Quantum Exponential

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“What is Quantum and Why it Matters Now”

Session Overview

This session explored the current state and future potential of quantum computing, bringing together specialists from venture capital, research funding, technology development, and applied sectors including healthcare and life sciences. A central theme was the UK’s ambition to lead globally in quantum, underpinned by a £2 billion government commitment to scale quantum applications by the early 2030s.

Participants emphasised the need for a cohesive ecosystem integrating academia, industry, and government to ensure commercialisation and scaling of quantum innovations. Challenges including limited public procurement and the mobilisation of high-risk capital were discussed alongside practical solutions: building “quantum-ready” infrastructure and leveraging public-private partnerships to anchor quantum startups in the UK.

Technical discussions covered quantum computing’s transformative potential in solving complex optimisation problems — from drug discovery to materials science — where quantum processors can outperform classical systems. Experts highlighted that quantum will coexist with classical and AI systems in hybrid architectures balancing workloads across CPUs, GPUs, and QPUs. NVIDIA’s role was underscored, particularly with CUDA-Q and MVQ link enabling quantum-classical workflows. Security, data governance, and interoperability were identified as critical factors for the transition ahead.

Life sciences and finance emerged as frontrunners for quantum advantage. Life sciences benefit from mature workloads in genomics, drug discovery, and molecular modelling; finance presents opportunities in portfolio optimisation and cryptography. The discussion concluded with optimism about advances in logical qubits and error correction, and the importance of global collaboration to keep the UK central to the quantum ecosystem.

Key Takeaways

The UK’s Ambitious Quantum Investment

The UK government has committed £2 billion to quantum technology, targeting global leadership by the early 2030s. The investment integrates research, commercialisation, and public procurement to foster innovation, anchor companies, and create jobs.

Quantum Computing’s Transformative Potential

Quantum is set to revolutionise sectors from life sciences to finance through its ability to solve complex optimisation problems at unprecedented speed. Advances in logical qubits and hybrid classical-quantum systems are paving the way for near-term practical applications.

The Need for Quantum-Ready Infrastructure

The coexistence of quantum and classical computing requires platforms integrating CPUs, GPUs, and QPUs. Investment in orchestration software, data platforms, and secure interoperability is critical to enable seamless transitions and scalability.

Session Participants

Name	Role & Organisation
Kirill Pyshkin	Managing Partner, Quantum Exponential
Arshad Farhad	Healthcare CTO for EMEA, Dell
Nicholas Harrigan	Quantum Computing, NVIDIA
Charlotte Deane	Executive Chair, Engineering and Physical Sciences Research Council (UKRI)