# The next big theme: Positioning for early growth in quantum computing

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## Key Takeaways

- Quantum computing represents a revolutionary leap in computation with the potential to reshape industries and unlock decades of innovation.
- Breakthroughs, roadmaps, and rising awareness of “Q Day” are accelerating progress and pushing the field toward an inflection point.
- The WisdomTree Quantum Computing UCITS ETF gives investors early exposure to the quantum theme, balancing pure players with diversified leaders and enabling companies.
- Exposure spans the full quantum ecosystem – from chips and software to cryptography, networking, and enabling infrastructure.
- A unique collaboration with Classiq, a leading quantum software pure player.

Quantum computing is rapidly emerging as one of the next big themes in technology, capturing attention for its potential to redefine the limits of computation. As research breakthroughs accelerate and commercial applications move closer to reality, pure players in the space and major tech companies are drawing increased investor interest. The momentum is undeniable, but what does this breakthrough technology truly promise? What drives academia, corporate, and investor enthusiasm? How can investors position themselves to capture the growth opportunities it offers?

### The promise of quantum computing

Quantum computing represents a revolutionary leap in computational power due to a fundamentally new approach to information processing. By harnessing the principles of quantum mechanics and leveraging qubits (quantum bits), quantum computers can analyse vast amounts of data simultaneously and enable problem-solving at speeds and scales unimaginable for classical machines. This paradigm shift opens the door to breakthroughs far beyond the reach of traditional computing, with the potential to reshape entire fields – accelerating drug discovery, advancing artificial intelligence, redefining cybersecurity, and modelling complex systems such as climate patterns, molecular structures, and financial markets with unprecedented precision.

### Quantum Computing on the way to inflection point

What makes quantum computing especially compelling today is the growing sense that the field is nearing an inflection point – with NVIDIA CEO Jensen Huang among the latest tech leaders to endorse this view. Advances in qubit stability and error correction are improving reliability, while cloud-based platforms and high-performance computing centres are broadening access and enabling hybrid approaches. Increasing government funding, strategic partnerships between technology leaders, startups, and research institutions are accelerating the path to commercial viability and underscore the strategic importance of the field.

Recent milestones – such as Google's Willow processor, demonstration of quantum supremacy, and a milestone in quantum error correction, Microsoft's groundbreaking research on topological qubits and Majorana 1 chip, Amazon's work on cat qubits and Ocelot chip, IBM's unveiling of Quantum Starling[1] roadmap, and IonQ's accelerated roadmap to 2 million physical qubits by 2030 – have strengthened investor optimism and underscored how quickly the field is advancing. At the same time, anticipation of "Q Day" – a moment when current encryption systems could be broken – has become a catalyst for global awareness, prompting companies to familiarise themselves with the technology and begin preparing now. Combined with advances in artificial intelligence, these forces push quantum computing from theoretical promise toward tangible impact, making it an increasingly urgent theme for governments, businesses and investors.

## Figure 1. Recent breakthroughs and milestones in quantum computing

| Google | Microsoft | amazon | IBM | IONQ |
|---|---|---|---|---|
| Unveiling of Willow processor<br><br>Quantum supremacy in Random Circuit Sampling (RCS)<br><br>First below-threshold error correction | Topological-Core quantum processor Majorana 1<br><br>Introduction of topoconductor materials<br><br>Roadmap to million-qubit scale | Unveiling of Ocelot chip<br><br>Cat qubits for error suppression<br><br>Up to 90% reduction in overhead cost of error correction | IBM Quantum Starling roadmap: Large-scale, fault-tolerant quantum computer (200 logical qubits, 100 M gates) by 2029 | IonQ's updated roadmap: 20,000 physical qubits by 2028 and 2 million physical qubits by 2030 |

Source: respective company websites.

While momentum in quantum computing is increasingly evident, several hurdles must be addressed before large-scale commercial deployment becomes viable. Noise and decoherence remain the central obstacles to scaling, as they become more complicated to manage with growing qubit counts. Overcoming these challenges will demand significant engineering breakthroughs and sustained investment in architectures capable of maintaining stability at scale – an area where leading companies are already making visible

