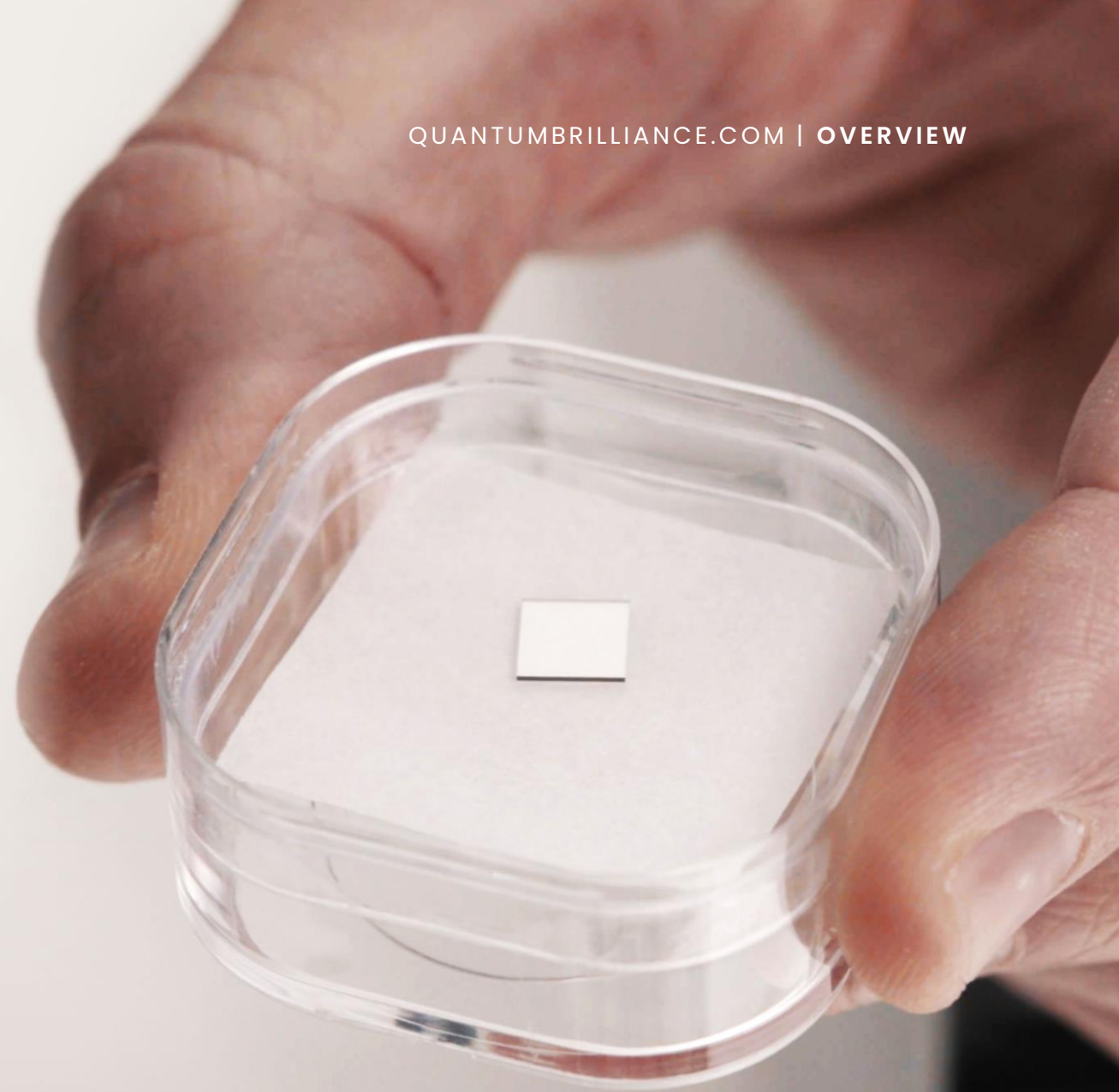


SEPTEMBER 2023

QUANTUMBRILLIANCE.COM | OVERVIEW

Quantum Brilliance

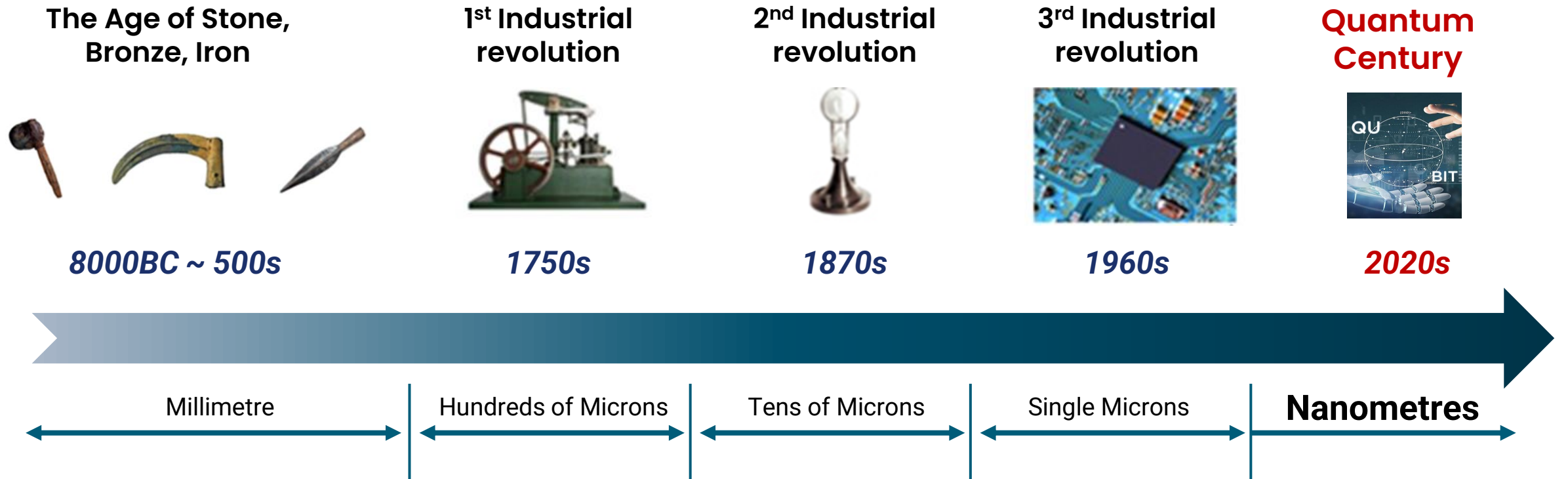
Room temperature quantum technology



CONFIDENTIAL

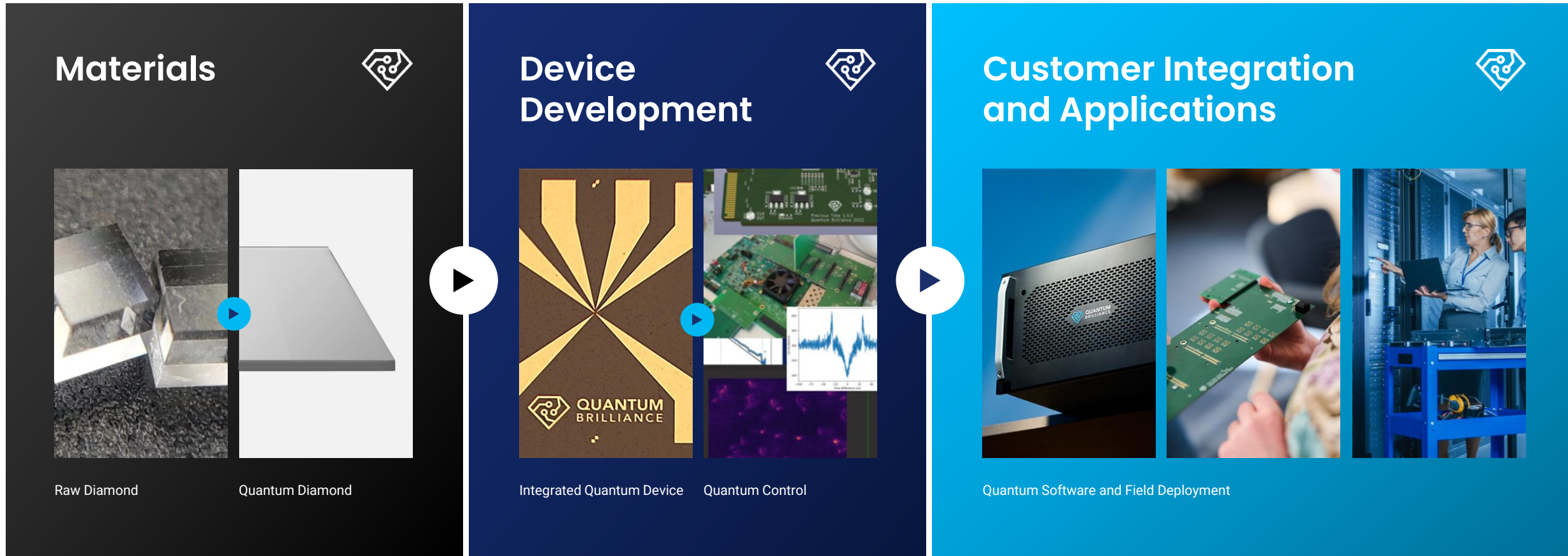
