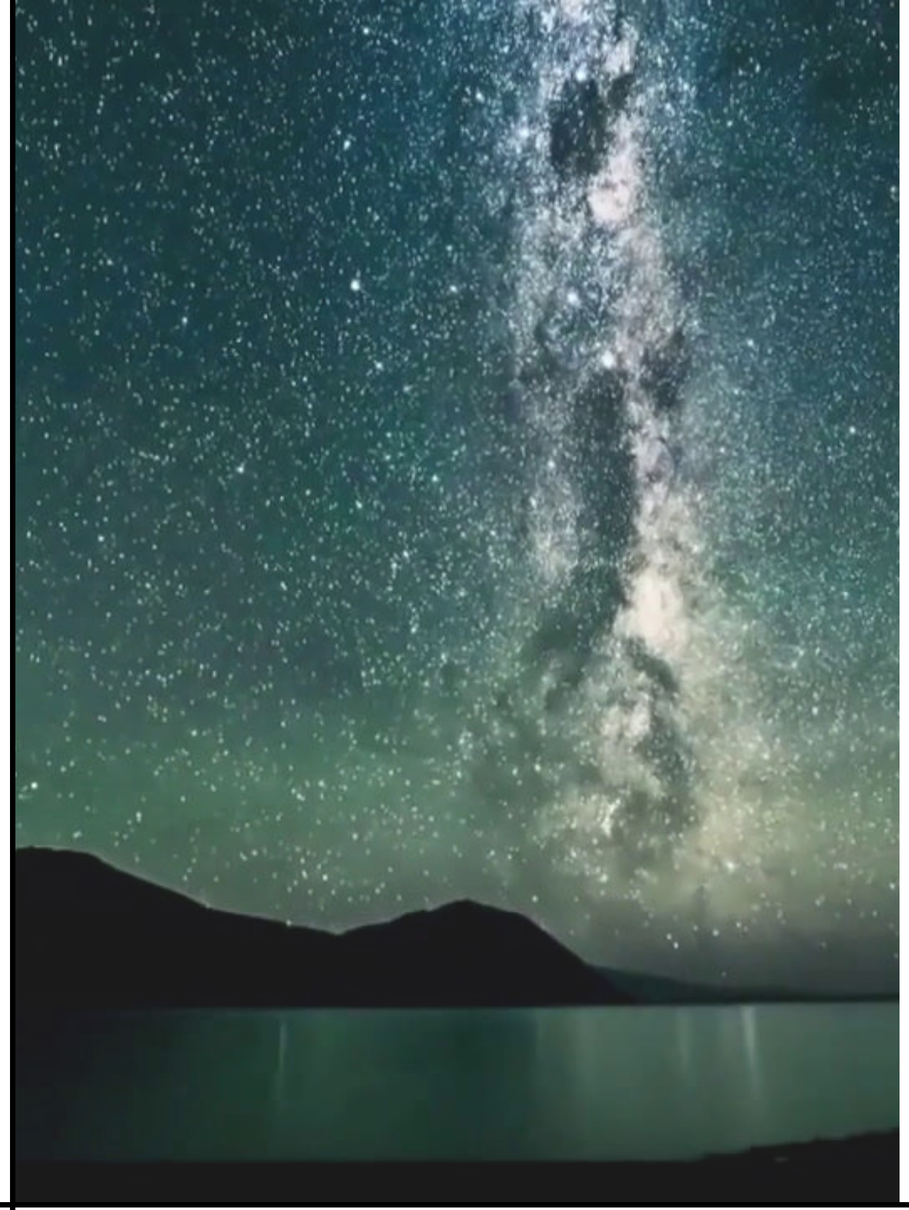

THE QUANTUM ANNUAL

2021

THE QUANTUM INSIDER

Welcome to the Quantum Annual Review.

Here we cover the biggest commercial news in the Quantum Computing industry over the last 12 months.

