QuantumComputing

Weekly Intelligence Report

2026-08-30 | 22 articles | 10 countries

troy-technical.jp

This Week's Keyword

Quantum Advantage & PQC

Breakthroughs, Hardware, and Urgent Security

22	10	$290M+	1,000x
articles	countries	USD	reliability
Total Articles Analyzed	Source Countries/Regions	US NSF Quantum Funding	Microsoft Qubit Improvement

All 22 Articles This Week — 5-Axis Evaluation Matrix

How to read columns — Tech Novelty: degree of breakthrough Market Proximity: closeness to commercialization Market Impact: industry-wide effect Data Reliability: quantitative data & peer review US/EU Relevance: direct impact on US/European companies & supply chains

#	Article Title	Type	Tech Novelty	Market Proximity	Market Impact	Data Reliability	US/EU Relevance	Summary
#01	SpinQ Drug Discovery	Research	●●●○	●●○○	●●●○	●●○○	●●●○	SpinQ uses superconducting QCs for drug discovery, focusing on molecular modeling and virtual screening with hybrid workflows.
#02	IBM/UChicago Verifiable QA	Research	●●●●	●○○○	●●●●	●●●●	●●●●	IBM/UChicago achieved verifiable quantum advantage, solving an intractable problem in 15 mins with accuracy verification.
#03	US NSF $290M Institutes	Corporate Strategy	●○○○	●○○○	●●●●	●●●○	●●●●	US NSF invests $290M in 8 university-led institutes to advance quantum computing and workforce development.
#04	Quantinuum Helios 98-Qubit	New Product	●●●●	●●○○	●●●●	●●●○	●●●●	Quantinuum unveils Helios, the world's largest 98-qubit trapped-ion quantum computer, surpassing classical simulation.
#05	U Bristol Dynamic Network	Research	●●●●	●●○○	●●●○	●●●○	●●●●	U. Bristol developed a dynamic entanglement quantum network for multi-user applications over metropolitan fiber.
#06	U Strathclyde QMems	Research	●●●○	●●○○	●●●○	●●●○	●●●●	Strathclyde-led team develops cold atom quantum memories for long-distance networks with €2M EU funding.
#07	QPU137 QA Reality Check	Analysis	●○○○	●○○○	●●○○	●●○○	●●●○	QPU137 assesses quantum advantage as limited to benchmarks, lacking practical value for real-world problems.
#08	BNL/Stony Brook Wireless	Research	●●●●	●●○○	●●●○	●●●○	●●●●	BNL/Stony Brook demonstrate a 'wireless' quantum network by integrating a 161-mile fiber link with free-space optics.
#09	Entrust PQC Migration	Corporate Strategy	●○○○	●●●●	●●●●	●●●●	●●●●	Entrust releases PQC migration guide, urging action by 2030 due to NIST deadlines and "Harvest Now, Decrypt Later" threat.
#10	Antti Seppala QML	Research	●●○○	●●○○	●●●○	●●○○	●●●○	Antti Seppala drives AI-quantum convergence in drug discovery, finance, and energy, emphasizing error-mitigated algorithms.
#11	Saudi PQC Migration	Corporate Strategy	●○○○	●●●●	●●●●	●●●○	●●●●	Saudi enterprises urged to expedite PQC migration, aligning with NIST standards to counter quantum cyber threats by 2030.
#12	Canada-Japan Semicon	Research	●●●○	●●○○	●●●●	●●●○	●●●●	Canada-Japan partnership expands quantum research to accelerate semiconductor materials development and EUV lithography.

#	Article Title	Type	Tech Novelty	Market Proximity	Market Impact	Data Reliability	US/EU Relevance	Summary
#13	Microsoft Majorana 2	New Product	●●●●	●●○○	●●●●	●●●●	●●●●	Microsoft unveils Majorana 2 quantum chip with 1,000x reliability, targeting scalable QC by 2029 using topological qubits.
#14	NSF $37.5M PRACTIQAL	Corporate Strategy	●○○○	●○○○	●●●●	●●●○	●●●●	NSF grants $37.5M to Yale/UC San Diego's PRACTIQAL Center for self-correcting quantum computers, addressing error correction.
#15	Sweden PQC Mandate	Corporate Strategy	●○○○	●●●●	●●●●	●●●○	●●●●	Sweden approves national quantum strategy through 2036, mandating PQC for public and critical infrastructure by 2030.
#16	China Atom Matrix Fund	Corporate Strategy	●●●○	●●●○	●●●○	●●○○	●●●●	China's Atom Matrix secures hundreds of millions in Series A+ funding to accelerate neutral atom quantum computer commercialization.
#17	Pasqal Chip-Scale Atoms	Research	●●●●	●●○○	●●●●	●●●○	●●●●	France's Pasqal demonstrates world-first quantum computing with light-trapped atoms from a single chip, enhancing scalability.
#18	S. Korea PQC Conferences	Market Overview	●○○○	●●●●	●●●●	●●○○	●●●●	South Korea's autumn quantum tech conferences focus on PQC migration roadmaps, standardization, and government-industry collaboration.
#19	S. Korea QC Challenge	Research	●●●○	●●●○	●●●○	●●●○	●●●●	South Korea's "Quantum Reframing Challenge 2026" achieved catalyst optimization using quantum computers from IonQ, Pasqal, Quandela.
#20	Pasqal Nasdaq IPO	Corporate Strategy	●○○○	●●●●	●●●●	●●●●	●●●●	French quantum firm Pasqal lists on Nasdaq, raises $360M with stock surging 60%, funding R&D; and global expansion.
#21	Samsung Quantum Fund	Market Overview	●○○○	●●●●	●●●○	●●●●	●●●○	Samsung Active Asset Management launches "KoAct Global Quantum Computing Active" fund, investing in leading global quantum firms.
#22	RIKEN Q-Portal JASIS2026	Market Overview	●○○○	●●○○	●●○○	●●○○	●●○○	RIKEN Q-Portal to showcase quantum computing's next-generation industry potential at JASIS2026 exhibition in Japan.

●●●●○ High ●●●○○ Med-High ●●○○○ Med ●○○○○ Low | Yellow highlight = featured article

Three Questions That Demand Your Decision This Week

❶ Is your PQC migration plan on track for 2030?

NIST deadlines (2030 deprecation, 2035 disallowance) are firm. Sweden's mandate for critical infrastructure by 2030 (#15) signals global urgency. Have you inventoried cryptographic assets and assessed "Harvest Now, Decrypt Later" risks (#09, #11)?

❷ Are you prepared for verifiable quantum advantage?

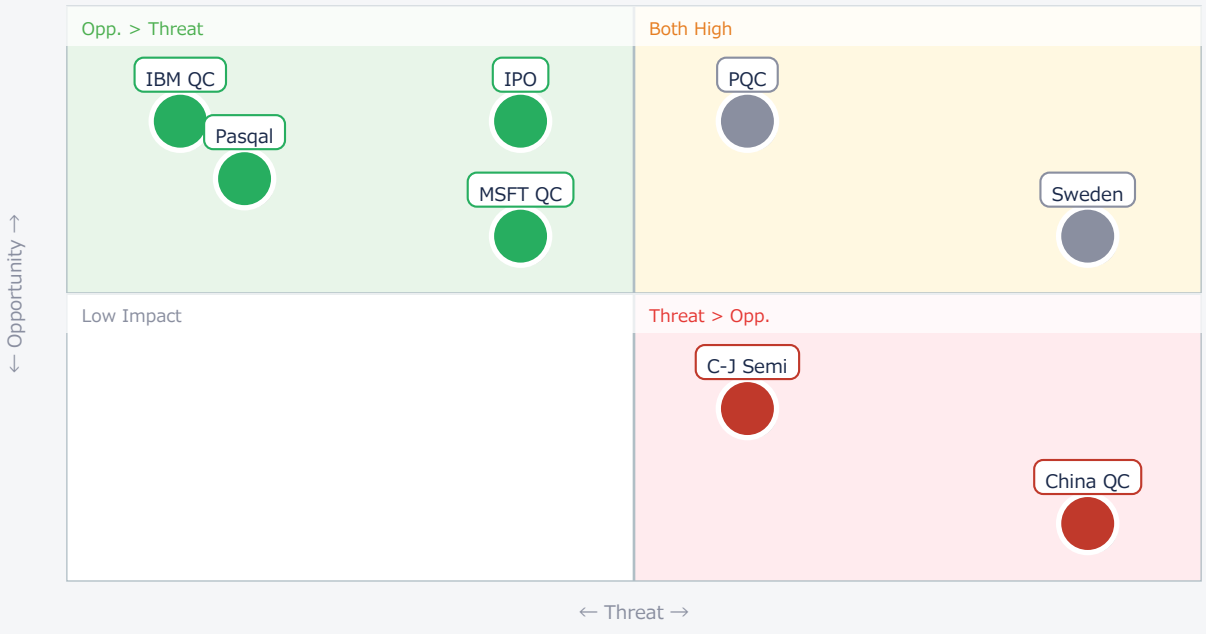
IBM/UChicago's verifiable quantum advantage (#02) is a scientific milestone, not a commercial product. However, Microsoft's 1000x reliability improvement (#13) and 2029 scalable QC target indicate rapid hardware progress. How will this impact your long-term R&D; roadmaps?

❸ How will global quantum hardware competition affect your strategy?

US firms (Quantinuum #04, Microsoft #13) lead in qubit count and reliability. European firms (Pasqal #17, #20) are innovating and securing significant funding. Chinese firms (Atom Matrix #16) are also rapidly advancing. Which platforms will you prioritize for future quantum application development?

Opportunities vs. Threats for US/European Companies

Opportunity vs. Threat Matrix for US/European Companies



Item	Quadrant	↑ Opportunity	↓ Threat
PQC	Critical	PQC solutions	Data compromise
Sweden	Critical	EU PQC market	Compliance burden
IBM QC	Opp.	Long-term R&D;	Lagging research
MSFT QC	Opp.	US hardware lead	Competitor advantage
Pasqal	Opp.	EU hardware lead	Missed innovation
IPO	Opp.	EU QC market	Under-investment
C-J Semi	Threat	—	Semicon lead lost

● China QC	Threat	—	Market share loss

Deep Dive ① — Verifiable Quantum Advantage Achieved

#02 | 2026/08/24 | almerja.com | Tech Novelty●●●●● Proximity●○○○○ Market Impact●●●●○ Data Reliability●●●●● US/EU Relevance●●●●●

IBM and University of Chicago researchers have demonstrated a verifiable quantum advantage, solving a problem in 15 minutes that is intractable for classical supercomputers. Crucially, the experiment included a novel method to verify the quantum result's accuracy, addressing a long-standing challenge in quantum advantage demonstrations.

This milestone provides robust evidence that quantum computing can perform tasks beyond classical reach with verifiable fidelity, paving the way for more reliable and practical quantum applications in materials science, drug discovery, and financial modeling.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: This is a significant scientific breakthrough, establishing a credible benchmark for quantum advantage. While the problem solved is still academic and not immediately practical (Proximity 1), the *verifiable* aspect is critical for building trust in quantum computation. Technical barriers remain in scaling these systems and reducing error rates for real-world problems. [Opportunity] for US/EU research institutions and quantum hardware developers to leverage this foundational work and attract further funding. [Threat] for companies relying solely on classical methods for complex simulations, as this demonstrates the ultimate computational superiority of QC. Next actions: [R&D;] Initiate internal review of current intractable problems that could benefit from verifiable quantum advantage. [Strategy] Monitor IBM/UChicago's follow-up research for commercialization pathways. [Executive] Assess long-term investment in quantum research partnerships.

Deep Dive ② — Urgent PQC Migration for US/EU Enterprises

#09 | 2026/08/20 | Entrust Blog | Tech Novelty●○○○○ Proximity●●●●● Market Impact●●●●● Data Reliability●●●●○ US/EU Relevance●●●●●

Entrust has published a comprehensive guide on Post-Quantum Cryptography (PQC) migration, emphasizing the urgent need for organizations to act due to NIST's deadlines for deprecating (2030) and disallowing (2035) current public-key cryptography (RSA and ECC).