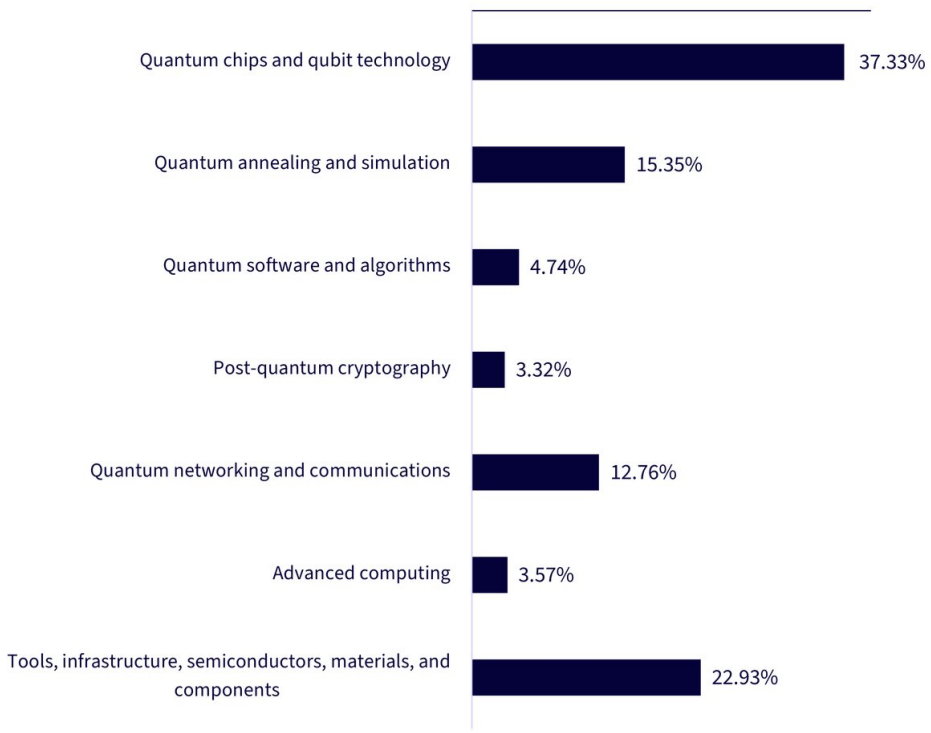
progress. Importantly, different qubit modalities approach these obstacles in distinct ways and are likely to succeed on different timelines, with no single technology yet establishing clear dominance. This diversity suggests that multiple modalities may ultimately coexist, each optimised for particular problem classes. At the same time, continued advances in control algorithms and error correction are critical to enabling fault-tolerant platforms, with recent milestones underscore that progress on this front is accelerating. This combination of technical challenge and rapid innovation highlights both the risks of near-term uncertainty and the potential for outsized returns as scalable solutions emerge.

**Capturing the investment potential of quantum computing**

For investors, quantum computing's significance extends far beyond technological novelty. It is poised to become a foundational platform for innovation, much like semiconductors in the 1960s, the Internet in the 1990s, and cloud computing and artificial intelligence today. Its impact is expected to ripple across industries, potentially transforming existing markets while creating new ones. The companies building this ecosystem are not merely developing a technology but laying the groundwork for decades of innovation and sustained economic growth.

At WisdomTree, we recognise the immense potential of this field and have launched the WisdomTree Quantum Computing UCITS ETF that provides investors with early and compelling exposure to quantum innovation – positioning them to benefit from the next wave of transformative value creation. Our strategy is designed to capture the potential of the space through exposure to leading pure players and diversified innovators across the quantum computing ecosystem domains, offering diversified growth opportunities associated with the progress in the space.

## Figure 2. WisdomTree’s Quantum Computing ecosystem




Source: WisdomTree. The represented exposure is for the WisdomTree Classiq Quantum Computing UCITS Index based on the target weights set for the index rebalance on 15 August 2025. You cannot invest directly in an index. **Historical performance is not an indication of future performance, and any investments may go down in value.**

This includes the development of chips and qubit technologies, specialised systems such as annealers and simulators, and the full software stack – from user-facing platforms and algorithms to compilers, error correction, and control systems. We also consider cloud-based Quantum-as-a-Service models, emerging fields like post-quantum cryptography and quantum networking, as well as advanced and hybrid computing architectures. Finally, we recognise the role of enabling infrastructure – tools, semiconductors, materials, and components – that provide foundational support for quantum research, development, and eventual commercialisation. Taken together, these domains are expected to capture value creation as the space advances through various stages of maturity, offering a robust and dynamic way to participate in the associated growth opportunities.

### Collaboration with Classiq, a leader in quantum software

To deepen our investment insight and offer a truly differentiated exposure to quantum innovation, we have partnered with Classiq, a leading quantum software company, to create the WisdomTree Quantum Computing UCITS ETF . This will give investors an unprecedented connection to the forefront of quantum innovation.