2021 IN BRIEF

If 2020 was the breakthrough year for the quantum industry, 2021 was surely its breakout year. The industry is nowhere near maturity and uncertainty abounds, but awareness of the potential -- good and ill -- of quantum has entered the global conversation and is cemented among domain experts, who will use quantum to derive world-changing solutions and among investors, who will be instrumental in providing fuel for the technology's acceleration. Don't underestimate this.

Organizations also achieved key research and corporate milestones. Full-stack quantum computing companies are now listed on public stock exchanges with more announcing their intent to follow. Quantum startups have grown and merged to become full-on quantum conglomerates. Threats exist: Quantum nationalism is a potential drag on growth and a rift between academic quantum researchers and the industry simmers.

On our side, The Quantum Insider continues to be inspired by the community we serve. In 2021 we partnered on a quantum sustainability documentary: Quantum Technology: Our Sustainable Future. We have build an industry-leading data-intelligence platform and produced market sizing reports to help guide decision-makers in quantum. Each day, we continue to provide timely news and information for the ecosystem.

Click this icon throughout this pres to see the full stories behind the brief

THE QUANUM ANNUAL

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THE BIG NEWS

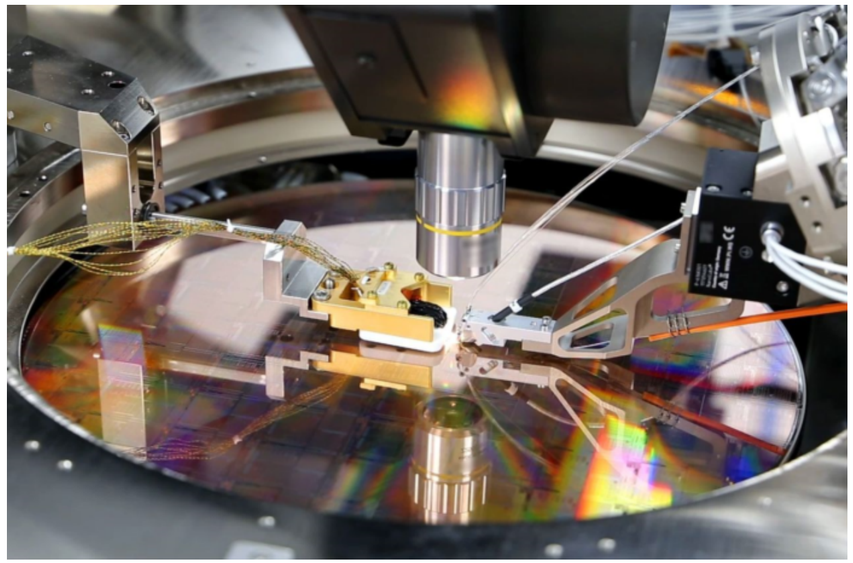
FIRST QUANTUM COMPANY TRADES ON NEW YORK STOCK EXCHANGE

IonQ became the first full-stack quantum computing company to trade on the New York Stock Exchange. The move began with another giant story in quantum when IonQ announced it would go public through a special purpose acquisition company, or SPAC, early in 2021. Peter Chapman, President and CEO on IonQ described the moment this way: “The era of quantum computing has arrived, and IonQ is leading the way with our revolutionary trapped ion technology."

HONEYWELL QUANTUM SOLUTIONS-CAMBRIDGE QUANTUM IS NOW QUANTINUUM

Honeywell Quantum Solutions and Cambridge Quantum officially became Quantinuum. The companies announced the merger in June. Separately, the two companies were leaders in quantum hardware and software. Honeywell Quantum Solutions (HQS) is a pioneer in ion-trap quantum computer development and Cambridge Quantum has been in the forefront of the creation of quantum software and the commercialization of quantum technology.