Mega-theme

Quantum engineering will bring **transformational wealth**



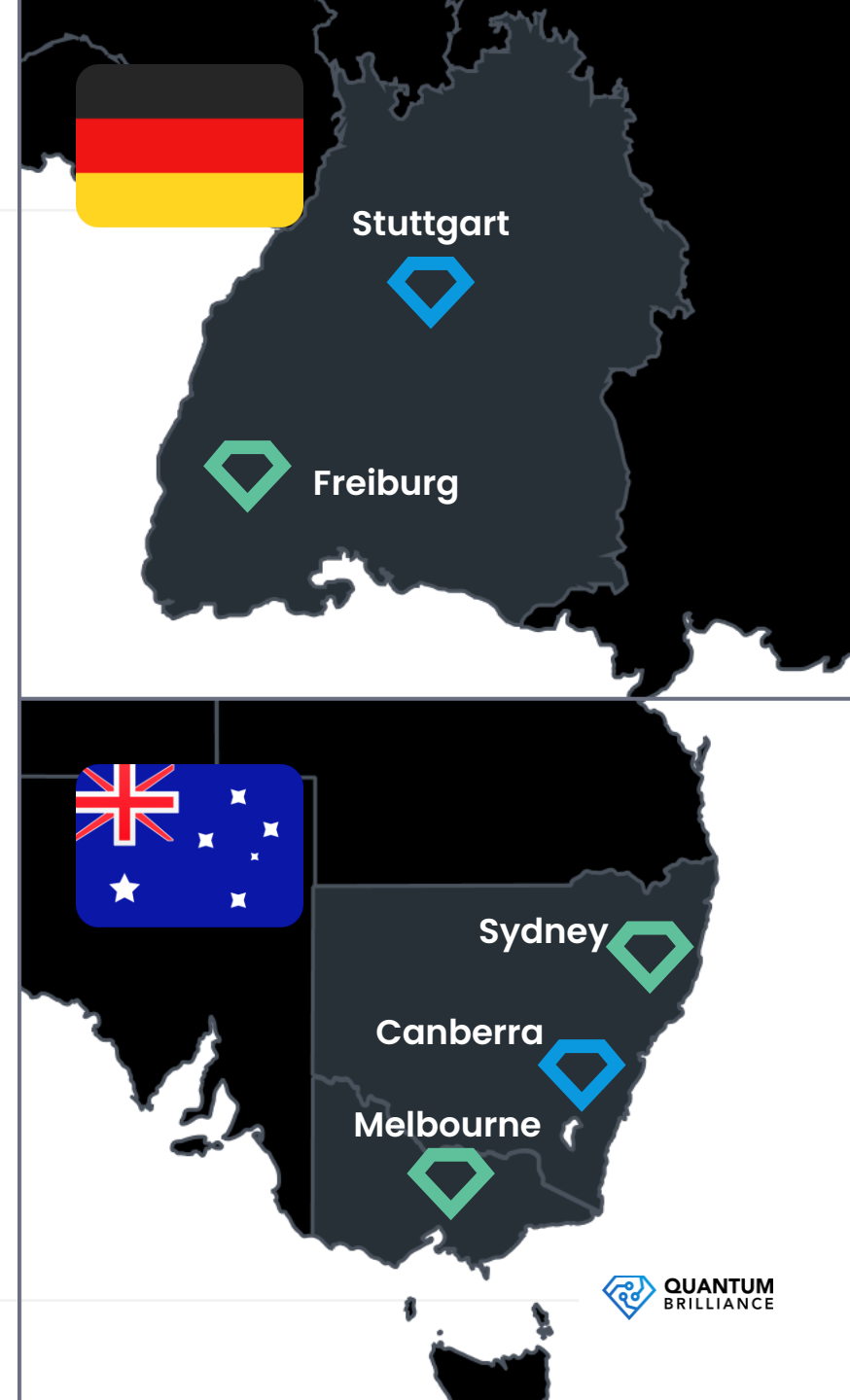
Quantum Brilliance

QB is the world leading pure play, **vertically integrated** diamond quantum technology company



