Honeywell spins off Minnesota-grown quantum-computing division into new company, Quantinuum

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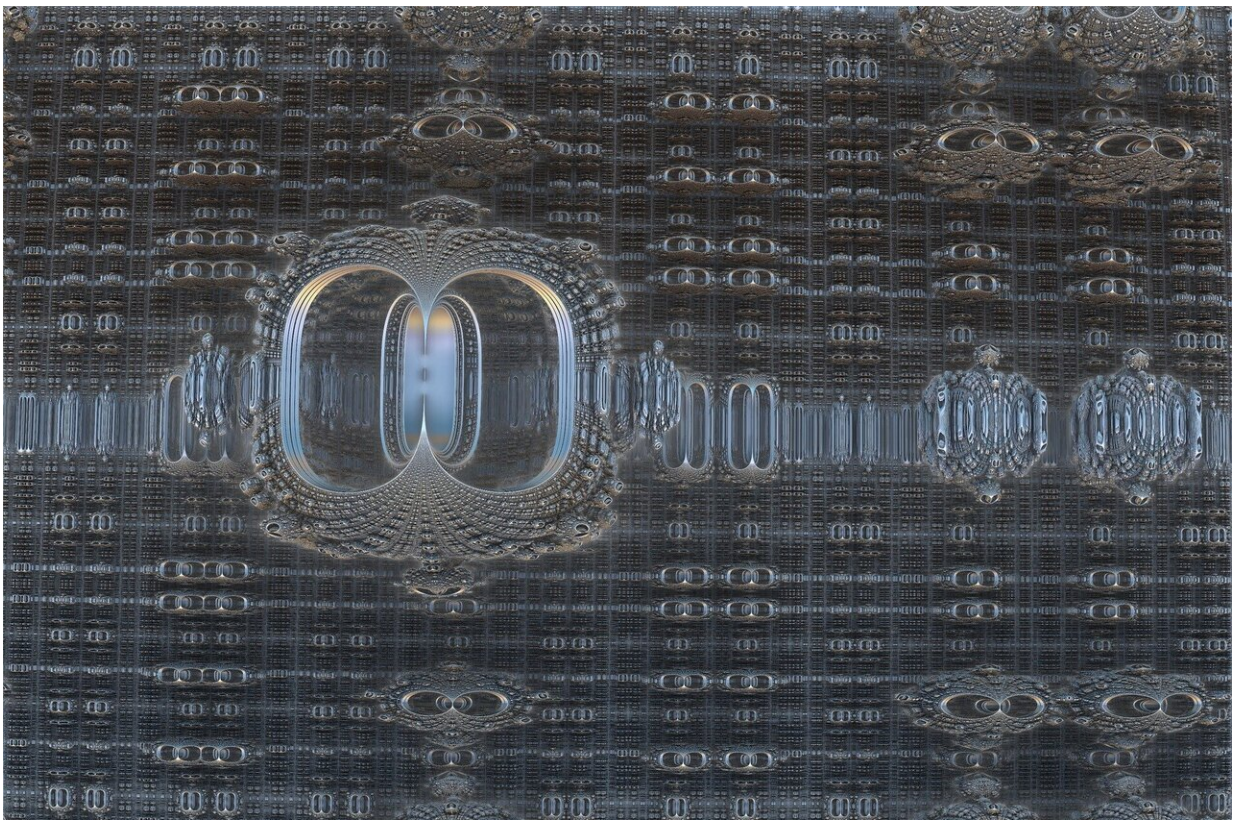

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One of the world's most powerful quantum computers sits in Golden Valley, where Honeywell has spent more than a decade building what it

considers the next big thing in technology.

"This is like being at the beginning of the internet, or the beginning of classical computing and Minnesota has been at the forefront," said Tony Uttley, president of Honeywell-owned Quantinuum. "We started this whole enterprise in Minnesota."

Quantinuum was formed this week with the merger of Honeywell Quantum Solutions and English software company Cambridge Quantum Computing. The new company, first announced this summer, will be headquartered in Colorado and the U.K., but maintain a 40-person workforce in Minnesota that Uttley says will continue to grow.

"There is a longstanding expertise here," he said, including at other Honeywell operations in Minnesota that manufacture "the beating heart" of the company's quantum computers.

The combined company brings together Honeywell's physical quantum computing hardware with Cambridge's applications for using this cutting-edge tech. Until recently, this all existed only in theory.

Quantum computing is heralded as revolutionary for its ability to quickly make complex calculations that would take even the most powerful supercomputer hundreds of years to perform.

Next year Quantinuum will launch software to "solve complex scientific problems in pharmaceuticals, material science, specialty chemicals and agrochemicals," according to the company's news release on Tuesday that revealed its new name and product offerings.

Where computers today use binary signals of 0 and 1—bits that form electronic instructions that turn code into apps—quantum computing relies on nonbinary "qubits" that exist as both a 0 and a 1,

simultaneously, to store and transfer data.

Uttley calls that property "superposition." It's like a "superpower" that allows quantum computers to quickly simulate an incredible number of combinations, for example, in manufacturing processes or molecular systems.

"The really big uses that hold promise are developing new lifesaving drugs, developing new materials used for longer-lasting batteries in vehicles, or materials that can be used to sequester carbon out of the atmosphere," he said. "These are really big humanity-level problems that quantum computers have the promise to go solve."

North Carolina-based Honeywell expects quantum computing will be a $1 trillion market in the coming decades. The company owns a 54% stake in Quantinuum and has invested an additional $300 million into the spun-off venture.

Constellation Research estimated this week the market is already worth $174 billion.

"Early investors have seen the potential and the market is entering a period of consolidation to acquire talent, intellectual property, and product offering roadmaps," the Silicon Valley advisory firm wrote in a new report."The early days of quantum are here and the winners will emerge in the next five years."

Quantum-computing power can cut through passwords and encryption like a hot knife through butter. It's no surprise, then, that Quantinuum's first product will be in cybersecurity.

"We are racing against other countries where this has been a national imperative," Uttley said. "Nobody wants to be behind."

Cybersecurity was the prime motivator behind the National Quantum Initiative Act passed by Congress in 2018. The U.S. and U.K. governments also pledged earlier in November to "accelerate the realization of subsequent new technologies for the benefit of society and in support of our shared defense interests."

While industrial, pharmaceutical and security applications are the near-term focus for quantum computing—businesses around the world have already connected to the Golden Valley-based quantum computer—the tech will eventually affect personal computing as well, Uttley said.

"When you open up an app on your phone it connects to a cloud server—it's a conduit to all that computational power," he said. "The same thing is going to happen with quantum computing. You may end up having an application on your phone that uses quantum without you knowing it."