BLACKROCK BACKED PSIQUANTUM IN $450 MILLION SERIES D



PsiQuantum raised $450m in Series D funding in its latest round to build its commercial quantum computer. PsiQuantum, the Palo Alto, California-based company, uses a photonic approach to quantum computing. BlackRock led the latest financing round, with participation from insiders including Baillie Gifford, Quantum1 Group and M12 – Microsoft's venture fund – and new investors including Blackbird Ventures and Temasek.

RIGETTI COMPUTING GOING PUBLIC THROUGH $1.5BLN SPAC DEAL

Rigetti, a full-stack quantum computing company, entered into a definitive merger agreement with Supernova Partners Acquisition Company II, Ltd. ("Supernova II") (NYSE:SNII), a publicly traded special purpose acquisition company. The publicly traded company will be named Rigetti Computing, Inc. and its common stock is expected to be listed on the NYSE under the ticker "RGTI."

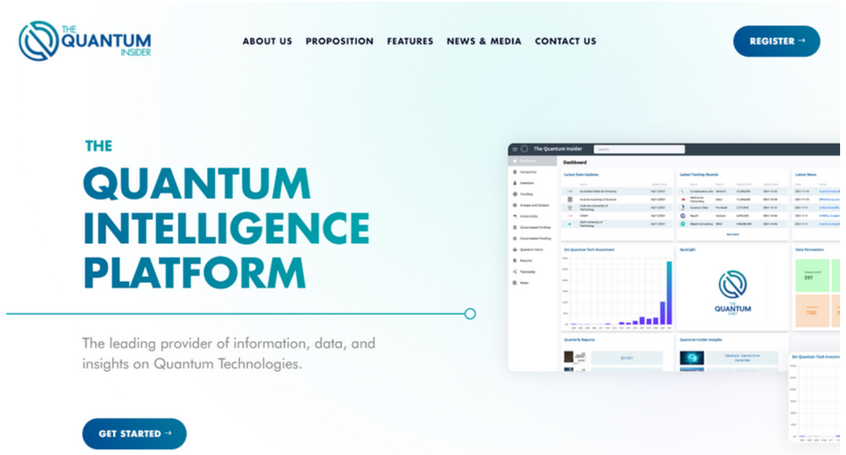
OQC DELIVERED THE UK'S FIRST QUANTUM COMPUTING AS-A-SERVICE

Oxford Quantum Circuits (OQC) announced that the company launched the nation's first commercially available Quantum Computing-as-a-Service built entirely using its proprietary technology. The announcement was considered a boost for the UK's quantum ambitions, as well as for businesses looking to explore the increasing commercial and technical benefits of quantum computing.

CHINA’S ORIGIN QUANTUM SETS GOAL FOR 1,024-QUBIT DEVICE

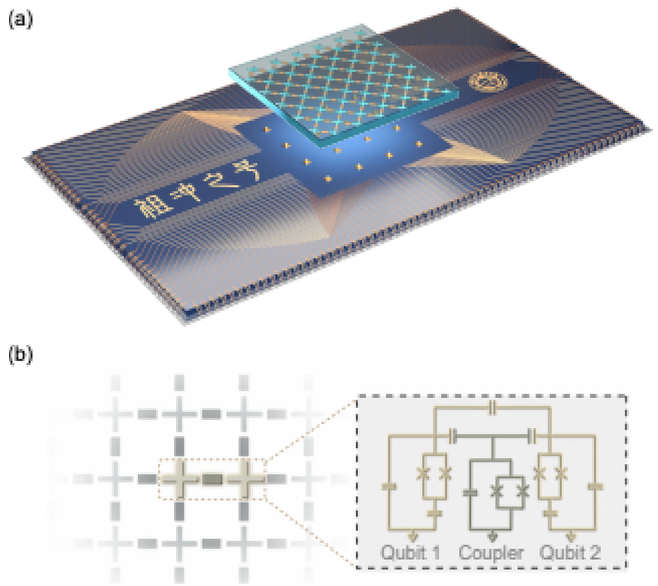
China’s Origin Quantum's roadmap includes the development of a 1024-qubit quantum computer by 2025. The company's roadmap predicts the company would launch a 64-bit superconducting quantum chip by the end of 2021 and further improvements would continue in three stages over the next few years. Located in China’s Hefei High-tech Zone, Origin is a leading quantum computing company.