The guide highlights the "Harvest Now, Decrypt Later" threat and recommends prioritizing a complete cryptographic inventory, risk assessment, and migration of key establishment protocols for long-lived confidential data. Adopting crypto-agility is stressed as essential for a successful transition.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: The threat of quantum computers breaking current encryption is no longer theoretical; it's a near-term operational risk, especially for long-lived data. Entrust's guidance, aligned with NIST, is highly realistic and actionable. The primary technical barrier is the complexity of identifying and migrating all cryptographic dependencies across legacy systems. [Opportunity] for US/EU cybersecurity firms, software vendors, and system integrators to provide PQC solutions, consulting, and crypto-agile platforms. [Threat] for any US/EU company, particularly in finance, healthcare, and government, that delays PQC migration, risking massive data breaches and regulatory non-compliance. Next actions: [CISO/IT] Conduct a full cryptographic inventory and PQC risk assessment immediately. [Procurement] Evaluate PQC-ready solutions and vendors. [Legal/Compliance] Review data retention policies against NIST deadlines and potential future regulations.

Deep Dive ③ — Microsoft's Majorana 2 Chip: 1,000x Reliability

#13 | 2026/08/24 | Onclick Innovations | Tech Novelty●●●●● Proximity●●○○○ Market Impact●●●●○ Data Reliability●●●●○ US/EU Relevance●●●●●

Microsoft unveiled its Majorana 2 quantum chip, claiming a remarkable 1,000-fold increase in qubit reliability compared to its predecessor. This topological qubit approach leverages a lead-based superconductor, designed for natural resistance to interference.

Microsoft targets a scalable quantum computer by 2029, positioning itself as a key player in the race for fault-tolerant quantum computing with potential for transformative applications in drug discovery, materials science, and optimization.

▶ Strategic Analyst's Perspective

Strategic Analyst's Perspective: A 1,000x reliability improvement is a monumental leap, potentially accelerating the timeline for fault-tolerant quantum computing. Microsoft's topological qubit approach aims for hardware-level error tolerance, a distinct strategy from other modalities. The 2029 target is ambitious but indicates serious progress. Technical barriers include scaling these complex topological qubits and maintaining coherence at larger scales. [Opportunity] for US/EU materials suppliers (superconductors, cryogenics) and quantum software developers to align with Microsoft's ecosystem. [Threat] for competitors relying on other qubit modalities if topological qubits prove superior in scalability and error correction. Next actions: [R&D;] Evaluate the implications of topological qubit advancements on your quantum hardware strategy. [Business Dev] Explore potential partnerships or early access programs with Microsoft for quantum application development. [Strategy] Reassess competitive landscape and potential shifts in quantum computing dominance by 2029.

Other Notable Articles

Quantinuum Unveils 'Helios,' World's Largest 98-Qubit Trapped-Ion Quantum Computer (ZME Science)
Tech Novelty●●●●○ Proximity●●○○○ Market Impact●●●●○

Quantinuum's 98-qubit Helios is a major hardware milestone, pushing trapped-ion systems beyond classical simulation.

Sweden Approves National Quantum Strategy Through 2036, Mandating PQC for Public and Critical Infrastructure by 2030 (HPCwire)
Tech Novelty●○○○○ Proximity●●●●● Market Impact●●●●●

Sweden's PQC mandate by 2030 sets a strong precedent for EU nations, creating urgent market demand for quantum-safe solutions.

France's Pasqal Demonstrates World-First Quantum Computing with Light-Trapped Atoms from a Single Chip (Media24.fr)
Tech Novelty●●●●● Proximity●●○○○ Market Impact●●●●○

Pasqal's chip-scale atom trapping is a world-first, significantly accelerating scalability for neutral atom quantum computers.

French Quantum Computing Firm Pasqal Lists on Nasdaq, Raises $360M with Stock Surging 60% (Boursorama)
Tech Novelty●○○○○ Proximity●●●●● Market Impact●●●●○

Pasqal's successful Nasdaq IPO and $360M funding validate the commercial potential of European quantum tech.

Recommended Actions This Week

Action recommendations based on article evaluation matrix and opportunity/threat analysis.

Immediate (this week)

- [CISO/IT] Initiate a comprehensive cryptographic inventory and PQC risk assessment across all long-lived sensitive data and critical infrastructure, prioritizing systems with NIST 2030/2035 exposure.
- [Strategy] Conduct a competitive intelligence review of recent quantum hardware advancements (Microsoft, Quantinuum, Pasqal, Atom Matrix) to identify potential shifts in the global QC landscape and assess competitive threats/opportunities.
- [R&D;] Review internal research roadmaps for quantum computing, specifically looking for opportunities to leverage verifiable quantum advantage breakthroughs for complex simulation problems.

Short-term (1 month)

- [Procurement] Begin evaluating PQC-compliant solutions and engaging with vendors for cryptographic migration tools and services, focusing on crypto-agility to adapt to evolving standards.
- [R&D;] Formulate a strategy for integrating quantum computing into existing R&D; workflows, particularly for materials science, drug discovery, and complex optimization, considering hybrid quantum-classical approaches.
- [Business Dev] Explore potential partnerships with leading quantum hardware and software providers (US, EU, Canada) to gain early access to new technologies and talent, especially in neutral atom and trapped-ion systems.

Medium-long term (quarter+)

- [Executive/HR] Develop a long-term quantum workforce strategy, including talent acquisition, upskilling existing engineers, and fostering academic collaborations to build internal quantum expertise.
- [Legal/IP] Establish an IP strategy for quantum technologies, including patent monitoring, defensive publishing, and licensing opportunities, to protect and monetize quantum innovations.
- [Strategy] Develop a multi-year quantum technology investment roadmap, allocating resources for both PQC migration and strategic quantum computing R&D;, with clear milestones and risk mitigation plans.

QuantumComputing — Selected Articles

Date: 2026-08-30

Articles: 22

Table of Contents

#18 France's Pasqal Demonstrates World-First Quantum Computing with Light-Trapped Atoms from a Single Chip

#19 South Korea's 2026 Autumn Quantum Tech Conferences Focus on Post-Quantum Cryptography Migration Roadmaps and Standardization

#20 South Korea's "Quantum Reframing Challenge 2026" Achieves Catalyst Optimization with Quantum Computers

#21 French Quantum Computing Firm Pasqal Lists on Nasdaq, Raises $360M with Stock Surging 60%

#22 Samsung Active Asset Management Launches "KoAct Global Quantum Computing Active" Fund, Investing in Leading Global Quantum Firms

#23 RIKEN Q-Portal to Showcase Quantum Computing's Next-Generation Industry Potential at JASIS2026

#01 SpinQ Leverages Superconducting Quantum Computers for Accelerated Drug Discovery Research

Published August 20, 2026 SpinQ China

OVERVIEW

SpinQ has demonstrated how superconducting quantum computers can serve as powerful platforms to address challenging molecular and optimization problems in drug discovery. This technology holds immense potential for high-precision molecular modeling, virtual screening, and molecular dynamics simulations, areas where classical methods face significant limitations. The company emphasizes building "quantum-ready" research capabilities, including identifying suitable problems and developing hybrid quantum-classical workflows, to expedite the discovery of novel therapeutics.

IN DEPTH

Key Findings

SpinQ announced a significant advancement in drug discovery research, showcasing the capability of superconducting quantum computers to tackle highly complex molecular and optimization problems. This technology promises to provide unprecedented accuracy in predicting molecular behavior and dramatically accelerate the screening process for drug candidates.

Technical/Clinical Details

- **Molecular Modeling and Simulation:** Quantum computers can simulate the electronic structure of molecules with high fidelity, enabling complex quantum chemical calculations that are prohibitively computationally expensive for classical supercomputers. This leads to a deeper understanding of drug-target interactions.
- **Optimized Virtual Screening:** Quantum algorithms can significantly accelerate virtual screening processes, efficiently identifying potential drug candidates from vast chemical libraries for specific diseases. This reduces the time and resources traditionally required for experimental screening.
- **Molecular Dynamics Simulations:** In molecular dynamics, quantum computing allows for longer simulation times and more intricate modeling of molecular interactions, which is crucial for elucidating drug mechanisms of action and predicting their behavior within biological systems.
- **Hybrid Quantum-Classical Workflows:** Acknowledging the current limitations of quantum hardware, SpinQ advocates for hybrid workflows that combine the strengths of both classical and quantum computing. In this model, quantum processors handle the most computationally intensive sub-problems, enhancing overall efficiency and accuracy.

Background & Context

Drug discovery is a notoriously time-consuming and expensive process with a low success rate. While classical computational simulations are widely used, they reach their limits when confronted with complex molecular systems or phenomena governed by quantum mechanics. Quantum computing offers a pathway to overcome these limitations, potentially breaking through current bottlenecks in pharmaceutical R&D and accelerating the delivery of new treatments.

Strategic Significance & Outlook

SpinQ views this development as a critical step towards establishing "quantum-ready" research capabilities in the pharmaceutical sector. Future prospects include the development of larger and more robust quantum computers, coupled with the evolution of specialized quantum algorithms for drug discovery. This progress is expected to accelerate the commercial application of quantum technology in drug development, shortening time-to-market for new drugs and ultimately benefiting patients worldwide.

Source: https://www.spinquanta.com/news-detail/for-drug-discovery-superconducting-quantum-computer

Collected: August 28, 2026 | Automated Research System (Gemini API)

#02 IBM and University of Chicago Achieve Verifiable Quantum Advantage, Solving Intractable Problem in 15 Minutes

Published August 24, 2026 almerja.com USA

OVERVIEW

IBM and University of Chicago researchers have demonstrated a quantum computation that significantly surpasses classical simulation capabilities, solving a problem in just 15 minutes that would be prohibitively long for classical methods. Crucially, the experiment included a novel method to verify the quantum result's accuracy, addressing a long-standing challenge in quantum advantage demonstrations. This milestone provides robust evidence that quantum computing has met key requirements for quantum advantage by performing a task beyond classical reach with verifiable fidelity, paving the way for more reliable and practical quantum applications.

IN DEPTH

Key Findings

Researchers from IBM and the University of Chicago have successfully demonstrated a groundbreaking quantum computation, solving a problem in just 15 minutes that would be practically uncomputable by classical methods. A pivotal aspect of this experiment was the simultaneous inclusion of a method to verify the accuracy of the quantum result, effectively addressing a critical and long-standing challenge in proving quantum advantage with verifiable fidelity.

Technical/Clinical Details

- **Demonstrated Quantum Advantage:** The study showcased quantum computing's ability to tackle a specific computational task that is beyond the practical reach of current classical supercomputers, marking a significant step towards real-world quantum utility. The problem solved involved complex calculations that would require an impractical amount of time for classical algorithms.
- **Inclusion of Verification Method:** Unlike some previous claims of quantum advantage that lacked easy classical verification, this experiment integrated an innovative mechanism to confirm the reliability of the quantum computer's output. This verification process is crucial for establishing trust in quantum computational results, especially as systems become more powerful and complex.
- **Potential Impact:** The ability to perform and verify such complex computations opens doors for transformative applications across various sectors, including advanced materials science for designing novel compounds, accelerated drug discovery, and sophisticated financial modeling. The technology's true potential is expected to be realized in simulating systems with intricate interactions where classical methods falter.

Background & Context

Achieving "quantum advantage" — where a quantum computer performs a task intractable for classical machines — has been a central goal in the quantum computing field. Early claims of quantum supremacy, such as Google's Sycamore experiment in 2019, were often met with skepticism or later matched by improved classical algorithms. The current demonstration distinguishes itself by not only achieving speedup but also providing a robust, verifiable proof of the quantum solution's correctness, thereby offering more compelling evidence for true quantum advantage.

Strategic Significance & Outlook

This achievement represents a crucial step towards the realization of practical, fault-tolerant quantum computers. Verifiable quantum advantage is expected to further catalyze investment and research in quantum technologies, providing a reliable foundation for scientists and businesses to leverage quantum computers for real-world challenges. The long-term outlook suggests a broadening of quantum computing applications, significantly contributing to the resolution of complex scientific and engineering problems that have previously been beyond human grasp.

