

Quantum Insider Insights: Volume 3 – Building Europe’s Quantum Ecosystem

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[Payments, Partnerships Help Quick-Start Quantum Ecosystems](#)

Europe – particularly central Europe – is not about to get left in the dust of the emerging quantum market. Germany and Austria, specifically, have revealed key moves to establish a thriving quantum ecosystem. Germany welcomed IBM and their quantum computer to the continent – an event that even German Chancellor Angela Merkel commented on. Just a little over a week later, “Quantum Austria” and its €100 million-plus financial stimulus was announced.

Key points in [our story on German in TQD](#) and [on Austria](#).

- Europe’s largest application-oriented research organization Fraunhofer-Gesellschaft received an IBM Quantum System One, which until now had only existed in IBM’s New York-based data center.
- Fraunhofer-Gesellschaft will use Quantum System One to investigate future industrial applications of quantum computing and improve quantum education.
- German Chancellor Angela Merkel said quantum computing is key to **the country’s efforts to retain sovereignty in the technological and digital spheres**. Quantum will also provide a motor for **economic growth**.
- The Austrian federal government is providing 107 million euros -- or a little more than \$127 million US -- for quantum research and quantum technologies.
- This is most likely the beginning of such investments, with billions of euros more expected.
- The race for the **coveted know-how** and the resulting **applications** has received new impetus, not least due to considerable public investments.

Observations

The Race Drive for Quantum

The quantum community is uncomfortable with the term, race, to describe the increasingly large amounts of time, money and efforts that governments are spending to build quantum technology centers in their countries. And for good reason. First, race offers connotations of a winner-take-all result in developing quantum technology. As complex and as expensive as quantum equipment is, the technology, itself, doesn’t lend itself to the notion that one country will dominate the space exclusively. But, make no mistake, there will be winners and losers – and these countries know the stakes of being last on the quantum list are quite high. These stories are much more about actions Europe needs to take -- namely vast investments and deep partnerships -- to be competitive in the emerging quantum era.

Education and Ecosystem Development

One of the features that stands out about the Germany-IBM partnership is that access to the IBM QC is less about the computational power of a quantum computer, or even the research capabilities of the device; the partnership with IBM is more about efficiently inserting a quantum computing hub that can attract and nurture talent. Quantum technology is one of the world's most complex technologies that require a trained and motivated workforce.

The Insider View

European governments are beginning (relatively) to realize how important quantum technology is – and how fast this industry is growing. Obviously, for Germany and Austria, national defense and security – especially the cryptographic potential of quantum computing, as well as looming technological threats from China – is the fuel for much of the above efforts. But, the thought of letting another trillion-dollar economic engine slip from their grasps and fall into the wide open arms of Silicon Valley is cause enough for alarm. Germany and Austria's scientists are among the elite researchers in the world. However, in the past, this research acumen has failed to translate into viable businesses that employ German and Austrian workers. These countries do not want to be a non-quantum island that is dependent on other countries for access to the incredible power and potential of quantum technology.

Angela Merkel, a quantum chemist, we should point out, says it this way:

“As far as research into quantum technologies is concerned, Germany is among the best of the world, and we intend to remain amongst the best of the world. We're **in the midst of a very intense competition**, and Germany has the intention to have an important say.”

While the investment numbers seem stunning, these projects are likely the first small waves to hit the beach. Future funding – in the billions of euro range -- will be needed to further build the ecosystem in central Europe, flowing mainly toward education for a quantum workforce, startup cash to encourage entrepreneurship and research and development to build the actual technology.



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