Locations and Capabilities

- **95 staff globally**
 - 48 staff in Germany, 47 staff in Australia
- Operating across **x4 sites** in:
 - Freiburg, co-located in Fraunhofer IAF
 - Stuttgart, co-located in Uni of Stuttgart
 - Melbourne, focused on diamond materials
 - Canberra, co-located in ANU
- **~20 partners** across multiple projects, including:
 - DE-BRILL, diamond materials fabrication
 - DE Spinning Hub
 - Quantum application projects
 - EU diamond NV projects
- **World's first company** to integrate a room temperature quantum computer inside a supercomputer



Products, Services, Customers & Investors



Synthetic Diamond Quantum Materials

Proprietary diamond quantum materials capability and core IP



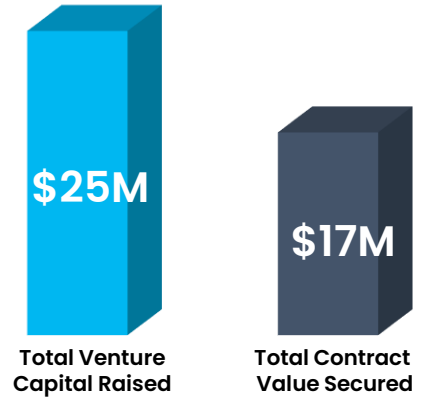
Quantum Computing Hardware

Low barrier to entry quantum hardware



Quantum Computing Software

High performing quantum software to unlock use cases



*Converted to US\$ million

Select end-users



Partners & Customers

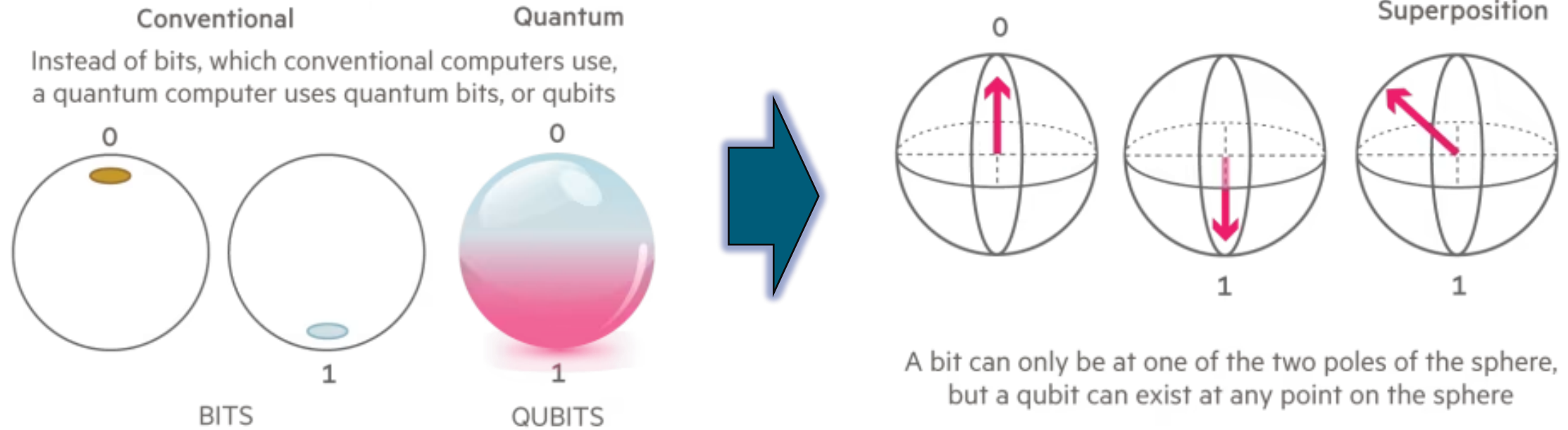


Investors



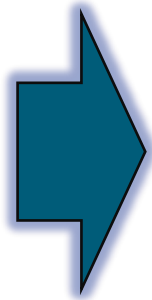
What is Quantum tech?

What is a qubit?



Superposition → Superdense information encoding

What is a qubit?