Source: https://almerja.com/en/more.php?pid=7497

Collected: August 28, 2026 | Automated Research System (Gemini API)

#03 U.S. NSF Invests Over $290 Million in Eight University-Led Quantum Leap Institutes to Accelerate Quantum Science

Published August 26, 2026 Forbes USA

OVERVIEW

The U.S. National Science Foundation (NSF) has announced an investment of over $290 million into eight university-led Quantum Leap Challenge Institutes, fulfilling the 2018 National Quantum Initiative Act. This substantial funding aims to advance quantum computing, sensing, and communication technologies while simultaneously training the future quantum workforce. Projects encompass developing scalable quantum computers, improving error correction techniques, and discovering novel quantum algorithms and hardware architectures, reinforcing U.S. leadership in quantum science and technology.

IN DEPTH

Key Findings

The U.S. National Science Foundation (NSF) has committed over $290 million to eight university-led Quantum Leap Challenge Institutes, marking a significant federal investment designed to accelerate the development and application of quantum science and technology. This funding package aligns with the directives of the 2018 National Quantum Initiative Act, supporting both renewed and newly established institutes.

Technical/Clinical Details

- **Broad Research Focus:** The investment targets a wide array of quantum research areas, including the development of new quantum algorithms, enhancements to existing quantum error correction techniques, and the exploration of diverse hardware architectures such as neutral atoms, trapped ions, and solid-state systems. This comprehensive approach is expected to lead to more versatile and robust quantum technologies.
- **Workforce Development:** A crucial component of this investment is the emphasis on training the next generation of researchers and engineers in quantum science and engineering. This ensures a skilled workforce capable of driving future innovation and translating research breakthroughs into practical applications.
- **Diverse Applications:** The institutes will investigate applications of quantum sensors and computing across various fields, including biophysics, bioengineering, advanced medical imaging, and sophisticated financial modeling. Such diverse applications highlight the potential for quantum technology to address critical societal challenges directly.

Background & Context

Quantum technology is recognized as a strategically critical domain for national security, economic competitiveness, and scientific discovery. The U.S. government has a national-level focus on its development. This NSF investment is a vital measure to bridge the gap between fundamental quantum research and industrial application, aiming to maintain U.S. preeminence in the global quantum race. By leveraging the deep expertise and research capabilities of academic institutions, the initiative seeks to establish a long-term foundation for technological innovation.

Strategic Significance & Outlook

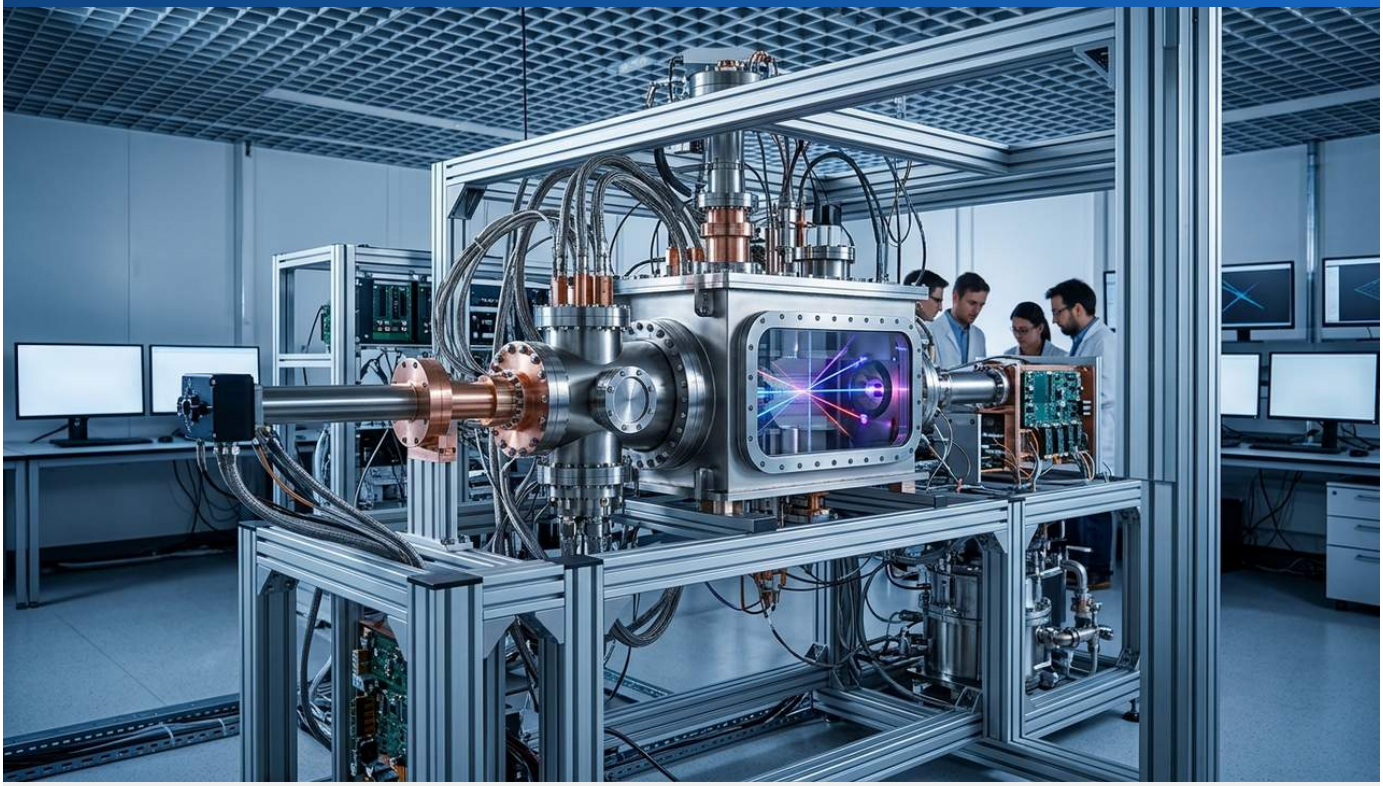
The $290 million investment is poised to be a major catalyst for accelerating the commercialization and practical deployment of quantum computing. It is expected to foster greater collaboration among institutes, enhancing knowledge sharing and accelerating the development of fault-tolerant, scalable quantum computers. In the long term, this initiative is anticipated to spur the creation of new industries, improve productivity across existing sectors, and enable the delivery of groundbreaking products and services globally.

Source: https://www.forbes.com/sites/michaeltnietzel/2026/08/26/nsf-invests-290-million-in-eight-university-led-quantum-leap-institutes/

Collected: August 28, 2026 | Automated Research System (Gemini API)

#04 Quantinuum Unveils 'Helios,' the World's Largest 98-Qubit Trapped-Ion Quantum Computer, Pointing to Post-Supercomputing Era

Published August 20, 2026 ZME Science USA



OVERVIEW

Quantinuum has announced "Helios," a 98-qubit trapped-ion quantum computer, establishing it as the largest system of its kind globally. Helios employs a Quantum Charge-Coupled Device (QCCD) architecture, separating quantum information storage and processing, and has performed random benchmark tests beyond classical simulation capabilities. While this demonstrates significant progress towards advanced quantum computing, the article notes that practical, fault-tolerant quantum computations will necessitate even larger systems, on the order of a million qubits, indicating the path beyond current supercomputing limitations.

IN DEPTH

Key Findings

Quantinuum has unveiled "Helios," a 98-qubit trapped-ion quantum computer, marking it as the world's largest system of its kind. This breakthrough demonstrates a significant step towards large-scale quantum computation, performing random benchmark tests that exceed the capabilities of classical simulations.

Technical/Clinical Details

- **98-Qubit HQS:** Helios is the latest iteration in Quantinuum's H-series, based on its quantum volume architecture, featuring 98 physical qubits. This positions it as the current global leader among trapped-ion systems in terms of qubit count.
- **QCCD Architecture:** The system utilizes a Quantum Charge-Coupled Device (QCCD) architecture, which separates regions for storing and processing quantum information. This design allows for enhanced control and stability of individual qubits while improving the overall scalability of the system.
- **Beyond Classical Simulation:** Helios has successfully executed specific random benchmark tests that surpass the simulation capabilities of existing classical supercomputers. This suggests a distinct advantage for quantum computers in certain types of complex calculations.
- **Path to Practicality:** Despite the impressive feat, the article points out that practical, commercially valuable quantum computations will require even larger and more error-resilient systems, specifically mentioning the need for approximately one million qubits to achieve broad real-world impact.

Background & Context

The quantum computing landscape is driven by the dual challenges of increasing qubit counts and reducing error rates. Trapped-ion quantum computers are highly regarded for their high qubit fidelity and connectivity, with Quantinuum (formed from the merger of Honeywell Quantum Solutions and Cambridge Quantum) at the forefront of this technology. The introduction of Helios represents a crucial milestone in the transition from the Noisy Intermediate-Scale Quantum (NISQ) era towards developing larger, fault-tolerant quantum computers.

Strategic Significance & Outlook

The advent of Quantinuum's Helios reinforces the potential for quantum computers to succeed supercomputers. Future progress will hinge on further qubit scaling and advancements in quantum error correction. The demonstrated efficacy of the QCCD architecture in Helios is expected to form a vital foundation for constructing systems with millions of qubits, paving the way for revolutionary applications in pharmaceuticals, materials science, finance, and optimization problems.

Source: https://www.zmescience.com/science/news-science/the-worlds-largest-trapped-ion-quantum-computer-just-showed-what-comes-after-supercomputers/

Collected: August 28, 2026 | Automated Research System (Gemini API)

#05 University of Bristol and Collaborators Develop Dynamic Entanglement Quantum Network for Multi-User Applications

Published August 26, 2026 Quantum Zeitgeist UK

OVERVIEW

Researchers from the University of Bristol and international collaborators have developed a quantum network capable of dynamically reconfiguring entanglement links among multiple users. This metropolitan-scale fiber network successfully connects six users and employs a quantum reconfigurable optical add-drop multiplexer (q-ROADM) to efficiently distribute polarization-entangled photon pairs. The system demonstrated stable operation for over 150 hours and supports various quantum protocols, marking a significant step towards scalable, multi-user quantum applications over existing optical infrastructure.

IN DEPTH

Key Findings

A research team from the University of Bristol, in collaboration with international partners, has engineered a groundbreaking quantum network that can dynamically establish and reconfigure quantum entanglement links among multiple users. Operating over metropolitan-scale fiber infrastructure, this system represents a crucial milestone towards the realization of a practical quantum internet.

Technical/Clinical Details

- **Dynamic Entanglement Reconfiguration:** The developed network boasts a "dynamic" capability, allowing for the real-time creation and termination of entanglement links. This flexibility enables the assignment of quantum communication channels among different users on an as-needed basis, optimizing resource allocation.
- **Q-ROADM Integration:** At the heart of the network is a quantum reconfigurable optical add-drop multiplexer (q-ROADM). This device is instrumental in efficiently distributing polarization-entangled photon pairs across multiple nodes, making optimal use of existing optical fiber cables.
- **Multi-User Connectivity:** The system successfully connected six distinct users, demonstrating stable quantum communication. This extends beyond conventional point-to-point connections, showcasing the feasibility of more complex, distributed quantum network architectures.
- **Stability and Durability:** The network maintained stable operation for over 150 hours, proving its robustness and practical reliability. This stability provides a solid foundation for supporting various quantum protocols, including Quantum Key Distribution (QKD) and distributed quantum computing.

Background & Context

The ultimate goal of a quantum internet is to connect quantum computers, enabling secure communication and distributed quantum computation across vast distances. Current quantum networks are largely limited to point-to-point connections, making the construction of scalable multi-user networks a significant challenge. This research from the University of Bristol offers a promising approach to overcome this scalability issue by leveraging and enhancing existing telecommunications infrastructure.