THE QUANTUM INSIDER LAUNCHED ITS MARKET INTELLIGENCE PLATFORM



Matching the explosive growth of the quantum industry, the quantum technology's leading media and data provider launched its market intelligence platform and rebranded to reflect its integrated intelligence offering: The Quantum Insider.

RESEARCH: CHINA SET RECORDS WITH SUPERCONDUCTING QUANTUM COMPUTER



A Chinese team of researchers reported that they achieved another demonstration of quantum supremacy with a superconducting quantum computer, Zuchongzhi. In a study reported in the pre-print server ArXiv, the researchers perform random quantum circuits sampling for benchmarking on the superconducting quantum processor developed by the team.

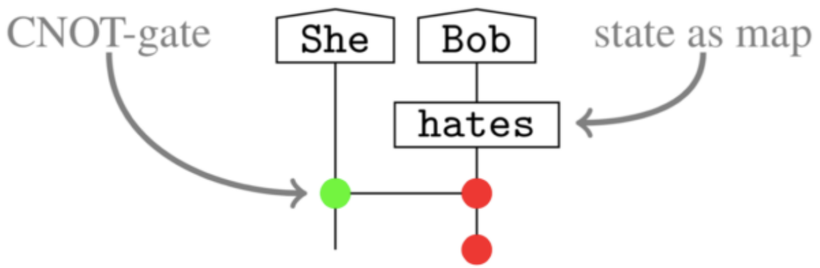
RESEARCH: IONQ ANNOUNCES NEW QUBIT TECHNOLOGY BASED ON BARIUM

IonQ plans to use barium ions as qubits in its systems. The company said the advance will offer advantages, such as improved stability, in its quantum computing architectures. IonQ is the first quantum computing company able to harness more than one atomic qubits "species," having built its systems to date with ytterbium ions.

RESEARCH: IBM'S EAGLE SOARS TO TRIPLE DIGIT QUBITS

IBM unveiled its latest quantum computer processor called Eagle at the company's 2021 quntum summit. It is a 127-qubit quantum processor. The Eagle processors contains nearly twice the qubits of the company’s 65-qubit Hummingbird processor and smashed through the 100-qubit limit, which many experts believe is critical to achieving practical results on a quantum device.

RESEARCH: CQ SCIENTISTS REPORT LARGEST EVER NLP IMPLEMENTATION ON A QUANTUM COMPUTER



Cambridge Quantum -- now Quantinuum -- scientists reported the largest implementation of natural language processing on a quantum computing. The work presents the first “medium-scale” implementation of common NLP tasks on a QC. The researchers report that language is quantum native, which means quantum computers may be ideally suited for handling NLP tasks.