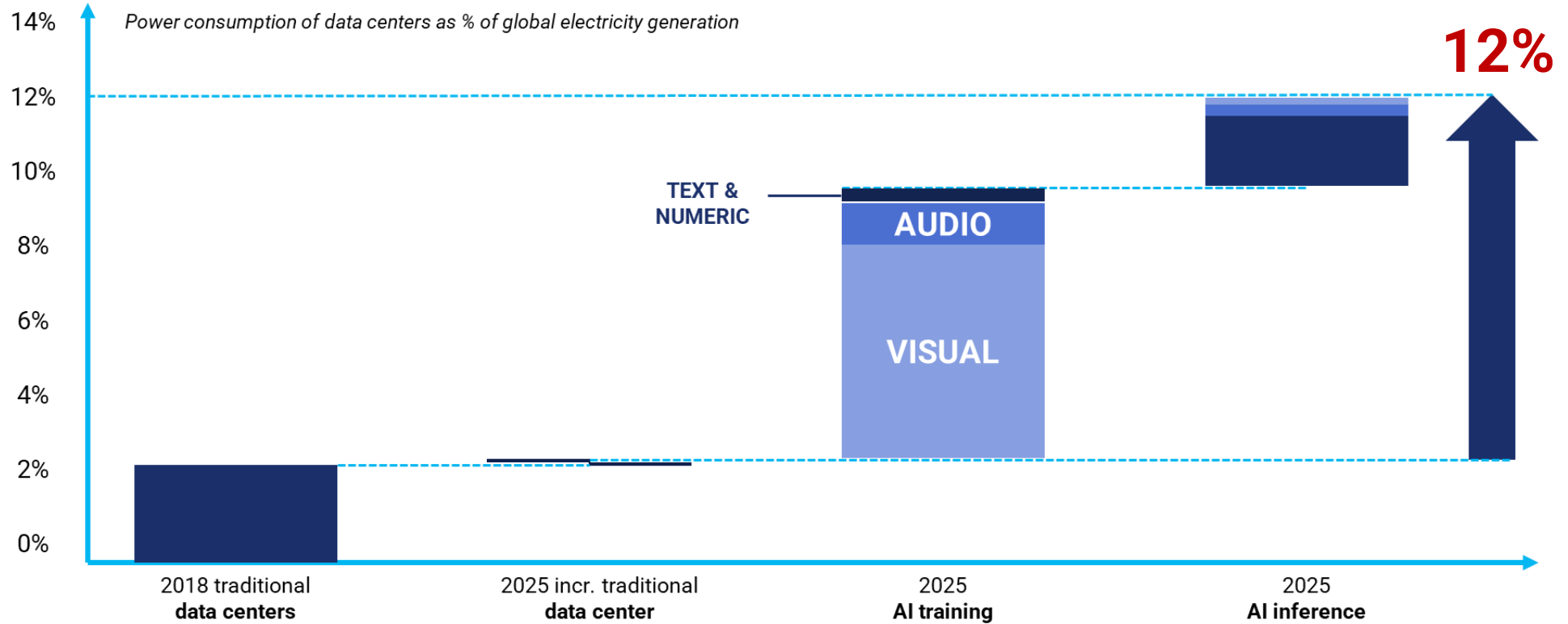


Working Qubits

Superposition is then enhanced by entanglement, through which pairs of qubits can act in unison, allowing many parallel computations at once

Entanglement → Correlation, parallel computations

AI data centers will 'burn' our planet



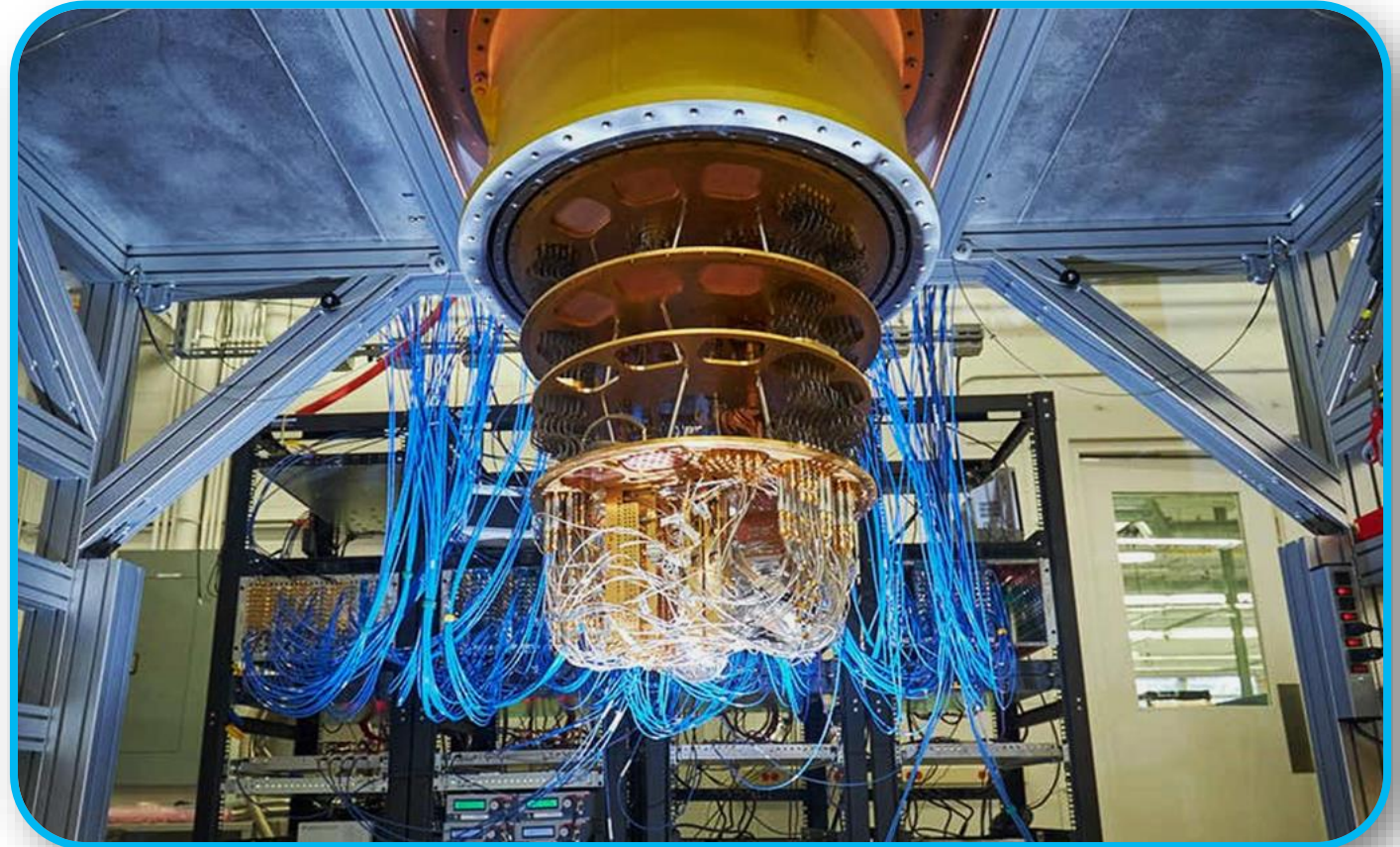
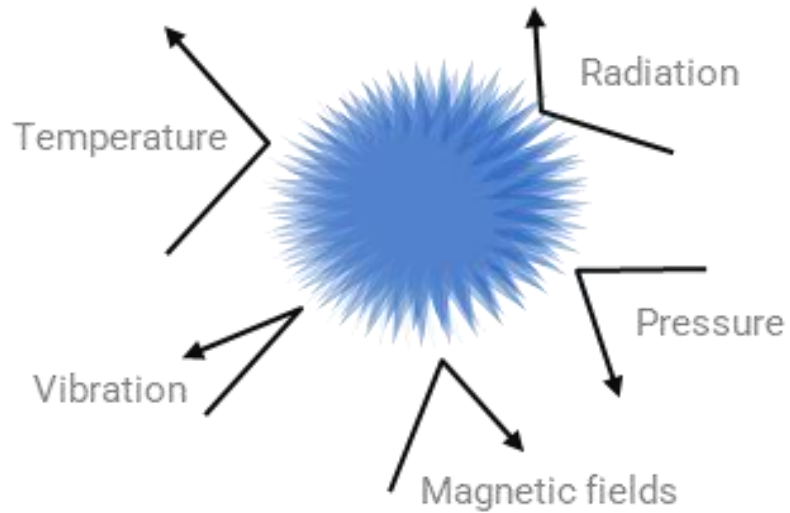
What if Google deployed Large Language Models for all its searches

Google search engine cost → \$0.00106 per query
+ LLMs → \$100bn in capex + \$0.0036 per query

Google
Operating Income: \$55B → \$20B

The problem is... quantum systems are *fragile*

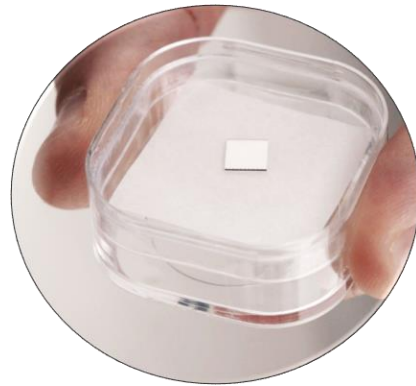
Fragile



Quantum Brilliance's approach

Transformative tech creates great wealth.