Strategic Significance & Outlook

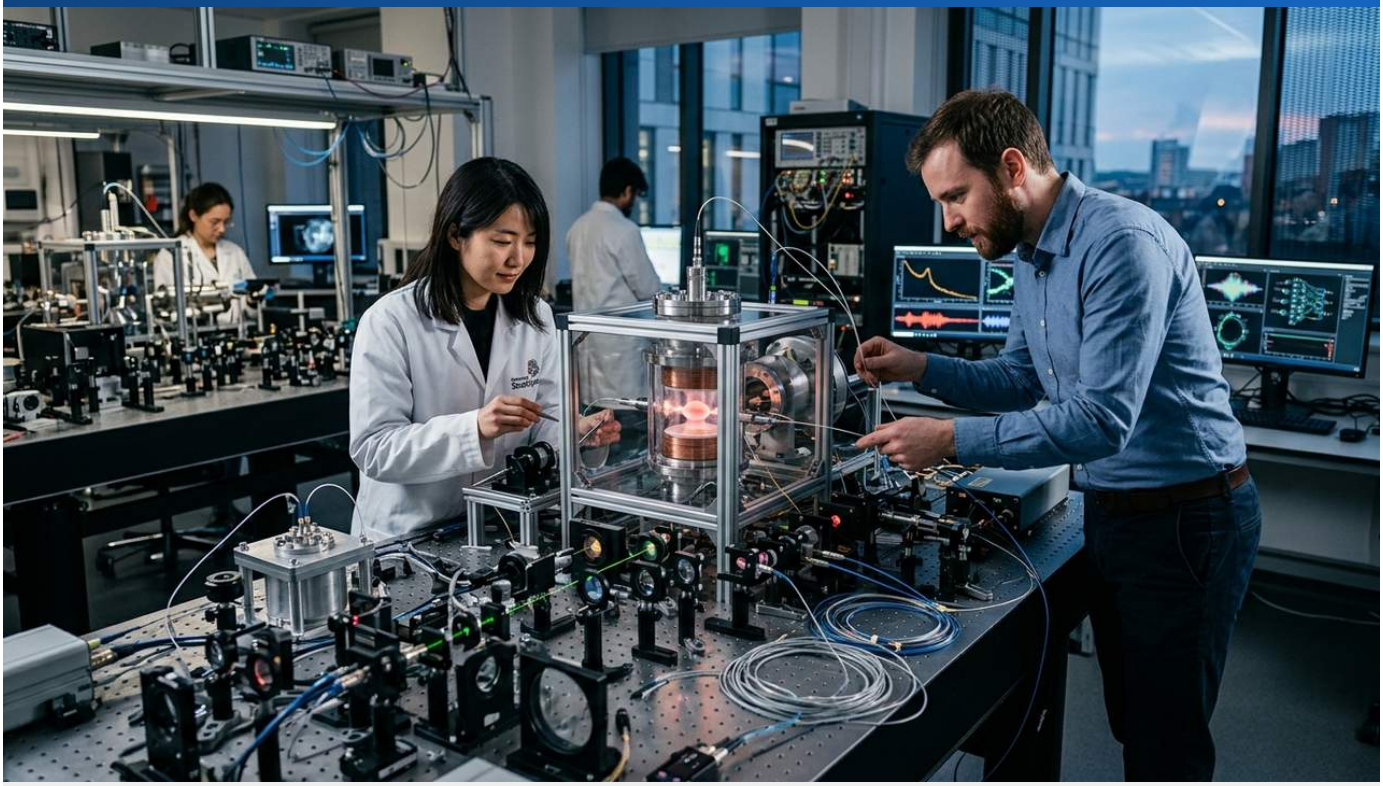
The success of this dynamic quantum network is a vital step toward a globally accessible quantum internet. Future developments are expected to connect even more users and support increasingly complex quantum applications. The technology holds particular promise for sectors requiring high levels of security and computational power, such as finance, healthcare, and government, accelerating the practical implementation of quantum technologies worldwide.

Source: https://quantumzeitgeist.com/university-bristol-dynamic-entanglement-network/

Collected: August 28, 2026 | Automated Research System (Gemini API)

#07 University of Strathclyde-Led International Team Develops Quantum Memories for Long-Distance Networks with €2M EU Funding

Published August 25, 2026 University of Strathclyde UK



OVERVIEW

An international research team led by the University of Strathclyde is developing cold atom-based quantum memories for quantum repeater devices as part of the €2 million EU-funded AL FreSQO project. These memories are designed to buffer data and mitigate signal loss in long-distance quantum networks, a critical component for scalable quantum communication. The project explores free-space optical links and wavelength inter-conversion to reduce the need for cryogenic systems, supporting secure communications and advancing the UK National Quantum Strategy.

IN DEPTH

Key Findings

An international research team spearheaded by the University of Strathclyde is actively developing advanced quantum memories, a crucial component for establishing long-distance quantum networks. This initiative, part of the EU-funded AL FreSQO project with a €2 million grant, focuses on cold atom-based technologies designed to enhance quantum repeater devices, significantly improving the reach and reliability of quantum communication.

Technical/Clinical Details

- **Cold Atom Quantum Memories:** The quantum memories under development utilize ultra-cold atoms to temporarily store quantum information. This mechanism is vital for compensating for the attenuation and loss of quantum signals over optical fibers, thereby enabling the preservation of quantum entanglement across extended distances.
- **Application in Quantum Repeater Devices:** These quantum memories serve as the core component of quantum repeater devices. Quantum repeaters are essential for overcoming the limitations of quantum communication, where signals cannot be amplified without disturbing their quantum state, by effectively "repeating" entanglement over very long distances.
- **Free-Space Optical Links and Wavelength Inter-conversion:** Beyond fiber-optic applications, the project is also investigating the potential of free-space optical (FSO) links for quantum communication. Furthermore, wavelength inter-conversion techniques are being explored to efficiently transfer quantum information between different physical systems, improve compatibility with existing communication infrastructures, and potentially reduce the reliance on complex cryogenic systems.

Background & Context

Quantum networks are foundational technologies for achieving ultimately secure communication and distributed quantum computing. However, quantum signals are highly fragile and prone to loss over long distances, posing a significant challenge. Quantum repeaters, along with their core quantum memories, are recognized as critical elements to overcome this hurdle, enabling quantum communication across cities and even continents.

Strategic Significance & Outlook

The quantum memory technology being developed under the AL FreSQO project is expected to play a vital role in both the UK National Quantum Strategy and the broader EU quantum technology roadmap. Its practical implementation promises to accelerate the establishment of secure national communication infrastructures, significantly enhancing data security in sectors such as finance, defense, and government. In the long term, it is anticipated to contribute to the foundation of a wider quantum internet, fostering international information sharing and collaborative advancements.

Source: https://www.strath.ac.uk/whystrathclyde/news/2026/memoriestoenablelong-distancequantumnetworks/

Collected: August 28, 2026 | Automated Research System (Gemini API)

#08 QPU137 Assesses Quantum Advantage: Limited to Benchmarks, No Practical Value Yet

Published August 20, 2026 QPU137 Unknown

OVERVIEW

QPU137's analysis assesses current quantum advantage claims, noting that quantum computers have only narrowly surpassed classical methods on contrived benchmark tasks. While crediting Google's "verifiable Quantum Echoes" (October 2025) and IBM's July 2026 material-simulation claims as credible examples, the report concludes that no quantum computer has yet outperformed classical computing on a problem with practical value. This indicates that while quantum technology is advancing, its widespread practical application remains a future goal.

IN DEPTH

Key Findings

According to QPU137's latest assessment, quantum computers have, to date, only marginally outperformed classical computing methods on specific, artificially designed benchmark tasks. This evaluation offers a realistic perspective on the current state of quantum technology, emphasizing that widespread quantum advantage for problems of genuine commercial or scientific value has yet to be achieved.

Technical/Clinical Details

- **Benchmark-Limited Advantage:** Quantum computers have demonstrated superiority primarily in niche computational problems, such as random number generation or quantum state sampling, which are inherently challenging for classical machines. These tasks are specifically engineered to leverage the unique properties of quantum processors.
- **Verifiable Achievements:** Notable progress includes Google's "verifiable Quantum Echoes" result in October 2025 and IBM's material-simulation claims from July 2026. These achievements are deemed credible because they incorporate mechanisms to classically verify the correctness of the quantum computer's output, a crucial factor for building confidence in quantum computational results.
- **Classical Algorithm Evolution:** The analysis references past instances, such as Google's 2019 "quantum supremacy" claim with its Sycamore processor, which was subsequently matched by improvements in classical algorithms. This underscores the necessity for quantum advantage claims to be continuously re-evaluated against the evolving capabilities of classical computing.

Background & Context

"Quantum advantage" refers to the ability of a quantum computer to solve problems that are intractable for classical computers within a reasonable timeframe. Achieving this has been a primary research objective in the quantum computing field and serves as a significant indicator for accelerating investment in the technology. However, such claims require rigorous verification and continuous reassessment, considering the dynamic progress in classical computing.

Strategic Significance & Outlook

QPU137's analysis suggests that quantum computing is still in its nascent stages, and further technological breakthroughs are required to achieve fault-tolerant quantum computers capable of practical applications. Future research and development must focus on stabilizing more qubits, enhancing error correction capabilities, and developing quantum algorithms specifically tailored for practical industrial challenges. This concerted effort will pave the way for an era where quantum technology truly delivers significant societal value.

Source: https://qpu137.com/reality/quantum-advantage

Collected: August 28, 2026 | Automated Research System (Gemini API)

#09 Brookhaven National Laboratory and Stony Brook University Demonstrate 'Wireless' Quantum Network with 161-Mile Fiber Integration

Published August 21, 2026 BNL Newsroom (Brookhaven National Laboratory) USA

OVERVIEW

Researchers at Brookhaven National Laboratory and Stony Brook University have successfully transmitted quantum information through open air, marking a significant step towards a "wireless" quantum network. This demonstration extends New York's existing 161-mile fiber-optic quantum network by integrating a free-space optical (FSO) link. This achievement represents substantial progress in establishing sustained wireless exchange of quantum information, potentially connecting quantum computers beyond the geographical limitations of fiber optics and contributing to the development of a resilient quantum internet.

IN DEPTH

Key Findings

Researchers from Brookhaven National Laboratory (BNL) and Stony Brook University have successfully transmitted quantum information through open air, achieving a critical milestone towards the realization of future "wireless" quantum networks. This innovative technology extended New York's existing 161-mile (approximately 259 km) fiber-optic quantum network by integrating a free-space optical (FSO) link.

Technical/Clinical Details

- **Free-Space Optical (FSO) Link:** The experiment utilized FSO technology, where entangled photon pairs were generated and transmitted through the atmosphere rather than optical fibers. FSO is particularly advantageous for connecting quantum nodes in areas where fiber optic cable deployment is difficult or impractical, and for establishing links between mobile quantum entities.
- **Maintaining Quantum Information Fidelity:** Transmitting quantum information through open air is challenging due to atmospheric turbulence and particles, which can disrupt entanglement. The research team developed techniques to overcome these challenges, enabling sustained and reliable quantum information exchange.
- **Integration with Existing Networks:** This demonstration showcases the potential for seamlessly integrating wireless components into existing fiber-based quantum networks. Such integration enhances network flexibility, offering broader coverage and supporting a wider array of quantum applications.

Background & Context

Quantum networks are anticipated to form the backbone for ultra-secure communications (e.g., Quantum Key Distribution) and distributed quantum computing. While many current quantum networks rely on optical fibers, their deployment costs and geographical constraints pose significant hurdles. The realization of wireless quantum networks offers a solution to these limitations, paving the way for a more extensive and adaptable quantum internet.

Strategic Significance & Outlook

This wireless quantum network demonstration represents a vital step towards a future "quantum internet" where quantum computers can interconnect. In the long term, this technology could extend beyond terrestrial links to include global quantum communication networks via satellites. This promises a future where highly sensitive communications in sectors like finance, national security, and healthcare data exchange are protected by the fundamental principles of quantum mechanics.

Source: https://www.bnl.gov/newsroom/news.php?a=123096

Collected: August 28, 2026 | Automated Research System (Gemini API)

#10 Entrust Releases Comprehensive Guide for Post-Quantum Cryptography (PQC) Migration, Urging Action by 2030

Published August 20, 2026 Entrust Blog USA

OVERVIEW

Entrust has published a comprehensive guide on Post-Quantum Cryptography (PQC) migration, emphasizing the urgent need for organizations to act due to NIST's deadlines for deprecating (2030) and disallowing (2035) current public-key cryptography (RSA and ECC). The guide highlights the "Harvest Now, Decrypt Later" threat and recommends that organizations prioritize a complete cryptographic inventory, risk assessment, and the migration of key establishment protocols for long-lived confidential data. Adopting crypto-agility is stressed as essential for a successful transition into the quantum-safe era.

