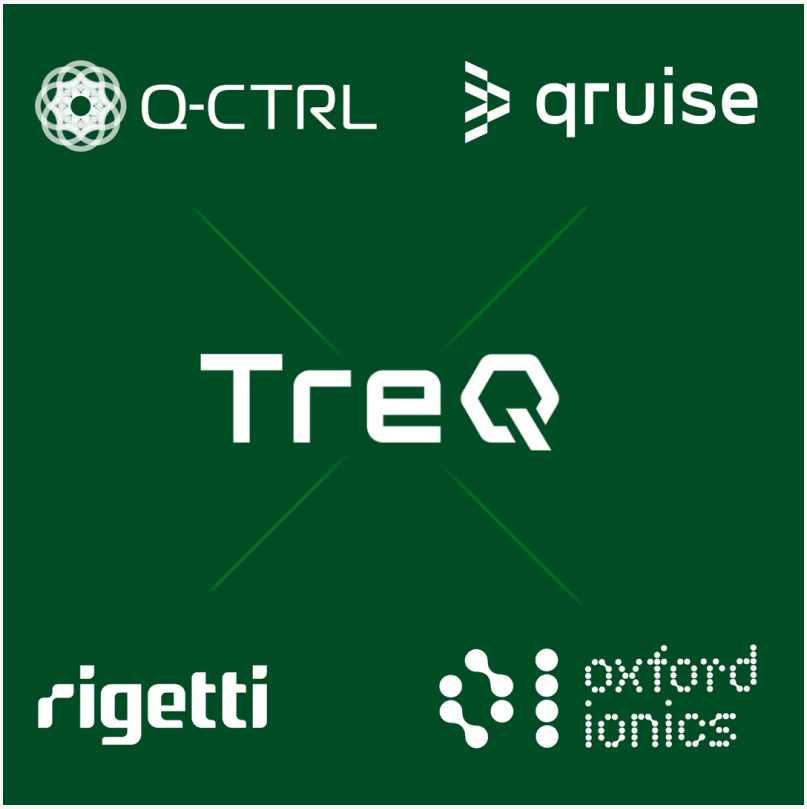
Innovate UK Awards TreQ-Led Consortium £1.65 Million to Create Open Architecture Quantum Testbed

TreQ, Rigetti, Oxford Ionics, Q-CTRL and Qruise selected as part of UK Quantum Missions Pilot to build first-of-its-kind reconfigurable quantum computing system



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OXFORDSHIRE, UNITED KINGDOM, April 22, 2025 /EINPresswire.com/ -- Innovate UK has awarded TreQ and a consortium of partners including Rigetti, Oxford Ionics, Q-CTRL, and Qruise, £1.65 million to develop an Open Architecture Quantum (OAQ) Testbed.

The grant was announced last week by Peter Kyle, Secretary of State for Science, Innovation, and Technology within a £121 million investment in quantum technology. It is part of the Quantum Missions Pilot, which aims to break down technological barriers to commercialising quantum technologies in line with the UK's National Quantum Strategy.

The project team, orchestrated by TreQ, brings together expertise and products from multiple industry leaders. Together, the consortium will create a modular and extensible system for integrating and evaluating both quantum software and hardware components, including processors.

"The OAQ Testbed pushes the bounds of quantum computing systems," commented Dr Joseph Rahamim, Director of Systems Engineering at TreQ, who is leading the project. "By integrating software and hardware built by several companies, we expand the focus beyond processors to the systems engineering required to develop the supply chain, engage more innovators, and

accelerate development.”

The consortium will build a versatile system that supports eight different configurations by combining two quantum processors, two control systems, and two quantum software stacks. Users can easily switch between component configurations in seconds, allowing software testing in multiple contexts. The OAQ Testbed will also offer the potential for upgrades and extensions at every layer of the stack. This approach maximises capital efficiency, ensuring the investment supports long-term advancements in a rapidly evolving field.

The OAQ Testbed will incorporate products from consortium members as well as additional suppliers, including:
- Advanced calibration tools provided by Q-CTRL & Qruise
- Control hardware from Quantum Machines & QBlox
- Rigetti’s Novera™ 9-qubit quantum processing unit (QPU) and a QuantWare 5-qubit Soprano QPU

“Open architecture systems are essential to accelerating quantum computing development,” said Subodh Kulkarni, CEO at Rigetti. “We’re delighted to contribute our Novera QPU to a testbed that will give companies and institutions a flexible platform to evaluate new ideas.”

“Robust calibration is the foundation of any performant quantum system,” said Dr Pranav Mundada, Lead Scientist at Q-CTRL. “This project demonstrates how infrastructure innovation, like advanced AI-powered software for autonomous calibration and error suppression tools, is critical to enabling scalable, interoperable quantum computing.”

“We're eager to bring our AI-powered system identification and calibration technology to a testbed designed for iteration and experimentation,” said Shai Machnes, CEO at Qruise. “Interoperability means acceleration, and that’s exactly what this project delivers.”

TreQ will design, build, and operate the testbed in its facility in Milton Park, Oxfordshire.

The project will also deliver an open specification for low-level quantum workflows, creating a common interface between quantum software and hardware, including different processor technologies, both beginning with superconducting and Oxford Ionics’s trapped ion qubits. This interface will enable modular compilation and seamless execution of quantum programs, increasing supply-chain cohesion and accelerating collaboration across the industry.

“We're delighted to be contributing our expertise to the consortium, which will help ensure the testbed supports a broad range of quantum technologies - including our record-breaking trapped ion systems," said Dr Chris Ballance, co-founder and CEO of Oxford Ionics.

This is the second award of a UK grant to TreQ this year. In January, the company was named as one of 28 startups backed by The Science and Technology Facilities Council as part of a £2 million

drive to bring new innovations to market faster.

About TreQ
TreQ is a global quantum systems engineering and manufacturing company building and operating bespoke, open-architecture quantum computing clusters.

About Qruise
Qruise develops a new type of physics-based AI, allowing Digital Twins to learn from real-world data, closing the simulation-reality gap which plagues R&D of new hard-tech, from low-field MRI to quantum computers, silicon photonics and much more.

About Rigetti
Rigetti is a pioneer in full-stack quantum computing. The company operates quantum computers over the cloud through its Rigetti Quantum Cloud Services Platform and fabricates its chips in-house at Fab-1, the industry's first dedicated and integrated quantum device manufacturing facility.

About Oxford Ionics
Oxford Ionics was co-founded in 2019 by Dr Tom Harty and Dr Chris Ballance. The company has sold full-stack quantum computers to the UK's National Quantum Computing Centre (NQCC) and Germany's Cyberagentur. It also holds the three world records for quantum performance: single- and two-qubit gate fidelity and quantum state preparation and measurement (SPAM).

About Q-CTRL
Q-CTRL is a key player in the global quantum technology industry as a category-defining business for quantum infrastructure software. Learn more at https://q-ctrl.com.

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