THE QUANTUM QUARTERLY

CAPITAL MARKETS

$0.8BN

of new private capital flowing into Quantum Technology companies in Q4 21

$3.2BN

Total private capital announced (including SPACs, Xtalpi) in 2021

2021 FUNDING ROUNDS - $M PRIVATE CAPITAL

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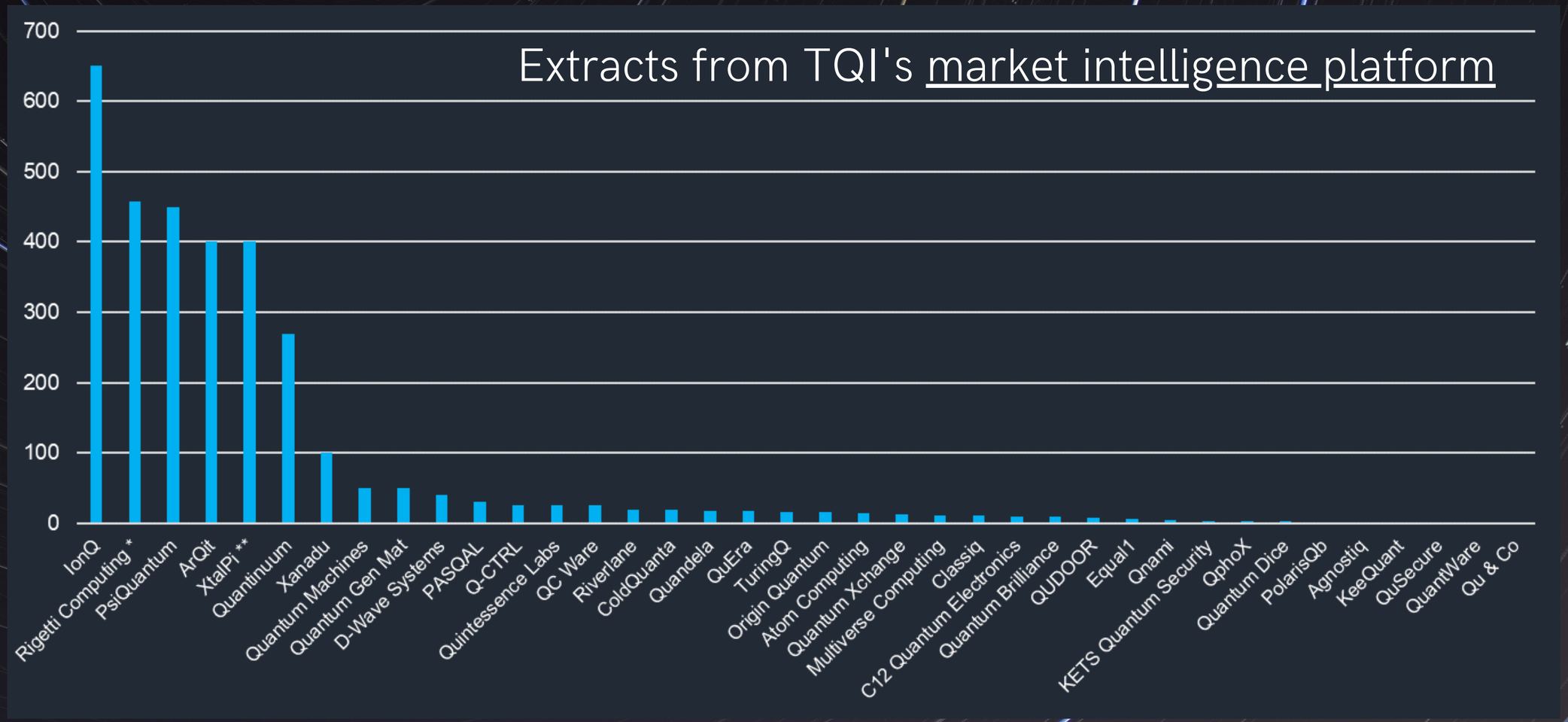