Quantum is a true leap forward like the engine, electricity, and the internet.



Synthetic diamond is the most reliable and practical material for **mass deployment of quantum tech.**



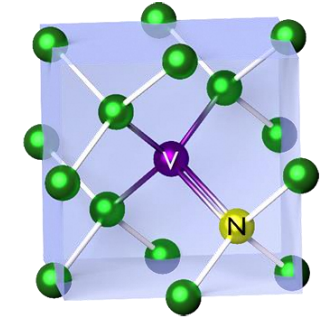
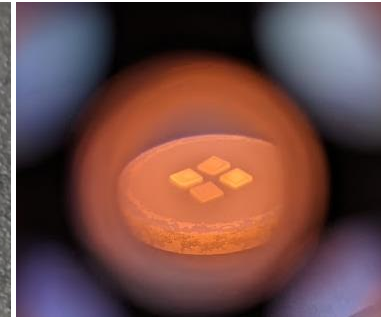
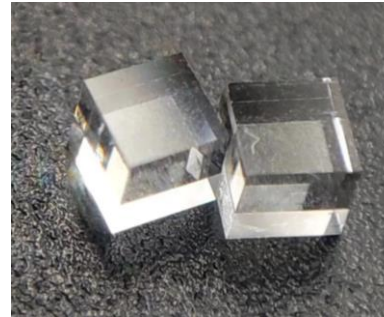
Quantum Brilliance tech will be **mass deployed everywhere**, emulating the success of **Intel and NVIDIA**

Why Quantum Diamond?

What is synthetic quantum diamond?

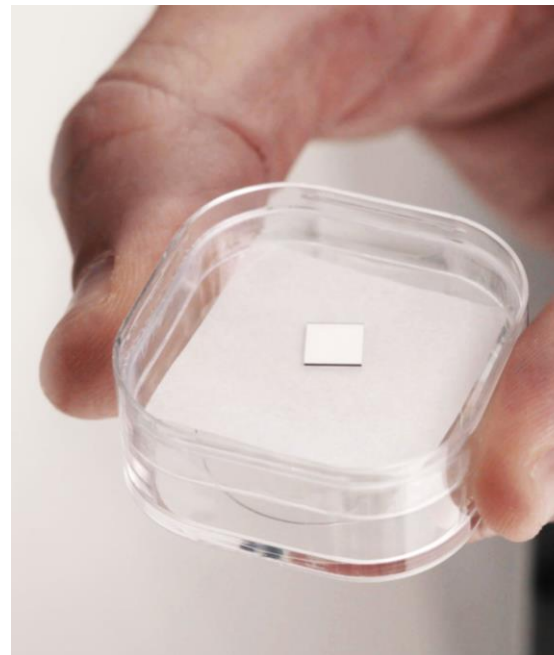
Defect in the diamond lattice with pair of a nitrogen atom and lattice vacancy

Low quantum noise



In quantum computing, single gate fidelities 99.99%, and long coherence time (~1 ms)

Quantum applications in computing, sensing, communications, etc.



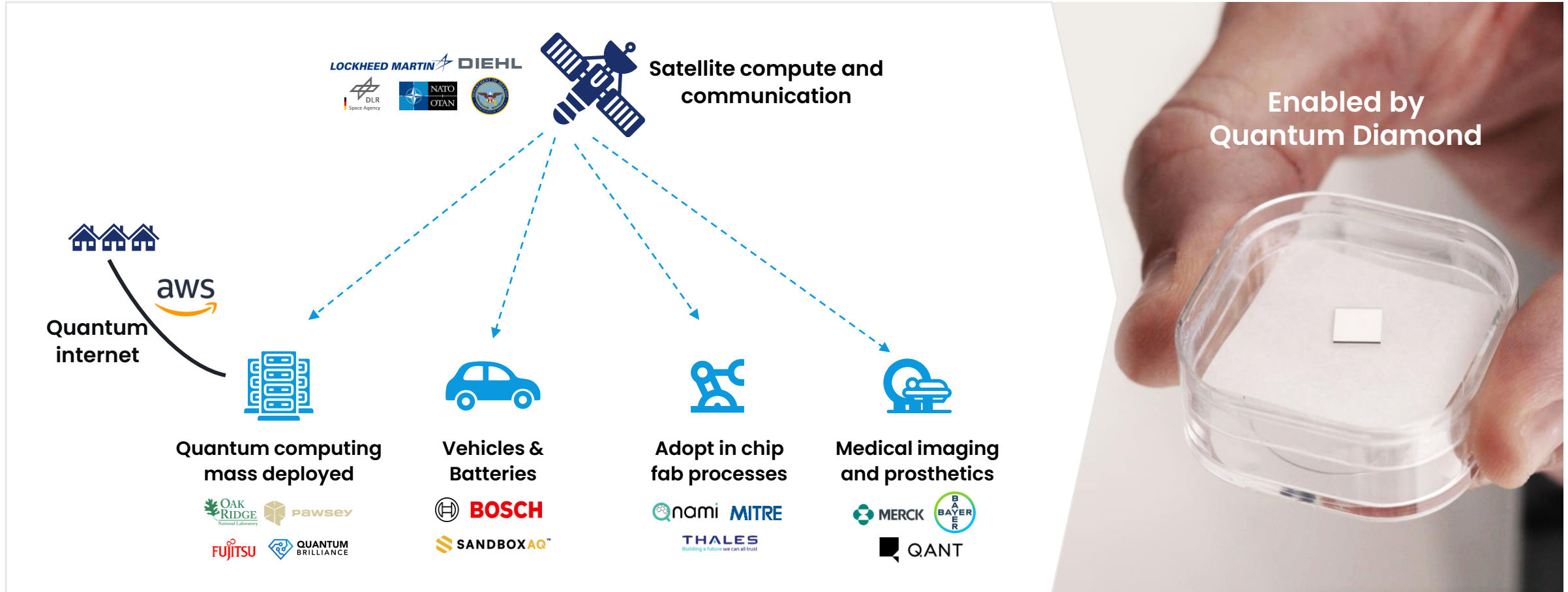
13 IIIA	14 IVA	15 VA	16 VIA
B Boron 10.81	6 C Carbon 12.011	7 N Nitrogen 14.007	8 O Oxygen 15.999
13 Al Aluminum 26.982	14 Si Silicon 28.085	15 P Phosphorus 30.974	16 S Sulfur 32.06
31 Ga Gallium 69.723	32 Ge Germanium 72.630	33 As Arsenic 74.922	34 Se Selenium 78.971

Room temperature

Simple to build, robust and miniaturisable

What are the quantum applications?

