

Commercial quantum computer disruption on the horizon

Article



Top quantum news roundup: An influx of commercially available quantum computers able to solve problems that are far beyond the capabilities of classical computers could take place over the next couple of years.

This development is set to supercharge advances in areas like [AI](#), simulations, drug discovery, financial forecasting, global economic predictions, materials science, renewable energy, and

beyond. Here are some organizations pushing the quantum needle:

Japan's **Fujitsu** wants to beat **Google** and **IBM** to market.

- The company **plans to jointly [sell](#) 64-qubit quantum computers with the Riken research institute**, beginning in April 2023.
- Fujitsu is marketing its product to medical and materials researchers and financial forecasting companies.
- If successful, it will beat Google's commercial quantum machine to market, which is planned for 2029 release.
- IBM will reportedly have a commercially [available](#) **4,000-qubit** quantum computer in 2025.

Globally, quantum computing startups garnered **\$1.1 billion** over the past year, up **13.5% YoY**, [per](#) Tech Monitor.

- Governments are planning for robust investments in the sector, with **China planning to spend \$15.3 billion, followed by the EU's \$7.2 billion earmark**, [per](#) Tech Monitor.
- So far this year, China-based **Origin Quantum** has raised the most startup funding at **\$148.2 million** to develop its **1,024-qubit quantum processor** by 2025.

China search engine giant **Baidu** says its **10-qubit Qian-Shi** allows the public to [apply](#) quantum computing to practical problems without needing direct access to the physical hardware.

- Citing the potential to accelerate battery development and protein-folding simulations, Baidu has a **36-qubit superconducting quantum chip** with couplers in the works.

A team of **Harvard** researchers [designed](#) a quantum computer model made of **giant atoms that can mimic functions of the human brain such as memory, multitasking, and decision-making**.

- In a simulation, the quantum states of the atoms' outermost electrons are analogous to various states of neurons in the brain.
- Potential advantages of the system are faster performance and the capacity for more complex neural networks than possible on classical computers.

High rewards + high risk: No longer confined to R&D labs, commercialization of quantum computing will likely pose as many risks as advantages.

- The sector is slated to grow to **\$8.6 billion** in 2027, up from **\$412 million** in 2020, according to IDC, per Tech Monitor.
- This indicates that a surge in business spending on quantum computing will disrupt an array of industries.
- AI already **poses** ethical challenges. Acceleration of this technology without a regulatory framework is cause for concern.
- One of the clearest dangers is **quantum computers' ability to break classical computers' encryption**. Efforts to update encryption standards to keep pace with the threat are **lagging**.
- With the **Cybersecurity and Infrastructure Security Agency (CISA)** **issuing** security preparation recommendations to prepare for quantum hackers, it's time for businesses to take heed.

Likelihood that Select Emerging Technologies Will Catch on According to US Adults, April 2022

% of respondents

3D printing



VR



AI



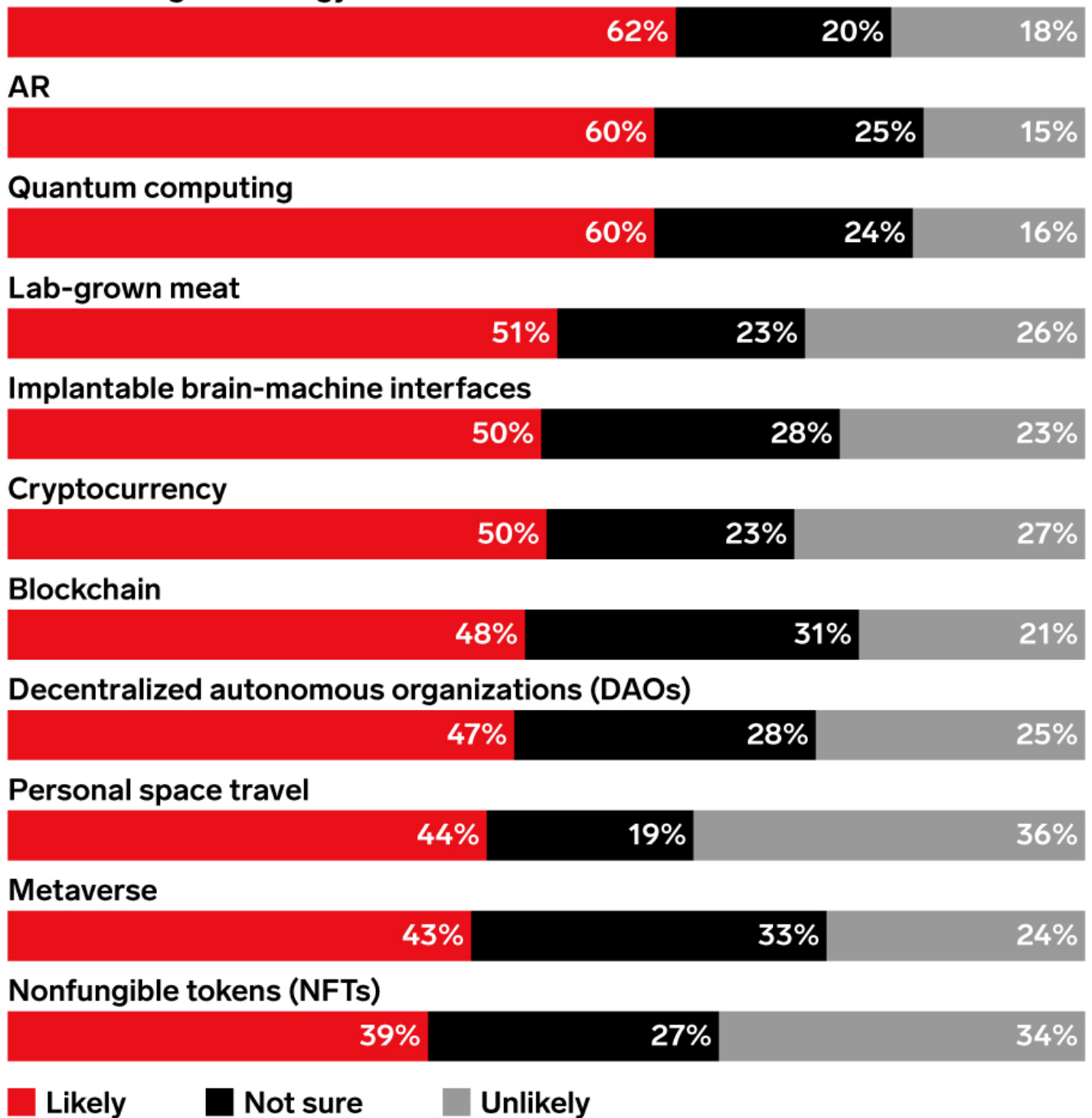
Artificial organs



Self-driving cars



Gene editing technology



Note: ages 18+; numbers may not add up to 100% due to rounding

Source: YouGov as cited in company blog, April 27, 2022

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