The State of Quantum in America — 2026

Executive Summary, Market Review, Workforce Assessment, and Data Exhibits

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Scope note: This report summarizes U.S. quantum computing, quantum communications, quantum sensing, post-quantum cryptography, research, education, workforce, funding, patents, and market signals as of July 22 2026. Company revenues are taken from public company releases where available. Private-company revenues and U.S. market splits are explicitly labeled as modeled estimates because private companies and market-research firms do not publish fully comparable audited figures.

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Change History

Change Number	*Change Date*	*Change*	*Reason*
0	2026 0512	Initial Version	Initial Version
1	2026 0512	Added Attachments 1 and 2	Show Top 10 Companies in Quantum and Top 10 Countries inQuantum
1.1	2026 0512	Revised content.	Revised for publication.
1.2	2026 0722	Aded U.S. Government Information	Bting this report current as of July 2026.

Executive Summary

- The United States remains one of the leading global quantum ecosystems in 2026, with strength across superconducting, trapped-ion, neutral-atom, photonic, annealing, and quantum-sensing modalities. The U.S. advantage is not a single machine or company; it is a dense stack of federal laboratories, universities, cloud platforms, venture-backed startups, defense and aerospace programs, standards bodies, and large technology firms. The field is moving from basic research into early commercial deployments, especially in quantum cloud access, error-correction research, quantum networking, quantum sensing, and post-quantum cryptography (PQC).
- The dominant near-term business opportunity is not yet universal fault-tolerant quantum computing. In 2026, commercial traction is strongest in hybrid quantum-classical workflows, cloud access, government-funded R&D, quantum-safe cybersecurity, timing/navigation/sensing, and infrastructure components. Revenue is still small relative to AI, cloud, and semiconductor markets, but the sector is showing stronger bookings, greater strategic investment, and more board-level urgency driven by Harvest Now, Decrypt Later risk and national-security competition.
- Quantum hardware in 2026 is advancing across superconducting, trapped-ion, neutral-atom, photonic, silicon-spin, and annealing architectures. The market has shifted from raw qubit counts to logical-qubit roadmaps, error correction, fidelity, connectivity, calibration automation, manufacturability, and credible paths to fault tolerance.
- Quantum software is moving into hybrid workflows: circuit compilation, error mitigation, quantum control, resource estimation, cloud orchestration, AI-assisted discovery, and domain-specific libraries for chemistry, optimization, finance, logistics, and materials.
- PQC is the most immediately actionable quantum risk for CISOs. NIST finalized FIPS 203, FIPS 204, and FIPS 205 in 2024; by 2026, large organizations are expected to maintain crypto inventories, CBOMs, migration runbooks, hybrid TLS/PKI plans, and continuous testing.
- Quantum sensing is commercially nearer than universal fault-tolerant quantum computing. Atomic clocks, quantum magnetometers, gravimeters, inertial sensors, RF sensors, and quantum microscopes have near-term defense, navigation, semiconductor, medical, energy, and infrastructure applications.
- The U.S. workforce challenge is broadening. The bottleneck is no longer only Ph.D.-level quantum physicists; it includes cryogenic technicians, photonics engineers, RF engineers, device-fabrication specialists, quantum software engineers, cybersecurity/PQC architects, product managers, and application specialists.
- The National Quantum Initiative Reauthorization Act of 2026 (NQIRA), as advanced through congressional committees in 2026, would extend and broaden the 2018 NQI framework. Its likely positive impacts include stronger federal coordination, expanded NSF and NIST centers, more testbeds, NASA inclusion for sensing and satellite communications, and better workforce pathways. Risks include congressional appropriations uncertainty, administrative overhead, possible diffusion of funds across too many centers, and continuing gaps between research milestones and commercial deliverables.

Key Findings at a Glance

- Hardware: U.S. development is multi-platform. IBM, Google, Rigetti, Quantinuum, IonQ, QuEra, Infleqtion, PsiQuantum, D-Wave, and others are advancing different architectures rather than converging on one dominant design.
- Software: Qiskit, Cirq, CUDA-Q, Azure Quantum, Amazon Braket, PennyLane, Classiq, Zapata-style workflow approaches, and error-mitigation/error-correction stacks continue to mature.

- Algorithms: Most value-seeking work remains hybrid and domain-specific: chemistry, optimization, simulation, linear algebra subroutines, quantum machine learning experiments, and error-corrected algorithms for future machines.
- PQC: The U.S. is shifting from standards finalization to enterprise migration, inventory, crypto-agility, procurement, validation, and long-horizon replacement of RSA/ECC in federal and critical infrastructure systems.
- Market: Global quantum technology revenue reached roughly $1.9B in 2025, with quantum computing around $1.4B by one public market estimate; U.S. share is substantial but not reported as a single official statistic.
- Workforce: U.S. talent demand spans physicists, electrical engineers, RF/cryogenic engineers, software developers, PQC architects, systems engineers, technicians, product leaders, and technical sales roles.