Industrial leaders have selected diamond quantum devices to be part of next-gen systems



Large TAM within the next decade

Significant TAM for quantum diamond devices across sensing, computing and communications



Quantum tech is a tsunami which is going to disrupt all industries



Advanced systems of the 21st century will incorporate diamond quantum devices

	Quantum Sensing	Quantum Computing	Quantum Communications
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\$1-7bn

\$10-90bn

\$1-6bn

Note: McKinsey (2021)

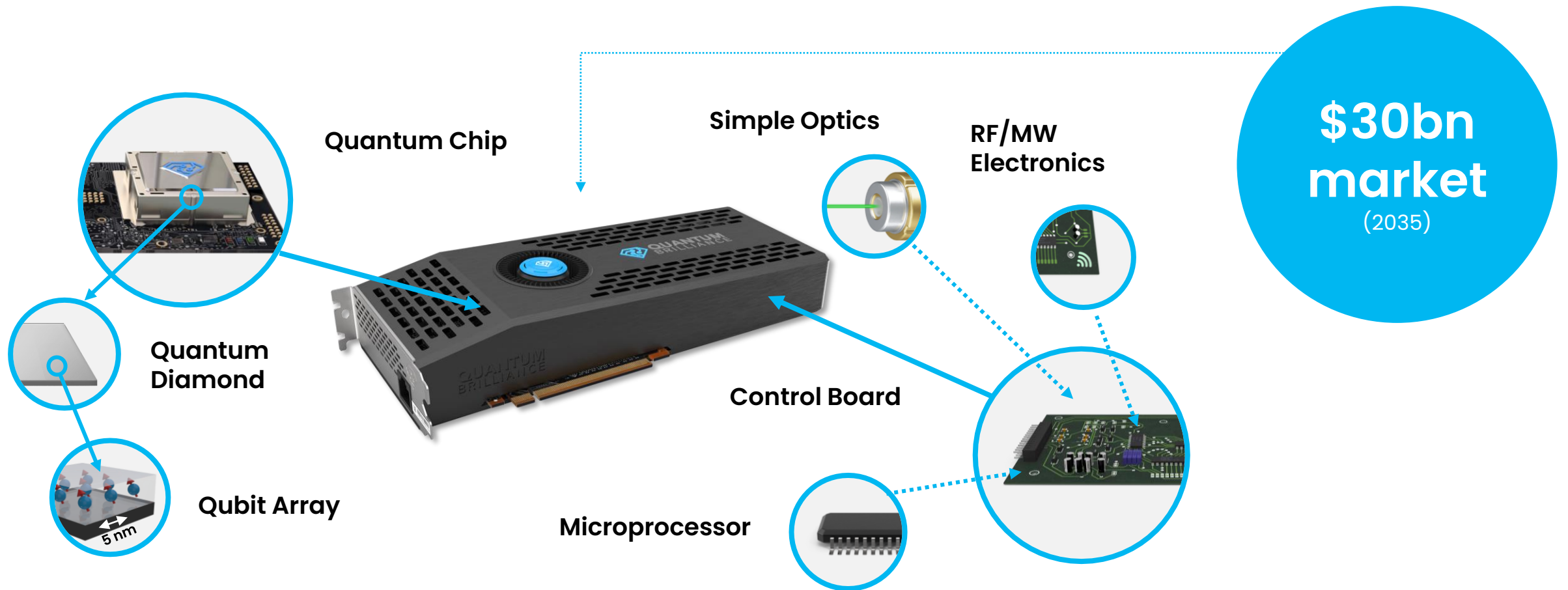
15 Strictly private & confidential



Quantum Computing

Mass deployed QPUs

Our core IP bypasses need for cryogenics, vacuum, complex lasers



Quantum Computing anywhere

At 10s of qubits, quantum computers can be used in air, land, sea, space, offices and data centres

Database optimisation

Computational chemistry

Quantum Machine learning

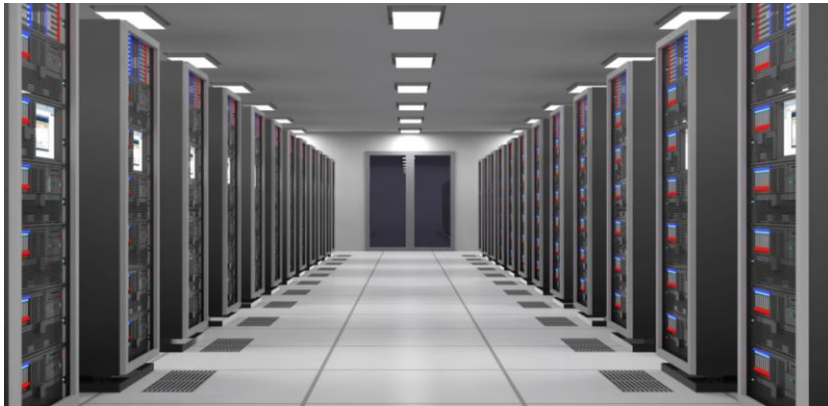
Complex networks & logistics

Robotics systems

AI decision making

Intelligence and surveillance

Compute and Data Centres



Distributed Compute



Edge Compute



Quantum Brilliance
QB is the solution for all these capabilities



Clusters of quantum computers **mass installed** in compute centres



Quantum machine learning will be one of the earliest use cases for distributed compute

QPUs



+

CPUs



Hybrid compute at the edge (increase accuracy and speed)

Case study: World-first integration in 2022



Supercomputers and quantum machines are now officially talking to each other



Damien Black, Senior Journalist



Computer researchers claim to have run the first successful experiment that proves quantum computers can work in tandem with their classical counterparts, using algorithms to communicate.

