

An Early Investor In Twitch Explains Why He's Betting Big On Quantum Computing

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David Cowan had already been an investor at Bessemer Venture Partners for 20 years when he came across an upstart company that was rapidly building an audience around a novel idea: Watching other people play video games. The company was called Twitch. Shortly thereafter, Cowan and Bessemer led a \$15 million Series B investment in the business. Less than two years later, Amazon came calling with an acquisition offer Twitch and Cowan couldn't refuse. It was, in many ways, the dream scenario for a venture capitalist.

But it wasn't long before Cowan began to have regrets.

"I invested in the company at like a \$65 million pre-money (valuation)," Cowan says today. "And then 18 months later I had the opportunity to sell it for a billion dollars. And I thought, 'Hurray.'" And that was a big mistake. Because, you know, only two years later, the company was clearly worth \$10 billion.

"I'd say the biggest lesson of that was that I had to recalibrate my expectations for what successful companies can do."

These days, Cowan spends his days investing in areas like space technology, cybersecurity and sustainable agriculture—sectors you might describe as deep tech or frontier tech. I spoke to him over Zoom this week about one particular investment that's been making headlines this month. And by the sounds of it, underestimating this company's potential is not going to be a problem.

Still a partner at Bessemer, Cowan is now also an investor in and a board member at Rigetti Computing, a quantum computing company that agreed to go public in early October by merging with a SPAC at a \$1.5 billion valuation. That's up from \$129 million when Bessemer took its stake in the company last year.

I've tried before to explain quantum computing, and you can certainly find other explanations elsewhere, so I won't go into too much detail here. Suffice it to say that quantum computers are a new kind of machine that exploits the inherent strangeness of very small particles to perform immensely complicated calculations, with the potential to be trillions of times more powerful than current supercomputers.

If the industry fulfills that potential, Cowan believes the consequences will be incredible.

"I mean, simply put, curing cancer," he said.

Perhaps the most exciting applications of quantum computing are in medicine. There are trillions of atoms in each cell and trillions of cells in the human body, all interacting with each other in an unceasing biological dance. Current superconductors are seriously powerful machines, but unspooling that kind of choreography is beyond their reach.

It's also beyond the reach of modern quantum computers. The technology for these machines is still in its adolescence. Theoretically, though, a quantum computer could map the way molecules and data points interact in previously unimaginable ways. And doctors and researchers could use those maps to find new therapies and cures.

The potential is equally vast in a wide range of other industries.

"It's not going to change how you get your scoop of ice cream from the local store," Cowan said. "But anything that requires machine learning or optimization, or certainly anything that requires an understanding of physics—like biology, chemistry, materials—anything that involves simulation, like designing airplanes or cars, anything that uses heavy computation, which of course is lots and lots of interesting industries—all of those will get a huge boost."

Different companies are trying to build quantum computers in different ways. Rigetti's technology is based in superconducting qubits—"qubits" being the quantum computing analog to the "bits" in a traditional computer. In Cowan's view, Rigetti is engaged in a three-way race for supremacy in the superconductor space. You might have heard of its two rivals: Google and IBM.

But what's that old saying about the size of the dog in the fight?

"Why do I like Rigetti? Well, two reasons. One is that I can't buy a big piece of Google or IBM," Cowan said with a grin. "But the second thing is that I've seen in many industries that, as formidable as the major tech companies are, a committed dedicated startup will usually out-innovate the tech giants. And so even though Google and IBM have more money and more people, I still believe that Rigetti is going to way outpace them."

Rigetti will bring in \$458 million in proceeds from its SPAC merger to help fund its ongoing R&D and bring its quantum computing technology to market. Wall Street heavyweights T. Rowe Price and Franklin Templeton are both taking part in a \$100 million PIPE investment to support the deal. So too is In-Q-Tel, the venture arm of the Central Intelligence Agency. And so too are Bessemer and Cowan—another sign of his belief in Rigetti's long-term potential.

"I'm a buyer, not a seller," Cowan said. "This has the opportunity to become one of the massive tech companies on the planet. I mean, this is, this is no less important than the transistor for the 20th century in terms of computation."

It will be a while before we find out one way or the other. Quantum computers aren't going to fully replace modern supercomputers any time soon. The technology is still developing. A lot could change for Rigetti over the next decade. One thing is certain, though: This time around, Cowan isn't going to have any regrets about cashing out early.

"Who knows when, who knows how much money it'll take. It's a risky venture," Cowan said. "But for this one, the payoff is worth it."

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