1. U.S. Government Leadership and Influence

1.1 Executive Order 14412 - Securing the Nation Against Advanced Cryptographic Attacks

EO 14412 accelerates federal migration to post-quantum cryptography. It directs OMB and the National Cyber Director to lead execution, requires agency migration leadership, prioritizes High Value Assets and high-impact systems, calls for implementation guidance from Commerce, NSA and DHS, and establishes priority-system targets of December 31, 2030 for quantum-resistant key establishment and December 31, 2031 for digital signatures. It also uses acquisition policy, pilot programs and international engagement to influence contractors, critical infrastructure and allies.
Official source: https://www.whitehouse.gov/presidential-actions/2026/06/securing-the-nation-against-advanced-cryptographic-attacks/ .

1.2 Executive Order 14413 - Ushering in the Next Frontier of Quantum Innovation

EO 14413 establishes a whole-of-government approach to quantum innovation. It calls for an updated ***National Quantum Strategy***, commercialization and deployment, support for enabling technologies and domestic supply chains, public-private partnerships, workforce development, allied cooperation and strategic federal procurement.
Official source: https://www.whitehouse.gov/presidential-actions/2026/06/ushering-in-the-next-frontier-of-quantum-innovation/ .

1.3 Department of War Post-Quantum Cryptography Strategy

The Department of War PQC Strategy frames migration as a mission-assurance requirement. It emphasizes inventory, governance, acquisition, testing, interoperability, crypto-agility, workforce, supply-chain coordination and resilient warfighter communications across enterprise, embedded and long-lived systems.
Official source: https://dowcio.war.gov/Portals/0/Documents/Library/DoW-PQC-Strategy.pdf ,

1.4 OMB Memorandum M-26-15

OMB M-26-15, published June 24, 2026, operationalizes EO 14412 for civilian executive agencies. It requires agency migration plans within 120 days, automated cryptographic inventories, risk-based prioritization, integration with zero-trust and enterprise architecture, procurement and vendor coordination, resource estimates and phased modernization through 2035.
Official source index: https://www.whitehouse.gov/omb/information-resources/guidance/memoranda/

1.5 National Quantum Initiative Reauthorization Act of 2026

As of July 18, 2026, House and Senate versions had advanced through committee. The legislation would renew and expand federal programs, research centers, workforce initiatives, testbeds, standards, supply-chain programs and commercialization pathways. Committee passage is not enactment.
House: https://science.house.gov/2026/4/h-r-8462-national-quantum-intiative-reauthorization-act
Senate: https://www.commerce.senate.gov/press/dem/release/led-by-cantwell-and-young-national-quantum-initiative-reauthorization-act-unanimously-passes-commerce-committee-on-world-quantum-day/ .

2. Hardware Development Updates

U.S.-linked quantum hardware development is diversified across several modalities. Superconducting platforms remain central to IBM, Google, Rigetti, and several academic/national-lab programs; trapped-ion systems remain central to IonQ and Quantinuum; neutral-atom systems have attracted strong U.S. investment through QuEra and related ecosystem players; photonic approaches remain central to PsiQuantum and Xanadu-style architectures; silicon-spin and semiconductor-compatible qubits continue to draw attention because manufacturability may become decisive at scale.

The 2026 hardware frontier is defined by five engineering objectives: logical-qubit formation, error-correction overhead reduction, better two-qubit gate fidelity, stable control electronics, and fabrication repeatability. A credible quantum roadmap now requires not just a qubit number but a system-level plan for cryogenics, lasers or microwave control, interconnects, control software, calibration automation, packaging, and serviceability.

Superconducting

IBM, Google, Rigetti and academic programs continue improving fidelity, packaging, cryogenic control and error correction. Roadmaps emphasize logical qubits and modular systems.

Trapped ions

IonQ and Quantinuum benefit from high-fidelity gates and flexible connectivity. Scaling priorities include optical control, integrated photonics, modular networking and faster operations.

Neutral atoms

QuEra, Atom Computing, Infleqtion and universities are advancing large atomic arrays, analog simulation and digital gates.

Photonics

PsiQuantum and others pursue semiconductor manufacturability and optical interconnects; sources, detectors and fault-tolerance resource requirements remain central challenges.

Silicon spin

Intel and university programs pursue semiconductor-compatible fabrication, uniformity, yield and cryogenic control.

Annealing and analog

D-Wave and analog simulators continue serving optimization, sampling and scientific research niches.

Enabling technologies

Cryogenics, lasers, vacuum systems, microwave electronics, photonics, packaging and control systems are strategic markets in their own right.

Key U.S. status: the United States has strong platform diversity and commercial access, but supply-chain control remains a strategic issue: dilution refrigerators, lasers, photonics components, ultra-low-noise electronics, semiconductor fabrication, cryogenic cabling, and specialized materials are all part of the strategic industrial base.

3. Software Development Updates

Quantum software is maturing around hybrid execution rather than stand-alone quantum replacement of classical computing. The main software domains are quantum SDKs, compilers/transpilers, error mitigation, pulse-level control, resource estimation, cloud scheduling, benchmarking, algorithm libraries, and domain-specific applications.