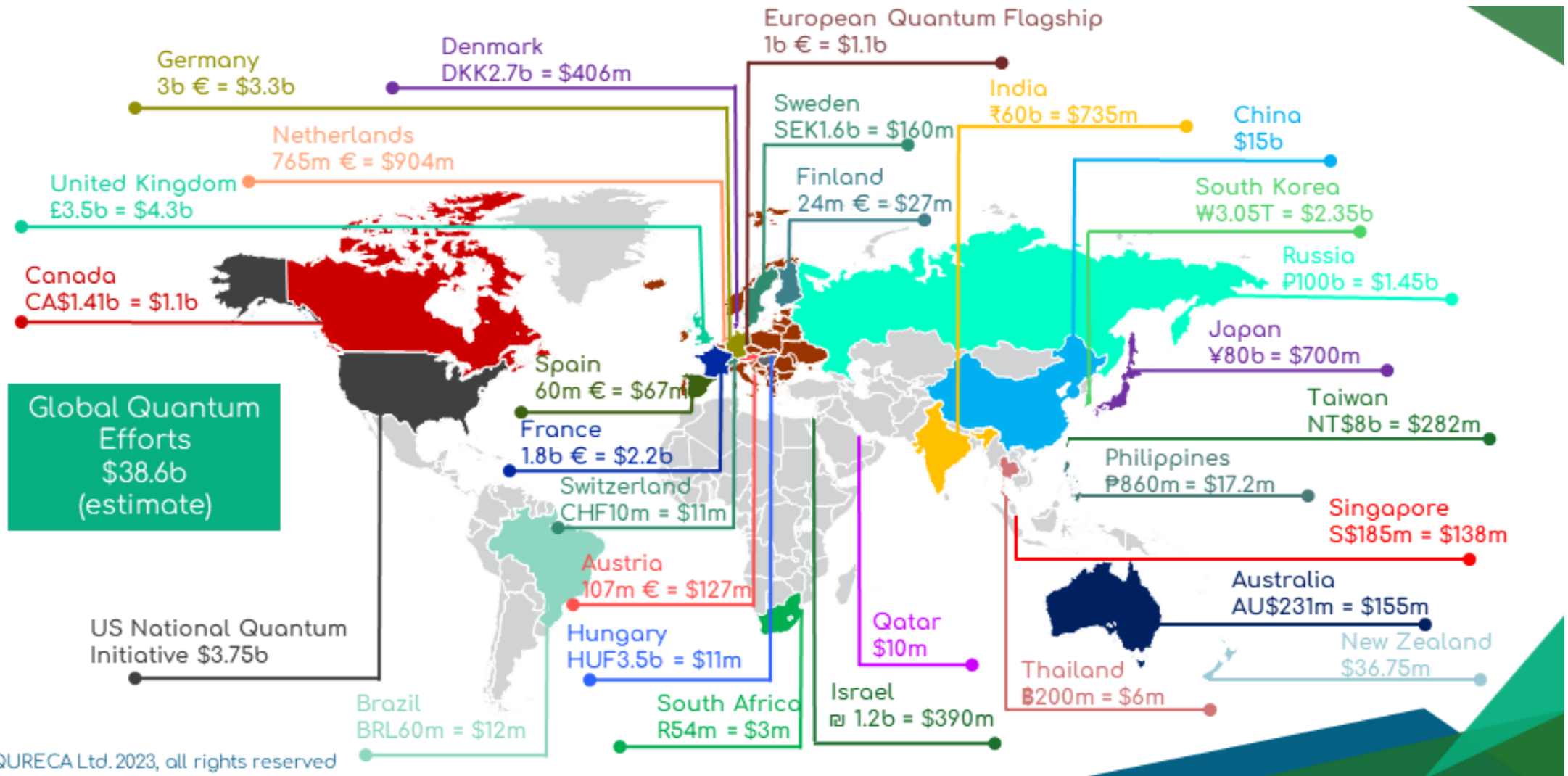
“The first algorithm was run between an on-premises quantum computer and supercomputer, validating [that] quantum and classical computing systems can communicate to solve complex challenges,” said Pawsey Supercomputing Center and Quantum Brilliance in a press release shared with Cybernews.

The Pawsey center ran what it described as “its first quantum algorithm” on a room-temperature diamond-based system installed at a facility run by its partner Quantum Brilliance in Perth, Australia, on April 18.



Quantum Tech Financial & Geopolitical

\$39bn spending in quantum tech



Sovereign Wealth Funds

SWFs, Pension Direct Investments					
					
					
					



NIF



MUBADALA



**DeepTech
& Climate
Fonds**

Family Offices



QUANTINUUM



Struengmann
family office



Majority Shareholder



SERENDIPITY
CAPITAL



QUANTUM
BRILLIANCE



PASQAL



BRINDABELLA
ASSET MANAGEMENT

AU Family Office



ultratech
capital partners

US Family Office

German family offices
(2 top tier family offices)