IN DEPTH

Key Findings

Entrust has released a detailed guide for organizations to plan and execute their migration to Post-Quantum Cryptography (PQC). The guide underscores the critical need for prompt action, citing the U.S. National Institute of Standards and Technology's (NIST) deadlines for the deprecation of current public-key cryptographic algorithms (RSA and ECC) by 2030 and their disallowance by 2035.

Technical/Clinical Details

- **NIST Timelines:** NIST has provided a clear roadmap, indicating that by 2030, the use of existing public-key cryptography will be deprecated, and by 2035, it will be disallowed. These deadlines are paramount for organizations in sectors such as finance, healthcare, and government, which require long-term protection for sensitive data.
- **"Harvest Now, Decrypt Later" Threat:** There is a growing threat where adversaries collect (harvest) currently encrypted data, intending to decrypt it later (decrypt later) once sufficiently powerful quantum computers become available. This makes the protection of long-lived sensitive data an immediate and pressing concern.
- **Cryptographic Inventory and Risk Assessment:** The initial step in the migration process involves creating a comprehensive cryptographic inventory to identify all encrypted assets and dependencies within an organization. Based on this, a risk assessment should be performed to pinpoint areas most vulnerable to quantum attacks.
- **Prioritizing Key Establishment Protocols:** The guide recommends prioritizing the migration of key establishment protocols, especially for data requiring long-term confidentiality. This includes critical infrastructure elements like TLS/SSL certificates, VPNs, and digital signatures.
- **Adopting Crypto-Agility:** PQC migration is not a one-time event. The importance of embedding "crypto-agility" into organizational systems is highlighted, allowing for flexible adaptation to the future evolution of cryptographic technologies and potential new quantum-resistant algorithms.

Background & Context

The advancement of quantum computing poses a significant threat to the foundations of modern digital security, particularly public-key cryptographic systems. Governments and industry bodies worldwide are accelerating PQC standardization and migration strategy development to prepare for this "quantum threat." Entrust's guide provides a practical framework to help enterprises navigate this complex transition effectively.

Strategic Significance & Outlook

PQC migration will be one of the most critical IT challenges for enterprises in the coming years. Entrust advises organizations to adopt a phased approach, customizing their migration plans to their specific needs and risk profiles. This strategic preparation is expected to ensure the integrity and confidentiality of data in the quantum era, thereby maintaining business continuity and trust.

Source: https://www.entrust.com/blog/2026/08/migrating-your-platform-for-post-quantum-cryptography-a-complete-guide/

Collected: August 28, 2026 | Automated Research System (Gemini API)

#11 Antti V. Seppala, Quantum Machine Learning Architect, Drives AI-Quantum Convergence in Drug Discovery, Finance, and Energy

Published August 22, 2026 Aviator PPG Unknown

OVERVIEW

Antti V. Seppala, a leading architect in Quantum Machine Learning (QML), is translating his research into transformative industrial applications, accelerating drug discovery, enhancing financial risk analysis, and optimizing industrial logistics and energy grid management. Recognizing the challenges of noisy quantum hardware, Seppala emphasizes the necessity of robust, error-mitigated algorithms and cross-disciplinary collaboration to elevate QML from theoretical promise to practical necessity. His vision underscores the potential of AI-quantum convergence as a core driver of future technological innovation across critical sectors.

IN DEPTH

Key Findings

Antti V. Seppala, a distinguished architect in the field of Quantum Machine Learning (QML), is spearheading the translation of theoretical concepts into tangible industrial applications. His pioneering work is yielding significant advancements in accelerating drug discovery, strengthening financial risk analysis, and optimizing industrial logistics and energy grid management.

Technical/Clinical Details

- **Accelerated Drug Discovery:** Seppala's QML models expedite molecular simulations and drug candidate screening, thereby shortening the drug development cycle. This promises reductions in R&D costs and faster delivery of novel therapies to patients.
- **Enhanced Financial Risk Analysis:** Quantum computing has the potential to outperform classical machines in analyzing complex financial market data and optimizing risk assessment models. Seppala's models contribute to improved accuracy in portfolio optimization, fraud detection, and credit risk evaluation.
- **Optimized Industrial Logistics and Energy Grid Management:** Supply chain optimization and energy consumption efficiency involve massive optimization problems. QML offers more efficient algorithms to solve these challenges, leading to reduced operational costs and increased sustainability.
- **Error Mitigation and Robust Algorithms:** Acknowledging the limitations of Noisy Intermediate-Scale Quantum (NISQ) devices, Seppala emphasizes the development of robust algorithms that integrate error mitigation techniques. This approach enables reliable results even with current quantum hardware.

Background & Context

While Artificial Intelligence (AI) and machine learning have already transformed numerous industries, they face computational limits when dealing with extremely large and complex problems, particularly those involving quantum physics. Quantum Machine Learning promises to overcome these classical limitations, elevating AI capabilities to the next level. Pioneers like Seppala are playing a crucial role in driving the practical implementation of this emerging field.

Strategic Significance & Outlook

Seppala posits that QML is currently in a transitional phase, moving from theoretical potential to practical necessity. The successful navigation of this transition requires close collaboration among experts in quantum computing, machine learning, and specific industrial domains. His research and vision indicate that the convergence of AI and quantum technologies will ignite a new wave of scientific discovery and industrial innovation, bringing widespread impact across society.

Source: https://shop.aviatorppg.com/antti-v-seppala-architect-of-quantum-machine-learning-and-the-future-of-ai

Collected: August 28, 2026 | Automated Research System (Gemini API)

#12 Saudi Enterprises Urged to Expedite Post-Quantum Cryptography (PQC) Migration Amid Looming Quantum Cyber Threat

Published Published August 26, 2026 CPI Financial サウジアラビア

OVERVIEW

Saudi Arabian enterprises face an urgent imperative to transition to Post-Quantum Cryptography (PQC) to preempt the threat posed by future quantum computers to current encryption. This shift is critical for safeguarding long-lived, sensitive data from 'Harvest Now, Decrypt Later' attacks, particularly within finance, telecom, and government sectors. Alignment with NIST standards (FIPS 203, 204, 205) is strongly advised to secure the nation's digital economy and ensure compliance with emerging quantum-safe regulations.

IN DEPTH

Background

In the global cybersecurity environment, the existential threat posed by quantum computing to current public-key cryptography is widely acknowledged as one of the most significant challenges of our era. As governments worldwide formulate and implement national Post-Quantum Cryptography (PQC) strategies, Saudi Arabia finds itself at a critical juncture. In line with its ambitious Vision 2030 digital transformation agenda, preparing for this looming cyber threat is not merely advisable but indispensable. This article seeks to elevate awareness and catalyze concrete action within the Kingdom's business and government sectors, underscoring that PQC migration represents not just a technical upgrade but a strategic imperative directly impacting long-term business continuity and national security.

Key Findings

Saudi Arabian enterprises are facing an urgent cybersecurity imperative: a swift migration to Post-Quantum Cryptography (PQC). This shift is driven by the imminent threat that future, sufficiently powerful quantum computers pose to existing encryption methods, necessitating proactive measures across all sectors, especially finance, telecommunications, and government.

"Harvest Now, Decrypt Later" Risk: Adversaries are actively engaging in "Harvest Now, Decrypt Later" attacks, collecting currently encrypted sensitive data with the intent of decrypting it years from now using advanced quantum computers. This presents a severe, long-term challenge for any data requiring enduring confidentiality, from financial records to national security intelligence.

Alignment with NIST Standards: To establish robust, quantum-resistant cryptographic infrastructure, adherence to the PQC standards selected by the U.S. National Institute of Standards and Technology (NIST) is paramount. Saudi enterprises are strongly encouraged to actively adopt these international benchmarks, specifically FIPS 203 (CRYSTALS-Kyber) for key encapsulation, FIPS 204 (CRYSTALS-Dilithium) for digital signatures, and FIPS 205 (SPHINCS+) for stateless hash-based signatures, offering a globally recognized pathway to quantum safety.

Prioritization of Key Sectors: Given the criticality of their infrastructure and the extreme sensitivity of their data, financial services, telecommunication providers, and government entities are identified as having the highest priority for PQC migration. Rapid implementation in these foundational sectors is crucial for significantly bolstering national cyber resilience and securing vital services.

Implementation of Crypto-Agility: Recognizing that PQC migration is a complex, multi-stage process with evolving standards, embedding "crypto-agility" into organizational system designs is recommended. This architectural principle allows for flexible adaptation and seamless integration of new cryptographic algorithms as they mature, minimizing disruption and future-proofing IT infrastructure against further changes in the quantum threat landscape.

Strategic Imperative and Investment: By proactively aligning with NIST standards and implementing PQC, Saudi Arabia positions itself to secure its digital economy and maintain competitiveness in the quantum era. This transition, however, will necessitate substantial strategic investments in modernizing existing IT infrastructure and, crucially, in developing specialized human capital equipped with the expertise to navigate the complexities of quantum-safe cryptography.

Source: https://cpifinancial.net/news/entry/21356/post-quantum-cryptography-pqc-the-next-cybersecurity-shift-for-saudi-enterprises

Collected: August 28, 2026 | Automated Research System (Gemini API)

#13 Canada-Japan Quantum Partnership Expands to Accelerate Semiconductor Materials Development and Innovate EUV Lithography

Published August 26, 2026 ChemAnalyst Canada

OVERVIEW

Canada and Japan are jointly funding quantum computing research to enhance semiconductor manufacturing, specifically targeting improvements in Extreme Ultraviolet (EUV) lithography and photoresist material discovery. Xanadu Quantum Technologies and Mitsubishi Chemical are expanding their collaboration to leverage quantum computing and materials science expertise. This partnership aims to develop a production-ready workflow that integrates Xanadu's quantum simulations with Mitsubishi Chemical's modeling systems to reduce lithographic blur and identify superior photoresist materials, potentially establishing a new model for material discovery in the semiconductor industry.

IN DEPTH

Key Findings

Canada and Japan have announced joint funding for quantum computing research aimed at revolutionizing semiconductor manufacturing technology. The partnership specifically targets advancements in Extreme Ultraviolet (EUV) lithography and the discovery of novel photoresist materials, crucial components for next-generation chip production. At the core of this initiative is an expanded collaboration between Xanadu Quantum Technologies and Mitsubishi Chemical.

Technical/Clinical Details

- **Addressing EUV Lithography Challenges:** EUV lithography is vital for fabricating intricate semiconductor circuits, but its performance heavily relies on the optical properties of photoresist materials. Quantum computing offers the potential to simulate these materials' quantum characteristics with higher accuracy, thereby reducing "lithographic blur" and improving resolution.
- **Fusion of Quantum Simulation and Materials Science:** The collaboration integrates Xanadu's expertise in quantum simulation with Mitsubishi Chemical's deep knowledge in materials science. Quantum algorithms will accelerate the design and evaluation of new photoresist materials, aiming to identify high-performance compounds that are challenging to discover using conventional methods.
- **Development of Production-Ready Workflows:** A key objective of this partnership is to establish a "production-ready software pipeline" that can directly incorporate quantum simulation results into the semiconductor manufacturing process. This aims to facilitate the rapid application of laboratory-scale breakthroughs to actual production lines.

Background & Context

The semiconductor industry is approaching the physical limits of Moore's Law and urgently seeks innovative technologies for manufacturing ever-finer circuits. While EUV lithography is the current state-of-the-art, its further evolution necessitates leaps in materials science and simulation techniques. Quantum computing is gaining international attention as a tool capable of bringing fundamental changes to this sector.

Strategic Significance & Outlook

This collaborative research between Canada and Japan is poised to resolve bottlenecks in semiconductor manufacturing and accelerate the development of higher-performance computer chips. The alliance between Xanadu and Mitsubishi Chemical could serve as a model for how quantum computing can deliver concrete commercial value in materials science. In the future, this approach is expected to be applied to material discovery and design in other industrial sectors, fostering widespread technological innovation.

