

Quantum computing: How to crack complex calculations

- ✓ **strategic partnerships** enable quantum projects from conception to implementation
- ✓ AQT manufactures quantum computing hardware in a standard 19-inch cabinet, with no air conditioning and a **footprint of just two square metres**
- ✓ White paper reflects on applications **of quantum software and quantum hardware** in finance

Innsbruck, 3 February 2022 – Quantum computer technology is just entering the world of end users. Many companies have already acquired strategic knowledge, are examining innovative use cases, identifying processes, and creating forward-looking applications, for instance in the financial sector.

The strategic partners AQT, JoS QUANTUM, SVA, and NTT have summarised the key findings of an application-oriented solution from the financial sector in a whitepaper.

There are numerous use cases and applications that deliver a return on investment in finance. These are for example:

- **Portfolio optimisation and asset allocation**
Applications based on quantum technology could achieve better results, create solutions in less time or take more dependencies into account than classical computers.
- **Risk management**
Results determined with a quantum algorithm allow for a quadratic speed-up compared to classical Monte Carlo methods.
- **Generation of synthetic data**
This creates advantages in terms of risk analyses of financial infrastructures. Increases in the stability of energy networks can be expected.

"Quantum technology is a way to enable new paradigms of information processing in quantitative and computational finance. They promise, for instance, improved financial models"

Dr. Thomas Monz, CEO AQT

The quantum computer technology developed by AQT simplifies the use of a quantum computer in several ways.

- the hardware is used in your own data centre (on-premise) or via the cloud as Quantum-as-a-Service (off-premise)
- the hardware components only require around 2 square metres and fit exactly into a standard 19-inch rack.
- the energy consumption is less than 3kW, the quantum computer is operated at normal room temperature between 20 and 25 degrees Celsius
- there is no need for complex air-conditioning units for cooling
- monitoring systems are available for remote maintenance
- the quantum hardware is compatible with the largest "out-of-the-box" software development frameworks such as Qiskit, Cirq and PennyLane.

At AQT, we strive for networking through cooperation and partnerships on an international level. We are available to our customers with state-of-the-art quantum hardware for innovative projects.

Information

The press release and photo material are available for download at:

<http://www.aqt.eu> in the media / press section

The white paper „Quantum computing in finance“ is available for download free of charge at:

<http://www.aqt.eu> in the news section



Image 1: Industry-standard quantum computer
Photo: Dieter Kühl



Image 2: Rack-mounted ion-trap quantum processor
Photo: Dieter Kühl

AQT ALPINE QUANTUM TECHNOLOGIES GMBH

AQT is a spin-off of the University of Innsbruck and the Austrian Academy of Sciences, founded by quantum physicists Rainer Blatt, Thomas Monz, and Peter Zoller. The company develops hardware for quantum computers based on ion trap technology. AQT offers its customers the opportunity to work with conceptual test programmes. This enables their employees to qualify and position themselves for work with quantum computers at an early stage.

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