QUANTONATION

French family is major LP

CVCs



Honeywell



JSR Corporation

AIRBUS



BOSCH

HITACHI
Inspire the Next



Raytheon
Technologies

LOCKHEED MARTIN 

Rakuten

Telstra

**Goldman
Sachs**



Commonwealth Bank

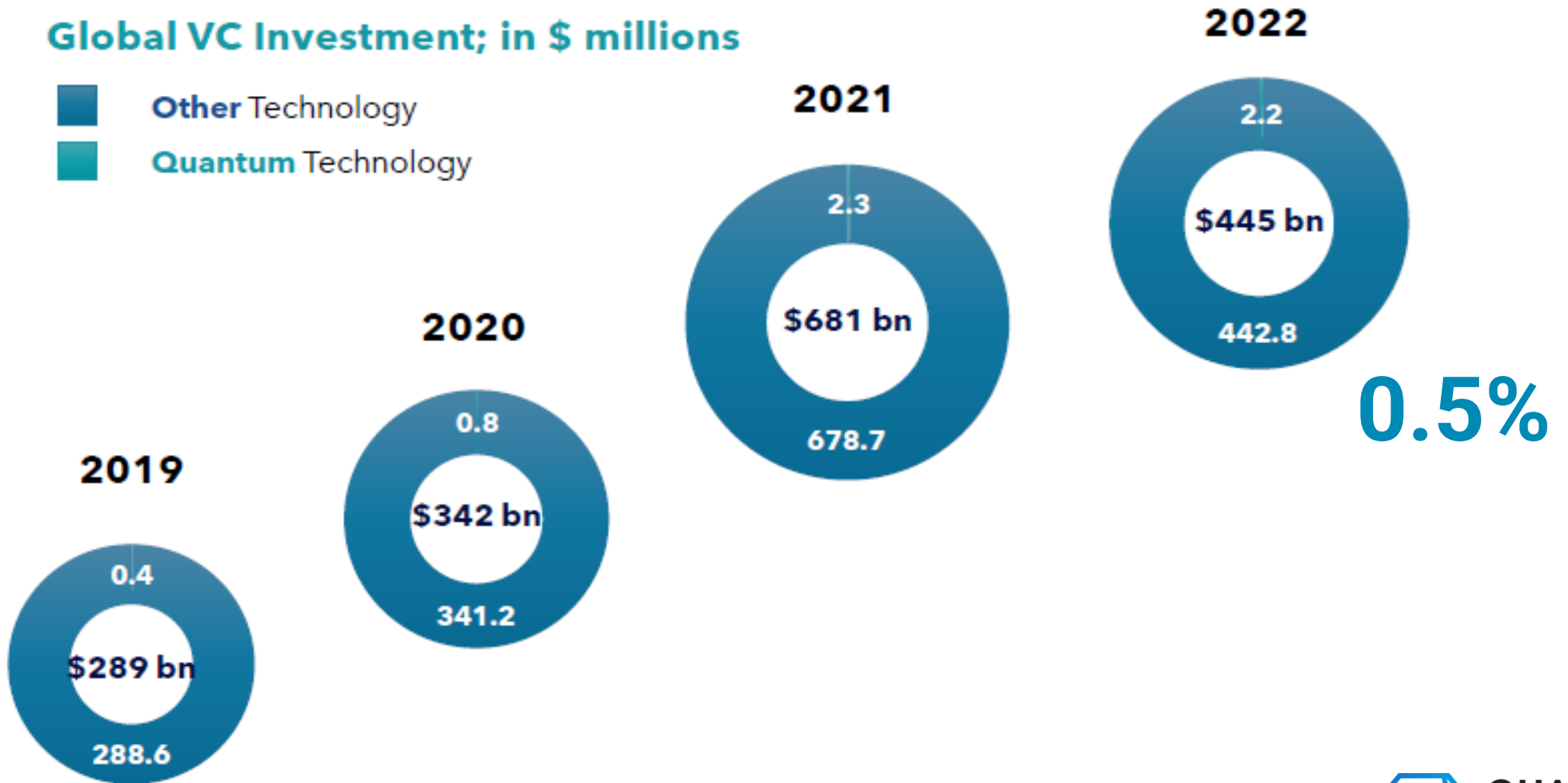



**Sumitomo
Corporation**

Quantum still represents only a fraction of VC deals

Global VC Investment; in \$ millions

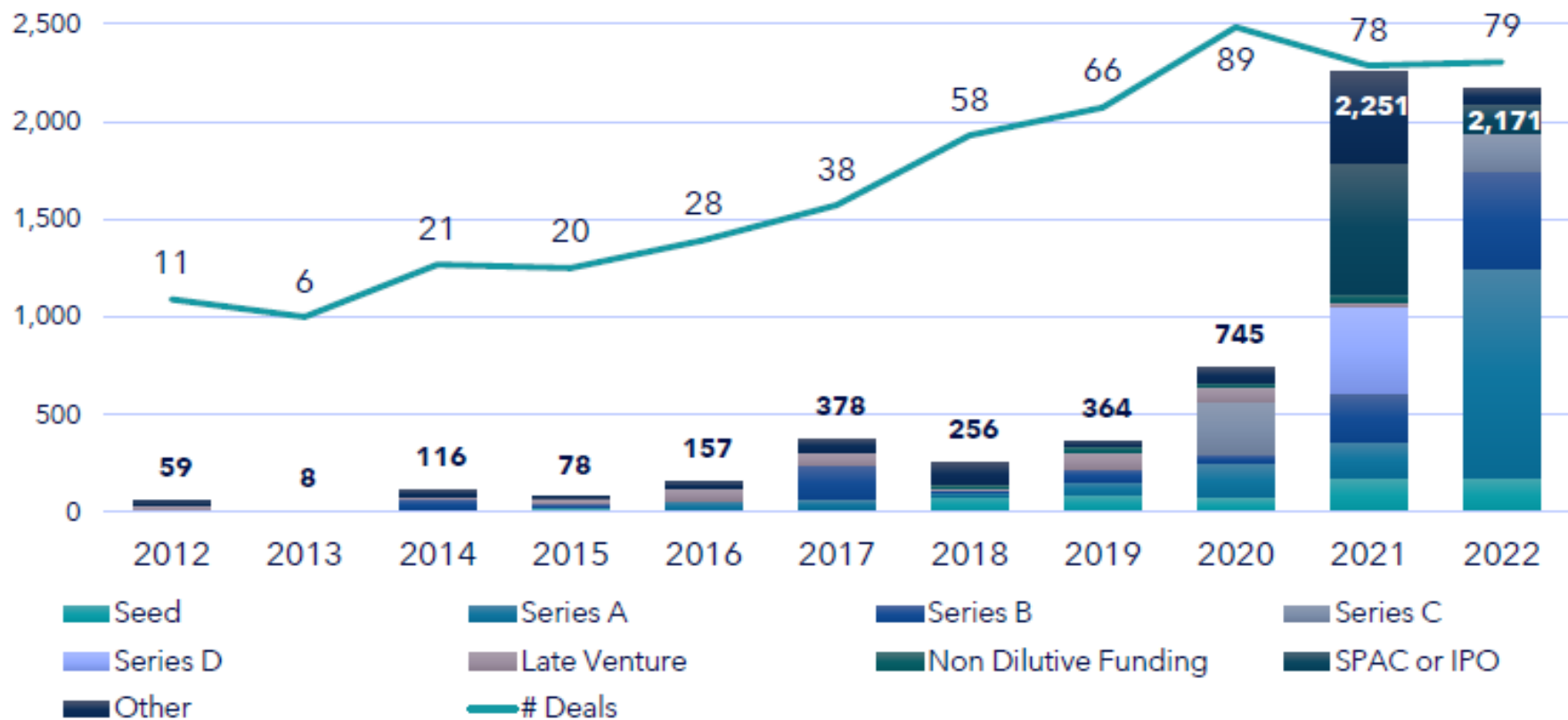
- Other Technology
- Quantum Technology



0.5%

2021/2022 represents growth capital

Total Quantum Investment by Stage; in \$ millions



Private investment into Quantum Technology has continued to increase over the past few years, with record high funding of \$2.3bn in 2021 and \$2.2bn in 2022.

The spike in activity in 2021 was SPAC driven; 2022 was driven by growing Series A and B, as companies outside of the US received larger funding rounds.

These figures are expected to represent the lower bound of quantum investment as many companies do not disclose funding.

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