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Technology

Colorado and Illinois are officially quantum tech hubs. What does that mean?

One hub focuses on quantum computing and communications and the other emphasizes quantum information technology.



Quantum computing concept.

METAMORWORKS



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About a month ago, the Biden Administration named [31 regional tech hubs](#) to drive innovation across the country. Two regions were designated specifically as quantum

tech hubs – one in Colorado and the Mountain West and another in Illinois, Indiana and Wisconsin.

Because of the way it works – based on different algorithms – quantum computing can solve problems that are difficult if not impossible by using classic technology.

While both quantum hubs seek to bring federal funds to the region, drive innovation and quantum advancements and bring more jobs to the area, there's a slight difference between the two.

The biggest difference between the two is commercial readiness, something Colorado plans to focus on, said Zach Yerushalmi, chief executive and regional innovation officer at Elevate Quantum, the organization spearheading quantum growth in Colorado.

“[Quantum] is the most exciting innovation in the next 50 years. ... It's as exciting as the internet was for the past 50 [years], but project forward,” Yerushalmi said. “The difference is just so stark in terms of what we have now and what quantum can fundamentally enable.”

Colorado and the Mountain West's tech hub, called Elevate Quantum Colorado, is intended to focus specifically on quantum information technology and enabling hardware to be commercialized, Yerushalmi said. Quantum information tech refers to quantum computing, networking and sensing. Quantum sensing is an advanced sensor technology that improves the accuracy of how we measure and interact with the world.

According to Colorado's federal designation, this includes increasing infrastructure resilience and strengthening the “quantum hardware supply chain.”

“This tech hub will galvanize industry growth by building on existing relationships between the regional research community and private sector to unlock transformative technologies needed to prove quantum-based products and move them into the market,” reads the designation.

Illinois, Indiana and Wisconsin's hub, called The Bloch, emphasizes quantum computing, networking and communications. The hub plans to “lead quantum computing, communications and related solutions” to solve logistics optimizations, drug discovery, secure data sharing and fraud detection, to name a few use cases, per the designation.

The Bloch designation also emphasizes the need for end-to-end quantum solutions at scale.

Both regional hubs have been recognized for their growing quantum industries.

According to the Colorado Office of Economic Development and Trade, the state leads the world in the concentration of quantum jobs and is home to four Nobel Prize-winning scientists for their quantum research.

The Centennial State also houses quantum companies such as Atom Computing, Maybell, Inflection and Quantinuum. Additional quantum research entities across the Mountain West include Sandia National Laboratories and Los Alamos National

Laboratory. A handful of other Colorado and Mountain West research institutions and universities are also studying quantum capabilities and developing new technology.

Yerushalmi said Colorado has a full-stack quantum ecosystem while Chicago is one of the leaders in quantum networking. (Quantum networking is a way to transmit data and information as qubits between physically separated processors.)



University of Chicago

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In addition to research institutions like the U.S. Department of Energy's Argonne National Laboratory, the University of Illinois Urbana-Champaign and the University of Wisconsin-Madison, Illinois, Indiana and Wisconsin are also home to quantum startups like EeorQ and MemQ.

The Windy City is also home to the **first quantum accelerator** in the country. A quantum facility called the Superconducting Quantum Materials and System Centers Garage also **recently opened** at the U.S. Department of Energy's Fermi National Accelerator Laboratory in Chicago. The city even received a **\$3.5 million** investment from The Boeing Co.

Both quantum tech hubs are seeking additional funding from the federal government and local organizations. Work to do so is already underway.

Colorado hopes to secure **\$2 billion**, including between \$40 million to \$75 million in federal grants early next year. The Colorado Office of Economic Development and Trade also **recently dedicated \$400,000** to Elevate Quantum.

Of the 31 regional tech hubs, five to 10 will receive implementation grants from the U.S. Economic Development Administration as part of Phase 2 of the tech hub designations. Each of the 31 tech hubs can now submit applications spelling out projects to fund related to their regional designation.

"For each Tech Hubs selected for implementation grants, [the] EDA expects to fund approximately three to eight tightly aligned projects ... that aim to collectively address