Source: https://www.chemanalyst.com/NewsAndDeals/NewsHome/canada-japan-quantum-partnership-targets-smarter-chip-materials-15494

Collected: August 28, 2026 | Automated Research System (Gemini API)

#14 Microsoft Unveils Majorana 2 Quantum Chip with 1,000x Reliability Improvement, Targeting Scalable QC by 2029

Published August 24, 2026 Onclick Innovations USA

OVERVIEW

Microsoft unveiled its Majorana 2 quantum chip at the Build conference on June 2, 2026, claiming a remarkable 1,000-fold increase in qubit reliability compared to its predecessor, with an ambitious target of a scalable quantum computer by 2029. This topological qubit approach leverages a lead-based superconductor, designed to spread quantum information across the material for natural resistance to interference. The Majorana 2 chip holds potential for transformative applications in drug discovery, materials science, optimization, and cryptography, positioning Microsoft as a key player in the race for fault-tolerant quantum computing.

IN DEPTH

Key Findings

Microsoft announced its groundbreaking Majorana 2 quantum chip at the Build conference on June 2, 2026. This chip reportedly achieves a reliability improvement of approximately 1,000 times over its predecessor, marking a significant stride towards Microsoft's goal of delivering a scalable quantum computer by 2029.

Technical/Clinical Details

- **Majorana Fermions and Topological Qubits:** The Majorana 2 chip is based on the concept of topological qubits, which utilize exotic quasiparticles known as Majorana fermions. Quantum information is stored non-locally, distributed across the qubit, providing inherent resistance to external noise and interference. This approach potentially reduces the need for extensive quantum error correction, enhancing the stability of quantum computations.
- **Lead-Based Superconductor:** The chip employs a lead-based superconductor, leveraging its superconducting properties to ensure qubit stability. The choice of this material is optimized for the physical implementation of topological qubits.
- **1,000x Reliability Enhancement:** The claimed 1,000-fold improvement in qubit reliability addresses one of the most critical challenges in practical quantum computing: error rates. This significant reduction could decrease the physical qubit overhead required to construct stable logical qubits.
- **2029 Scalable Quantum Computer Target:** Microsoft has laid out an ambitious roadmap, aiming to deliver a scalable and fault-tolerant quantum computer within just three years, building upon the advancements demonstrated by the Majorana 2 chip.

Background & Context

In quantum computing, the stability (coherence time) and error rate reduction of qubits are major bottlenecks. Microsoft has long pursued a topological quantum computing approach based on Majorana fermions. This approach differs from other qubit technologies (such as superconducting or trapped-ion qubits) by aiming for hardware-level error tolerance, viewed as a long-term solution for scalability.

Strategic Significance & Outlook

The announcement of the Majorana 2 chip represents a substantial advancement in Microsoft's quantum computing strategy. The improved reliability is expected to accelerate the practical application of quantum computing across diverse fields, including drug discovery, materials science, optimization problems, and advanced cryptography. By setting a concrete target year of 2029, Microsoft is positioning itself as a formidable contender in the race to commercialize fault-tolerant quantum computing.

Source: https://onclickinnovations.com/microsoft-majorana-2-quantum-chip-explained-simply/

Collected: August 28, 2026 | Automated Research System (Gemini API)

#15 NSF Grants $37.5M to Yale and UC San Diego-Led PRACTIQAL Center for Self-Correcting Quantum Computers

Published August 27, 2026 UC San Diego News Center USA

OVERVIEW

The National Science Foundation (NSF) has awarded $37.5 million to a new center, 'NSF PRACTIQAL,' led by Yale University and UC San Diego, aimed at designing practical, self-correcting quantum computers. This initiative addresses critical challenges in qubit error correction to develop reliable, fault-tolerant quantum computing at an industrial scale. The center's research will accelerate the path to real-world applications in fields like materials science and drug discovery, significantly advancing the commercial viability of quantum technology.

IN DEPTH

Key Findings

The U.S. National Science Foundation (NSF) has committed a substantial grant of $37.5 million to establish 'NSF PRACTIQAL' (Practical Quantum Computer Architecture and Logic), a new center co-led by Yale University and the University of California San Diego (UCSD). This funding is dedicated to overcoming fundamental challenges in qubit error correction to design and build practical, self-correcting quantum computers that are robust and scalable.

Technical / Clinical Details

The PRACTIQAL center will integrate expertise from quantum information scientists, computer architects, engineers, and materials scientists to optimize the interface between quantum hardware and software. Key research areas include the development of advanced quantum error correction codes, the design of fault-tolerant architectures, and the construction of experimental platforms to demonstrate these systems. The current high error rates in qubits represent a major hurdle for quantum computing, and the center's goal is to enable quantum computers that can automatically detect and correct errors. This capability is crucial for moving beyond current Noisy Intermediate-Scale Quantum (NISQ) devices to enable more complex and reliable computations.

Background & Context

Quantum computing holds immense promise for solving problems beyond the reach of classical supercomputers, with potential applications in drug discovery, materials science, and complex optimization. However, the inherent fragility of qubits and their susceptibility to errors remain the primary obstacle to practical implementation. The NSF's $37.5 million investment is part of a broader national strategy under the 'National Quantum Initiative Act' to strengthen U.S. leadership in quantum information science and accelerate next-generation technological development. Similar significant investments have been made in other leading research institutions, underscoring the national priority placed on achieving fault-tolerant quantum computing.

Strategic Significance & Outlook

The work undertaken by the NSF PRACTIQAL center is vital for accelerating the commercial deployment of quantum computing. The realization of error-resilient quantum computers could dramatically speed up drug development for pharmaceutical companies and enable materials scientists to design novel materials previously thought impossible. Furthermore, it promises transformative impacts across diverse industries, including financial modeling and logistics optimization. The center's ambitious goal is to lay the groundwork over the next decade for the market introduction of industrial-scale, practical quantum computers.

Source: https://today.ucsd.edu/story/nsf-funds-new-center-to-design-reliable-self-correcting-quantum-computers

Collected: August 28, 2026 | Automated Research System (Gemini API)

#16 Sweden Approves National Quantum Strategy Through 2036, Mandating Post-Quantum Cryptography for Public and Critical Infrastructure by 2030

Published Published August 27, 2026　HPCwire　スウェーデン

OVERVIEW

Sweden has officially launched its comprehensive 'National Quantum Strategy' through 2036, aiming to bolster its global competitiveness by bridging advanced academic research with industrial deployment. A cornerstone of this strategy is the explicit mandate for all public authorities and critical infrastructure operators to transition to post-quantum cryptography (PQC) by 2030, safeguarding national digital assets against future quantum threats. This initiative positions Sweden as a leader in global quantum technology development and cybersecurity readiness.

IN DEPTH

Background

Quantum technology has emerged as a strategic imperative globally, recognized for its profound implications across national security, economic growth, and scientific discovery. Major powers, including the U.S., China, and various European Union nations, are aggressively advancing their own national quantum strategies. This global landscape of both competition and collaboration provides the context for Sweden's latest initiative. A critical driver for these strategies is the rapidly approaching threat that quantum computers pose to existing public-key cryptographic systems, making the transition to post-quantum cryptography (PQC) an urgent global priority for governments, financial institutions, and critical infrastructure operators alike. Sweden's proactive mandate for its public sector and critical infrastructure positions it as a frontrunner in addressing this paramount cybersecurity challenge.

Key Findings

The Swedish Ministry of Education and Research has officially launched its comprehensive 'Swedish National Quantum Strategy' (Sveriges strategi för kvantteknikområdet), a long-term framework extending through 2036. This ambitious strategy aims to significantly bolster the nation's competitiveness in quantum technology and ensure robust national security by effectively bridging the gap between Sweden's world-class academic research institutions and commercial industrial deployment.

A distinctive and forward-looking element of this strategy is the explicit roadmap mandating all public authorities and critical infrastructure operators to transition to post-quantum cryptography (PQC) by 2030. This clear deadline is designed to expedite the national response to the existential threat that future quantum computers pose to current cryptographic systems.

The strategy is built upon five core pillars, designed to foster a holistic and resilient quantum ecosystem:

- **Research and Innovation:** Expanding investment across the spectrum of quantum technology, from fundamental scientific inquiry to applied research, to drive groundbreaking discoveries and practical applications.

- **Talent Development:** Strengthening educational programs and specialized training initiatives to cultivate a highly skilled workforce essential for quantum fields.
- **Ecosystem Coordination:** Enhancing synergistic collaboration among academia, industry, and government agencies to accelerate the development and maturity of the national quantum ecosystem.
- **Quantum Cybersecurity:** Prioritizing the research, development, and widespread adoption of PQC technologies. This pillar specifically addresses the imperative to protect Sweden's national digital infrastructure against the potential for quantum attacks, with the 2030 PQC migration mandate serving as its central policy instrument.
- **International Collaboration:** Forging and strengthening international partnerships in quantum technology to ensure Sweden maintains and enhances its global competitive edge and influence.

This national quantum strategy lays a robust foundation for Sweden to assume a leading role on the global quantum technology frontier. The mandated PQC migration by 2030 is expected to not only significantly enhance national cybersecurity but also generate substantial business opportunities for domestic technology providers. Furthermore, the strategy is poised to accelerate the commercialization of quantum computing and other quantum technologies, supporting long-term economic growth. Through strengthened international collaborations, Sweden's quantum initiatives are set to expand their global reach and impact.

Source: https://thequantuminsider.com/2026/08/27/sweden-launching-official-national-quantum-strategy-to-drive-commercial-scaling-and-security-through-2036/

Collected: August 28, 2026 | Automated Research System (Gemini API)

#17 China's Atom Matrix Secures Hundreds of Millions in Series A+ Funding, Accelerating Neutral Atom Quantum Computer Commercialization

Published Published August 20, 2026 新浪财经 China

OVERVIEW

Hangzhou Atom Matrix Computing Co., Ltd. (Atom Matrix), a prominent Chinese quantum computing firm, has secured hundreds of millions of yuan in Series A+ funding. This substantial investment will drive accelerated hardware development, quantum cloud platform expansion, and talent acquisition for its neutral atom quantum computing solutions. The capital injection is poised to propel the commercialization and broader industrial application of its technology, including the large-scale system first showcased at the 2026 World Artificial Intelligence Conference.

IN DEPTH

Hangzhou Atom Matrix Computing Co., Ltd. (Atom Matrix), a prominent Chinese quantum computing company, has successfully closed a Series A+ funding round, securing hundreds of millions of yuan. This substantial investment is earmarked to accelerate the technological development and market deployment of its large-scale neutral atom quantum computing platform, marking a pivotal advancement in China's drive towards quantum computing commercialization.

Strategic Investment and Development Pillars

Atom Matrix plans to strategically deploy the newly acquired funds across three core areas:

- **Hardware Technology Iteration:** Focusing on enhancing the performance and scaling capabilities of its proprietary neutral atom quantum computers. The company notably debuted its large-scale neutral atom quantum computer at the 2026 World Artificial Intelligence Conference, underscoring its ambition in hardware innovation.
- **Quantum Cloud Platform Development:** Building out a robust cloud service to provide accessible quantum computing resources, fostering the development and application of quantum algorithms across diverse industries.
- **Talent Cultivation and Team Expansion:** Expanding its team of quantum computing experts to strengthen its capacity for technological innovation and commercialization efforts.

Technical Deep Dive: Neutral Atom Advantage

Atom Matrix specializes in full-stack solutions for neutral atom quantum computing, utilizing high-precision laser technology to manipulate neutral atoms as qubits. This approach offers significant potential for scaling qubit counts relatively easily and is widely considered one of the most promising avenues for realizing large-scale quantum computers. With this funding, the company aims to expand its processor production capacity and cultivate an ecosystem where research institutions and businesses can more readily leverage quantum computing, thereby contributing to the realization of quantum advantage across various industries.

Market Context and National Strategy

Globally, various quantum computing paradigms—including superconducting, ion trap, and neutral atom—are actively vying for dominance, each presenting unique strengths and challenges. The neutral atom approach, in particular, has begun to demonstrate compelling advantages in qubit coherence times and connectivity, garnering significant attention as a promising pathway to fault-tolerant quantum computers. The Chinese government has designated quantum technology as a cornerstone of its national strategy, investing heavily in research and development. This substantial funding for Atom Matrix directly aligns with this national imperative, further bolstering the entire quantum technology ecosystem in China.