Classiq stands out as a leader in quantum software by providing a full-stack development platform that enables the design, optimisation, and deployment of complex quantum algorithms. Their approach ab-

stracts away from low-level gate programming, allowing developers to work at a higher functional level while ensuring algorithms run efficiently across different quantum hardware. Through strategic partnerships with leading cloud providers, hardware developers, and academic institutions, Classiq is deeply integrated into the ecosystem and well-positioned to serve as the "operating system" for quantum computing.

By collaborating with Classiq, WisdomTree gains unique insights into the developments shaping the quantum landscape – from algorithmic breakthroughs and hardware roadmaps to adoption trends across industries. This perspective enhances our ability to identify pure-play leaders, the most promising innovators and enablers in the field.

### Focus on Purity and Relevancy

To ensure that the strategy delivers meaningful exposure to quantum computing, WisdomTree and Classiq leverage a structured framework that emphasizes both purity and relevancy (Figure 3). Each eligible company is assessed using two complementary measures: a Relevancy Score and a Purity Classification.

- The **Relevancy Score** is assigned as 3, 2, or 1, reflecting whether a company's quantum computing business activities are of high, medium, or low relevance and significance of those activities to the progress of the field.
- The **Purity Classification** distinguishes between **Pure players** – firms primarily focused on quantum computing – and **Diversified** leaders and innovators, where quantum represents only part of their business and revenue mix.

**Figure 3. Strategy breakdown by Relevancy Score and Purity Classification**

| | |
|---|---|

In terms of weighting, each company starts with equal weight. Adjustments are then applied in a two-step process (Figure 4), where higher relevancy and purity tilt the strategy more strongly toward the companies most central to quantum innovation. This approach ensures balanced diversification while maintaining a clear focus on the players driving the field forward, who are expected to benefit the most from further progress in quantum computing.

**Figure 4. Two-stage weighting process**

**Stage 1 – Relevancy Score adjustment**

| | Relevancy Score 3 | Relevancy Score 2 | Relevancy Score 1 |
|---|---|---|---|
| **Starting weights** | | Equal weights | |
| **Weight adjustment** | 30% upweight | Same weight | 30% downweight |

**Stage 2 – Purity Classification adjustment**

| | Pure | Diversified |
|---|---|---|
| **Starting weights** | Weights from Stage 1 | |
| **Weight adjustment** | 30% upweight | 30% downweight |

*Source: WisdomTree.*

The resulting top 10 holdings, showcasing our purity and relevancy framework (Figure 5), represent a mix of pure players with the highest weights, such as D-Wave, IonQ, Rigetti, and Quantum Computing Inc, and diversified leaders and innovators like Alphabet, Amazon, Microsoft, IBM, all of which are at the forefront of hardware development and ecosystem innovation. This blend reflects both sides of the opportunity: the high-growth potential of specialised quantum pioneers and the scale, resources, and credibility of global technology leaders.

**Figure 5. Strategy's top 10 holdings**

| Company name | Weight | Purity | Relevancy |
|---|---|---|---|
| D-Wave Quantum Inc | 6.16% | Pure | High |
| IonQ Inc | 6.16% | Pure | High |
| Rigetti Computing Inc | 6.16% | Pure | High |
| Quantum Computing Inc | 4.74% | Pure | Medium |
| Alphabet Inc | 3.32% | Diversified | High |
| Amazon.com Inc | 3.32% | Diversified | High |
| Fujitsu Ltd | 3.32% | Diversified | High |
| Intel Corp | 3.32% | Diversified | High |
| International Business Machines Corp | 3.32% | Diversified | High |
| Microsoft Corp | 3.32% | Diversified | High |
| **Total** | 43.13% | | |

*Source: WisdomTree. The top 10 holdings are for the WisdomTree Classiq Quantum Computing UCITS Index based on the target weights set for the index rebalance on 15th August 2025. You cannot invest*

*directly in an index. Historical performance is not an indication of future performance, and any investments may go down in value.*

**Conclusion**

Quantum computing represents far more than the next step in technology – it is the dawn of a new era of discovery and innovation. As breakthroughs accelerate and the ecosystem matures, quantum has the potential to reshape industries, redefine problem-solving, and unlock solutions to challenges once thought intractable. By providing investors with early and highly relevant exposure, our strategy seeks to participate in this historic transformation – capturing not just growth, but a front-row seat to one of the most profound technological revolutions of our time.

[1]As reported by IBM, the world's first large-scale, fault-tolerant quantum computer, expected by 2029.

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