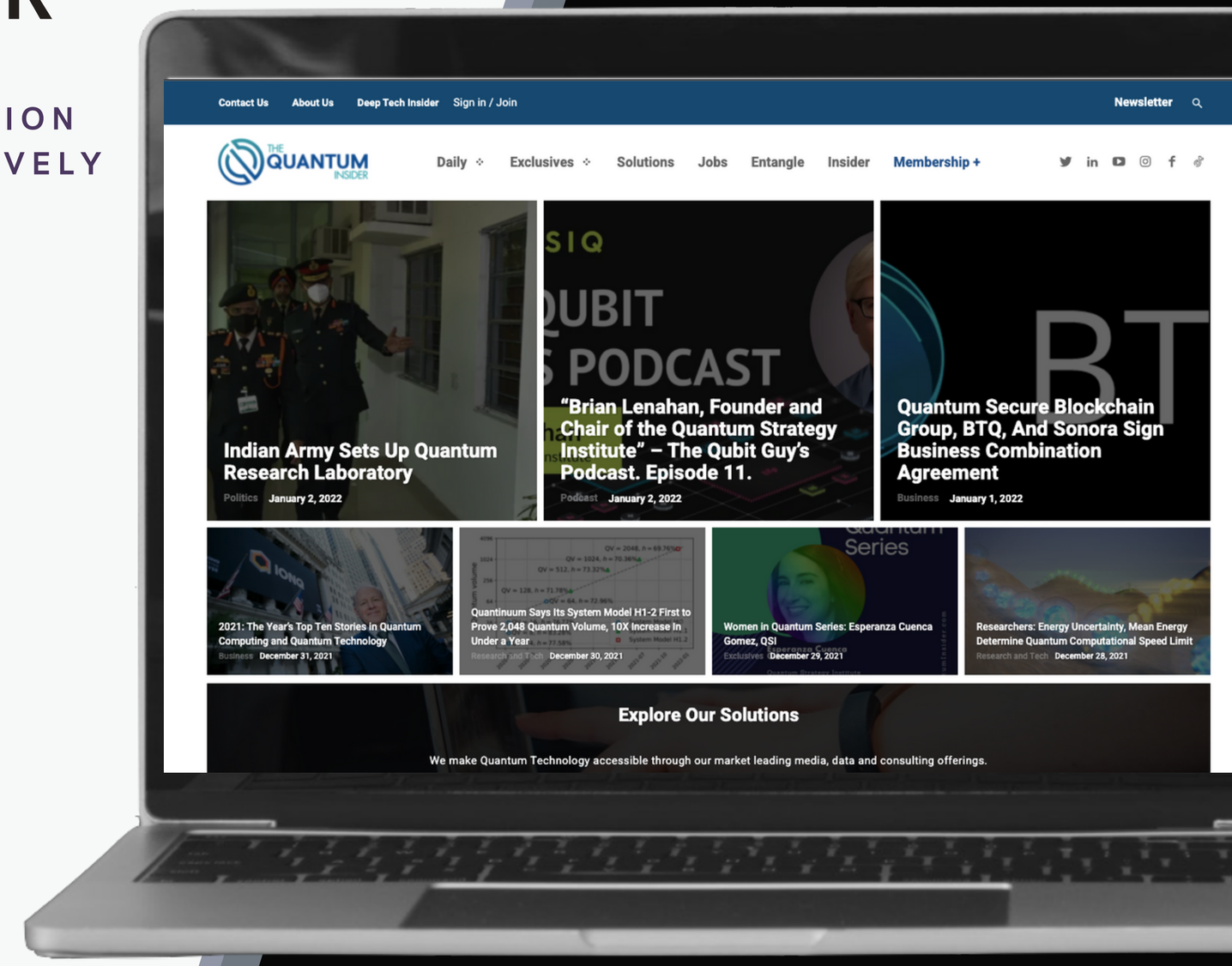
Notes: All fundraises shown in $m and converted at spot rate on the day of announcement. *SPAC to be finalised; **XtalPi is a drug discovery company using quantum chemistry so arguably should be excluded.

ABOUT TQI

THE QUANTUM INSIDER

IS THE WORLD'S FIRST DIGITAL INFORMATION AND DATA PLATFORM DEDICATED EXCLUSIVELY TO QUANTUM COMPUTING

- Leading provider of content and information on the Quantum Computing industry
- Focus on the commercial applications of the technology
- News, analysis, exclusive interviews, long-form reviews and data (see next page)



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PRICE UPON REQUEST

- For Advertisers: Appear on our industry leading dataset being used daily by our community.

- For Companies and Government entities: Map your market, ecosystem and competitors.

- For Investors: Complete industry map with key insights and subsectors profiling the various QC stakeholders and their technological developments all the way to capital market players and the investments they make.

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Please don't hesitate to contact us.

hello@thequantumdaily.com