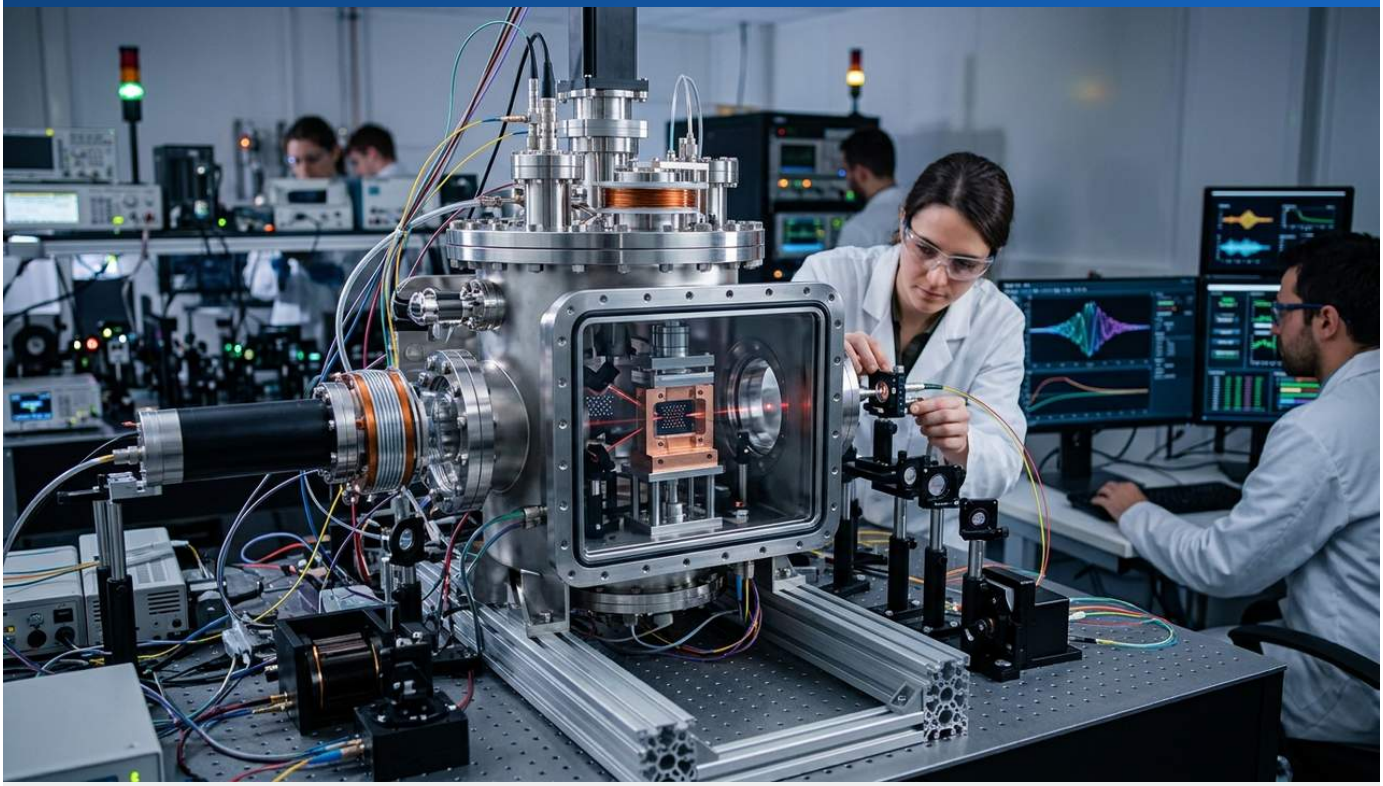
Future Outlook and Global Ambitions

Leveraging this substantial funding, Atom Matrix intends to accelerate the performance improvement and commercialization of its quantum computers, targeting complex problem-solving applications in sectors such as finance, pharmaceuticals, and new materials development. The expansion of its quantum cloud platform will be crucial in addressing diverse industrial needs, promising concrete progress towards the practical application of quantum computing. The company also aims to enhance its global presence through strategic international partnerships, thereby intensifying its participation in the global quantum technology race.

Source: https://vertexaisearch.cloud.google.com/grounding-api-redirect/AUZIYQFf5wX6sSjUUdlb2KIzoVMWkWO3w3tzNRHH6F2wSzp8wPmP7XPM-hZdQQmW_qAyszzyhyK05Wrpgz5NFMKrviwi5O8FIdkEFCB1bDn0SDpOW_SSsxItl9qmtndVF1kxoM8BTFraeJ06Vjh

#18 France's Pasqal Demonstrates World-First Quantum Computing with Light-Trapped Atoms from a Single Chip

Published August 20, 2026 Media24.fr France



OVERVIEW

French quantum computing company Pasqal has achieved a world first by demonstrating a new quantum computing technique that traps atoms using light emitted from a single chip. This breakthrough is expected to significantly accelerate the scalability and commercialization of its neutral atom quantum computers. The technology is crucial for enhancing qubit density and control precision, solidifying Pasqal's leadership in practical quantum computer development.

IN DEPTH

French quantum computing startup Pasqal announced a world-first demonstration of trapping and manipulating atoms as qubits using light emitted from a single integrated chip. This innovative approach represents a significant breakthrough in neutral atom quantum computer architecture, drastically enhancing the feasibility of future large-scale quantum processors.

Key Achievements and Technical Details

The new technology demonstrated by Pasqal dramatically simplifies and miniaturizes the trapping and control of neutral atoms—which serve as qubits—compared to traditional optical setups. Chip-scale optical trapping enables the formation of much higher-density atomic arrays, a critical component for building systems with thousands to tens of thousands of qubits. This advancement improves the ability to individually control atoms with high fidelity, contributing to a reduction in error rates for quantum calculations. This technology will be a crucial milestone, particularly for the realization of fault-tolerant quantum computing.

Background and Industry Context

Neutral atom quantum computing has garnered attention for its potential to combine long coherence times with high connectivity, distinguishing it from other leading qubit modalities like superconducting and ion trap systems. Pasqal, a pioneer in this field, is already developing systems with hundreds of qubits. This chip-based optical trapping technology overcomes the scalability and stability challenges inherent in conventional bulk optical systems, paving the way for miniaturization and mass production of quantum hardware. France is emerging as a central hub for the quantum ecosystem in Europe, with Pasqal and other influential quantum technology companies such as Alice & Bob, Quandela, Quobly, and C12.

Future Outlook

This world-first technical demonstration provides a powerful impetus for Pasqal to accelerate the commercialization of its neutral atom quantum computers. The realization of high-density qubit arrays at the chip scale will enable applications to more complex optimization and simulation problems, accelerating their practical use in diverse industrial sectors such as pharmaceuticals, materials science, and finance. Pasqal aims to integrate this technology into its next-generation processors and establish global leadership in the market. Furthermore, this technology also holds the potential to contribute to the development of quantum networks and serve as a foundational technology for the quantum internet.

Source: https://media24.fr/2026/08/20/premiere-mondiale-francaise-qui-va-ouvrir-une-porte-vers-linformatique-quantique-de-demain-grace-a-ces-atomes-pieges-par-la-lumiere-dune-simple-puce/

Collected: August 28, 2026 | Automated Research System (Gemini API)

#19 South Korea's 2026 Autumn Quantum Tech Conferences Focus on Post-Quantum Cryptography Migration Roadmaps and Standardization

Published August 22, 2026 코스미안뉴스 South Korea

OVERVIEW

Three major quantum technology conferences in South Korea this autumn are emphasizing critical messages for the commercialization of quantum technologies. The "2026 Post-Quantum Cryptography Forum" on September 14th will move beyond mere algorithm comparison to focus on PQC migration roadmaps, international standard application priorities, and government-industry collaboration models. This indicates that operational and policy preparations are as vital as technical maturity for the successful societal implementation of quantum technology.

IN DEPTH

A series of three major quantum technology conferences set to take place in South Korea this autumn strongly reflect international trends towards the commercialization and societal implementation of quantum technology. These events are disseminating a message emphasizing not only technical breakthroughs but also the critical importance of strategies, policies, and standardization for deploying these technologies into real-world applications.

Key Discussions and the "2026 Post-Quantum Cryptography Forum"

Among the conferences, particular attention is drawn to the "2026 Post-Quantum Cryptography Forum (PQC Forum)" scheduled for September 14th. This forum will focus on Post-Quantum Cryptography (PQC), the next-generation encryption technology designed to counter the threats posed by quantum computers. Discussions will extend beyond the technical evaluation and comparison of individual PQC algorithms to address broader challenges and solutions for practical implementation. Specifically, the following points are highlighted as key agenda items:

- **Development of Migration Roadmaps:** Plans for a secure and efficient transition from current cryptographic systems to PQC.
- **Standard Application Priorities:** Prioritization of which sectors and systems should adopt PQC standards first.
- **Government-Industry Collaboration Models:** Strategic national-level cooperation and partnerships with private companies for PQC implementation.

Background and Industry Context

The advancement of quantum computers harbors the potential to break current public-key cryptosystems, raising concerns about severe security risks across all sectors including national security, finance, and personal data protection. In response to this "quantum threat," the research, development, and standardization of PQC are accelerating internationally. PQC standardization processes, led by bodies like the U.S. National Institute of Standards and Technology (NIST), are in their final stages, and governments and corporations worldwide are treating migration to these new standards as an urgent priority. There is a growing recognition that not only technical readiness but also legal frameworks, policy support, talent development, and international cooperation are indispensable.

Future Outlook

The discussions at these conferences, particularly the PQC Forum, will significantly influence South Korea's and the world's quantum technology commercialization strategies. They mark a shift from a mere technological development race to a phase focused on how to safely and practically integrate quantum technology as societal infrastructure. This is expected to enable relevant companies to clarify directions for developing specific PQC products and services, and governments to accelerate the establishment of necessary policy support and regulatory environments. International cooperation will further promote the formation of a global PQC ecosystem.

Source: https://www.cosmiannews.com/news/497920

#20 South Korea's "Quantum Reframing Challenge 2026" Achieves Catalyst Optimization with Quantum Computers

Published Published August 26, 2026 科学技術情報通信部, 電子신문 South Korea

OVERVIEW

South Korea's Ministry of Science and ICT recently hosted the 'Quantum Reframing Challenge 2026,' a landmark initiative showcasing quantum computing's potential to tackle complex industrial and public sector problems. Teams successfully redefined and solved real-world issues, notably improving chemical catalyst efficiency, utilizing cutting-edge quantum processors from IonQ, Pasqal, and Quandela. This program is accelerating the practical application of quantum technologies by bridging the gap between intractable classical problems and quantum solutions, fostering a robust quantum ecosystem.

IN DEPTH

Bridging Classical Gaps with Quantum Reframing

The South Korean Ministry of Science and ICT (MSIT) recently concluded its 'Quantum Reframing Challenge 2026,' an ambitious initiative designed to demonstrate and accelerate the practical application of quantum computing across industrial and public sectors. The challenge tasked participating teams with a crucial first step: redefining complex, real-world problems to fit within the unique paradigms of quantum computing. Following this 'reframing,' teams then implemented and rigorously verified their proposed solutions on actual quantum processors provided by leading global quantum companies, including IonQ, Pasqal, and Quandela.

Catalyst Optimization Highlights Practical Quantum Impact

A standout success from the challenge was the compelling validation of quantum computing's efficacy in a critical industrial application: enhancing catalyst efficiency within the chemical industry. Teams addressed a spectrum of challenges, ranging from computational science simulations to complex combinatorial optimization problems. Their work underscored the profound potential for quantum algorithms to efficiently process problems that remain intractable for conventional classical computers due to their prohibitive computational resource demands. The top five performing teams were recognized with awards totaling 20 million KRW (approximately 20,000 USD), alongside invaluable opportunities for collaboration with global quantum technology leaders, paving the way for further industrial integration of their research.

