

Quantum Brilliance GmbH: Enabling Quantum Advantage for Security Operations

Quantum Brilliance GmbH, a German-Australian deep-tech company founded in 2019, is pioneering the deployment of **room-temperature quantum technologies** designed for real-world environments. With a focus on **diamond-based quantum accelerators and sensors**, Quantum Brilliance delivers scalable, ruggedized solutions that meet the operational demands of defence and national security.

Quantum Brilliance operates through three synergistic business units:

1. Quantum Systems and Solutions

- Develops compact quantum accelerators using nitrogen-vacancy (NV) centres in synthetic diamond.
- Devices operate at room temperature, eliminating the need for cryogenics or vacuum systems.
- Form factors range from rack-mounted modules to GPU-sized units, ideal for deployment in vehicles, satellites, and field systems.

2. Integrated Quantum Chip

- Integration of diamonds into a multi-layer device
- SWAP aware design of rugged and mobile, ready-to-use quantum chip

3. Quantum Diamond Foundry

- Atomic Scale Fabrication of NV-centres in diamonds
- Characterised and functionalised diamonds

Quantum Brilliance's technologies are uniquely suited to defence and Cyber-Security scenarios where **mobility, resilience, and edge computing** are critical:

- **Deployable Quantum Computing:** Enables on-site quantum-enhanced processing for mission-critical tasks.
- **Quantum Sensing:** Offers breakthrough capabilities in detection, navigation, and situational awareness.
- **Hybrid Integration:** Supports secure, scalable quantum-classical architectures for defence-grade systems.

Quantum Brilliance could revolutionize cybersecurity by embedding compact quantum accelerators and sensors into secure environments, enabling on-premises generation of certified quantum randomness and quantum-enhanced detection mechanisms that provide verifiable, tamper-resistant protection beyond classical capabilities.:

With active partnerships across Europe, North America, and Asia-Pacific, Quantum Brilliance is shaping the future of quantum-enabled defence infrastructure