Diverse Quantum Architectures Tackling Intractable Problems

At its core, the 'Quantum Reframing Challenge 2026' aimed to push the boundaries of problem-solving by leveraging quantum computing's intrinsic properties, such as superposition and entanglement, to address issues conventionally considered impractical for classical computation due to resource constraints. A key aspect of the challenge involved participants implementing their solutions across a diverse array of state-of-the-art quantum computing environments:

- **IonQ:** Ion trap quantum computers, known for their high connectivity and fidelity.
- **Pasqal:** Neutral atom quantum computers, recognized for scalability and long coherence times.

- **Quandela:** Photonic quantum computers, offering a path to room-temperature operation and ultrafast processing.

This multi-platform approach provided critical practical insights into how the distinct characteristics of each quantum computing paradigm might be optimally matched to specific industrial challenges. Beyond catalyst optimization, targeted problems included molecular structure optimization in advanced chemical simulations and complex combinatorial optimization scenarios in logistics and supply chain management, underscoring the broad business value inherent in quantum computing's raw computational power.

Strategic Imperative: Catalyzing a Quantum Ecosystem

Globally, quantum computing technology is advancing at an unprecedented pace, and the South Korean government has strategically identified this field as a cornerstone of its national innovation agenda, actively providing significant support. The 'Quantum Reframing Challenge' serves as a critical conduit, bridging the gap between foundational quantum research and tangible industrial applications. The 'reframing' process itself—reconceptualizing existing industry "hard problems" through a quantum lens—is paramount for truly identifying and unlocking the value proposition of quantum technology, thereby accelerating its mainstream adoption. Such collaborative public-private-academic initiatives are instrumental in fostering the maturation of the entire quantum technology ecosystem and are pivotal in shaping the nascent global quantum computing market.

Path Forward: Accelerating Industrial Quantum Adoption

The tangible results and profound insights garnered from the 'Quantum Reframing Challenge 2026' are poised to significantly accelerate the industrialization of quantum technology throughout South Korea. The demonstrable success in specific industrial applications is expected to act as a powerful catalyst, encouraging more enterprises to invest in quantum technologies and stimulating the creation of novel quantum applications. Looking ahead, MSIT has committed to continuously hosting similar challenges. This sustained effort aims to progressively broaden the scope of quantum technology applications and solidify South Korea's competitive standing in the rapidly evolving global quantum computing landscape.

Source: https://www.korea.kr/briefing/pressReleaseView.do?newsId=156775513

#21 French Quantum Computing Firm Pasqal Lists on Nasdaq, Raises $360M with Stock Surging 60%

Published August 28, 2026 Boursorama France

OVERVIEW

French quantum computing company Pasqal has listed on Nasdaq via a merger with the SPAC Bleichroeder Acquisition Corp II, announcing new funding of approximately $360 million. Its stock price surged around 60% on its debut day, signaling strong market confidence. This capital will fund production expansion, processor deployment, and R&D for fault-tolerant quantum computing, accelerating Pasqal's global expansion and commercial adoption of its neutral atom quantum technology.

IN DEPTH

Pasqal, a leading French quantum computing company, has made its debut on the Nasdaq exchange, attracting significant market attention. The company completed its listing through a merger with the Special Purpose Acquisition Company (SPAC) Bleichroeder Acquisition Corp II, securing approximately $360 million in new capital. On its first day of trading, Pasqal's stock price soared by approximately 60%, vividly demonstrating strong investor confidence in quantum computing technology and Pasqal's future prospects.

Key Achievements and Funding Utilization

This substantial $360 million funding round is of paramount importance to Pasqal's business development. The capital is slated for investment in the following strategic areas:

- **Expansion of Production Capacity:** Scaling up the manufacturing of neutral atom quantum processors to accelerate market entry.
- **Processor Deployment:** Strengthening infrastructure deployment to ensure more customers and partners can access Pasqal's quantum computing resources.
- **Research and Development for Fault-Tolerant Quantum Computing:** Advancing fundamental research and development towards more robust and practical quantum computers, including quantum error correction technologies.
- **Acceleration of Global Expansion and Commercial Adoption:** Building on an existing partnership with Microsoft, Pasqal aims to enter new markets and expand its customer base.

Technical and Business Details

Pasqal has developed proprietary technology that uses laser-cooled neutral atoms as qubits, enabling the creation of quantum processors with high connectivity and scalability. This approach offers the advantage of relatively easy scaling of qubit numbers compared to other mainstream technologies like superconducting and ion traps. This funding and listing mark a crucial transition for Pasqal from the basic research phase to industrial-scale deployment. The company is already exploring the applicability of quantum computing in various sectors, including energy, defense, and finance, and this capital will accelerate these efforts, aiming for early commercial success.

Background and Industry Context

The global quantum computing market is expanding rapidly, with increasing investment from government agencies and major corporations. Listing on Nasdaq provides Pasqal with access to a global investor base and significantly boosts its brand recognition in the worldwide quantum technology race. In Europe, the French government is vigorously promoting quantum technology as a cornerstone of its national strategy, with Pasqal positioned as a prime success story. This IPO will serve as an important model for other European deep tech startups seeking to raise capital and strengthen their competitiveness in the global market.

Future Outlook

Pasqal will leverage the substantial $360 million to accelerate the development of next-generation quantum computers and enhance the delivery of quantum solutions to industries. Its focus on fault-tolerant quantum computing reflects a long-term vision for achieving practical quantum computers and is essential for establishing the company's leadership in the future quantum computing market. This success is expected to stimulate other quantum startups, further invigorating investment and innovation across the entire quantum technology sector.

Source: https://vertexaisearch.cloud.google.com/grounding-api-redirect/AUZIYQHsF-OZEeSr9CiZ0xV8kqLvGcRBEyVaguH65MRvdiBtesjWwgn9iVrrCarLUksH3lC8Vl22Ikuf2w3ZILjA3aF76deM5tJqtvXsGwF7JjC1q_OjdLHbhHX7KWUIWPiSNdZCwOvW_84KFrh_YU_FjXj6xxvxab9txviFLpHbnA0S5PTHffFKITsZTp85S0VMc

#22 Samsung Active Asset Management Launches "KoAct Global Quantum Computing Active" Fund, Investing in Leading Global Quantum Firms

Published Published August 28, 2026　삼성액티브자산운용 (サムスンアクティブ資産運用)　South Korea

OVERVIEW

Samsung Active Asset Management has introduced the "KoAct Global Quantum Computing Active" fund, an actively managed vehicle poised to invest in leading global companies advancing quantum computing technologies. By targeting diverse architectures—from superconducting qubits to ion traps—and rapidly capitalizing on new market entrants, the fund aims to provide strategic access to the nascent yet rapidly expanding quantum sector, including current holdings like D-Wave Quantum Inc. and Rigetti Computing Inc. This initiative underscores Samsung's commitment to fostering the next generation of computational innovation.

IN DEPTH

Background: Fueling the Quantum Revolution

Samsung Active Asset Management has unveiled "KoAct Global Quantum Computing Active," a new actively managed investment fund designed to channel capital into the burgeoning quantum computing sector. Positioned to support future technological breakthroughs, the fund offers investors a strategic entry point into the global ecosystem of pioneering quantum firms, a field poised to drive transformative innovation across numerous industries.

Investment Strategy: Navigating the Quantum Landscape

The "KoAct Global Quantum Computing Active" fund employs a comprehensive strategy to identify and invest in companies at the forefront of quantum innovation. Its core tenets include:

- **Global Leadership Focus:** The fund prioritizes companies demonstrating leadership across the entire quantum computing stack—encompassing hardware, software, services, and enabling technologies—on a global scale.
- **Technological Breadth:** A key differentiator is its commitment to technological diversity. The portfolio will encompass firms specializing in a wide array of quantum computing architectures, including superconducting qubits, quantum annealing, ion traps, neutral atoms, and photonic quantum computing, ensuring broad exposure to the evolving technological landscape.
- **Strategic Holdings:** Initial key investments reflect this strategy, featuring D-Wave Quantum Inc., a pioneer in quantum annealing systems, and Rigetti Computing Inc., recognized for its advancements in superconducting quantum chip development.
- **Agile Market Response:** As an actively managed fund, it is equipped to swiftly respond to new market opportunities, particularly Initial Public Offerings (IPOs) and other listings within the quantum technology domain, enabling investment in early-stage, high-growth potential companies.

Industry Context: The Promise and the Challenge

Quantum computing represents a paradigm shift in computational power, holding the potential to revolutionize sectors from pharmaceuticals and advanced materials to finance, logistics, and artificial intelligence. Governments and major technology corporations worldwide are making substantial investments, accelerating both fundamental research and the commercialization pathway for quantum technologies. However, the inherent complexity of the quantum sector, coupled with the specialized knowledge required to evaluate individual companies, presents a significant barrier for general investors. The KoAct fund aims to democratize access to this complex market by curating a meticulously selected portfolio managed by expert asset managers.

Future Outlook and Samsung's Vision

While quantum computing remains in its nascent stages, substantial progress in research and development is steadily paving the way for practical applications and transformative breakthroughs in the coming years. The "KoAct Global Quantum Computing Active" fund is structured to capture this long-term growth potential, with a defined trading cut-off date of August 28, 2026, aiming for sustained appreciation amidst market dynamics. Through this strategic investment vehicle, Samsung Active Asset Management not only seeks to provide investors with exposure to future technological innovation but also aims to significantly contribute to the development of the global quantum computing ecosystem, solidifying South Korea's role in leading next-generation technological investments.

Source: https://www.samsungactive.co.kr/etf/view.do?id=2ETFQ5

#23 RIKEN Q-Portal to Showcase Quantum Computing's Next-Generation Industry Potential at JASIS2026

Published Published August 28, 2026　理化学研究所 (RIKEN)　Japan

OVERVIEW

RIKEN's Q-Portal will participate in JASIS2026, one of Asia's largest scientific exhibitions, to showcase the transformative industrial potential of quantum computing. The RIKEN Quantum Computer Research Center (RQC), a cornerstone of Japan's quantum strategy, will highlight its latest research, including collaborations on large-scale quantum algorithms and advancements in integrated control circuits, underscoring its pivotal role in developing next-generation industries.

IN DEPTH

Background

RIKEN's 'Q-Portal' has formally confirmed its participation in JASIS2026, recognized as one of Asia's premier comprehensive exhibitions for scientific and analytical instrumentation. The RIKEN Quantum Computer Research Center (RQC) plans to utilize this international platform to extensively demonstrate quantum computing technology's groundbreaking potential to catalyze the creation of next-generation industries for both attendees and the broader industrial sector. As a cornerstone institution within Japan's national quantum technology strategy, RQC has proactively reinforced its collaborative ties with both domestic and international research organizations and industrial entities since its inception. Notably, RQC has previously undertaken joint research initiatives, including a partnership with Toshiba Digital Solutions and quantum software developer Classiq, which focused on the automated generation of large-scale quantum algorithms. Moreover, RQC researchers have published seminal findings concerning the development of large-scale integrated quantum computer control circuits. These circuits are critical for enabling the stable operation of multi-qubit systems, significantly enhancing the reliability and scalability of quantum hardware. Participation in high-profile events such as JASIS2026 represents a crucial avenue for disseminating these cutting-edge research outcomes to the broader society and cultivating new business opportunities.

Key Initiatives and Future Vision

RQC's exhibit will feature its latest quantum computing research findings and articulate its strategic vision for how these innovations will forge new industrial sectors and transform existing ones. Expected topics for the exhibition encompass a broad spectrum, ranging from the foundational operating principles of quantum computers to advanced research achievements in application domains such as pharmaceuticals, novel materials development, financial optimization, and artificial intelligence (AI). RQC is aggressively pursuing hardware development for quantum computers, pioneering software algorithms, and fostering robust collaborations with industry partners to accelerate the societal implementation of quantum technology. Through its presence at JASIS2026, RQC endeavors to further solidify its contributions to Japan's burgeoning quantum technology ecosystem and forge robust international collaborative relationships. While quantum computing remains an evolving technological frontier, its potential for transformative impact is profound. RQC is committed to accelerating the practical application of quantum computers and bolstering Japan's industrial competitiveness by systematically advancing efforts across basic research, applied research, and technology transfer to industry. This exhibition is poised to serve as a significant catalyst, prompting both the general public and industrial sectors to cultivate a deeper understanding of quantum computing's immense potential and to actively explore its adoption.

Source: https://q-portal.riken.jp/