U.S. cloud and software ecosystems remain highly visible through Amazon Braket, Microsoft Azure Quantum, IBM Quantum, Google Quantum AI tooling, NVIDIA CUDA-Q, IonQ cloud access, Quantinuum software, Q-CTRL control software, and open-source ecosystems such as Qiskit, Cirq, PennyLane, and Braket SDK. The practical trend is toward hardware-aware compilers, better noise models, automated calibration loops, and workflow integration with classical HPC and AI.

In Summary

- Cloud platforms expose multiple hardware modalities through common access layers.
- Compilers are becoming more hardware-aware while intermediate representations reduce lock-in.
- Resource estimation is central to separating plausible fault-tolerant applications from unrealistic demonstrations.
- Error mitigation, circuit cutting, dynamic circuits and workload partitioning improve experimentation.
- Enterprise software increasingly integrates chemistry, optimization, machine learning, cybersecurity and scientific-computing workflows.
- Verification and benchmarking are improving, but no single benchmark fairly compares all modalities.

4. Algorithm Updates

The most important 2026 algorithm trend is realism. Research continues on Shor, Grover, quantum simulation, QAOA, VQE, HHL-style linear algebra, quantum machine learning, and amplitude-estimation variants, but implementation is now tightly coupled to resource estimation and error-correction assumptions.

Near-term algorithms are concentrated in chemistry, materials, optimization, quantum dynamics, Monte Carlo acceleration, and cryptanalysis resource estimation. Enterprise value depends on whether the quantum subroutine can beat classical heuristics, GPUs, AI accelerators, and problem-specific optimizers after total system cost and error-correction overhead are included.

5. Quantum in Research

U.S. research remains anchored by universities, national laboratories, NSF Quantum Leap Challenge Institutes, DOE National Quantum Information Science Research Centers, NIST metrology and standards programs, DARPA benchmarking and transition programs, and industry research labs. Research emphasis has expanded from proof-of-principle demonstrations to system integration, testbeds, benchmarking, quantum networking, quantum transduction, materials, quantum control, and workforce development.

National-lab and university consortia remain critical because quantum systems require expensive infrastructure, multi-disciplinary teams, and long-cycle engineering. The most productive U.S. research ecosystems are those that combine device physics, engineering, algorithms, software, application-domain expertise, and transition pathways to industry.

6. Education: K-12, College, Graduate School, Post-Graduate

Education Level	2026 Priority
K-12	Early exposure to quantum concepts, probability, waves, measurement, coding, cybersecurity, and STEM identity-building. Best delivered through age-appropriate modules rather than full quantum mechanics.
Community college / technical	Cryogenic technician, photonics technician, RF technician, lab operations, semiconductor process support, cybersecurity/PQC analyst, and quantum-aware IT roles.
Undergraduate	Quantum information science minors, physics/EE/CS pathways, software development, mathematics, device fabrication, and application-domain tracks.
Graduate school	Deep specialization in quantum hardware, algorithms, quantum error correction, sensing, materials, communications, and cryptography.
Post-graduate / professional	Executive education, CISO PQC migration training, product management, standards, export controls, and continuing education for classical engineers entering quantum.

7. Post-Quantum Cryptography (PQC)

PQC is the most urgent near-term quantum-security action area because harvest-now/decrypt-later risk already exists. Organizations with long-lived confidential data need crypto discovery, data-lifetime analysis, vendor coordination, CBOM/SBOM integration, hybrid cryptography architecture, test environments, and formal migration governance.

NIST finalized FIPS 203, FIPS 204, and FIPS 205 in August 2024. In practice, U.S. enterprises in 2026 should treat PQC as a multi-year migration program, not a patch cycle. The highest-priority areas are external TLS, PKI/certificates, VPNs, code signing, identity infrastructure, device firmware signing, key management, high-value databases, long-term archives, and regulated data flows.

PQC migration operating model

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Inventory	Discover cryptography in applications, endpoints, servers, network devices, IoT/OT, cloud, APIs, databases, and certificates.
CBOM	Maintain cryptographic bills of materials linked to asset inventory, software ownership, vendor dependencies, and remediation status.
Risk ranking	Prioritize long-lived sensitive data, externally exposed services, brittle embedded systems, and systems with certificate or firmware constraints.
Hybrid architecture	Use hybrid classical/PQC where policy, interoperability, and vendor readiness require staged transition.
Testing	Continuously test performance, handshake size, certificate chains, interoperability, rollback, monitoring, and break-glass procedures.

8. Quantum in Industry

Industry activity is strongest in cloud access, national security, cybersecurity, chemicals/materials, pharma, finance, logistics, telecom, semiconductors, and advanced manufacturing. The commercial reality is uneven: quantum computing revenues are growing quickly from a small base, while most firms remain unprofitable and dependent on patient capital. Quantum sensing, timing, and security-related products have clearer near-term paths to production revenue.

9. Quantum in Communications

Quantum communications in the United States focuses on metropolitan quantum networks, quantum key distribution testbeds, entanglement distribution, quantum repeaters, transduction between modalities, trusted-node architectures, and integration with conventional optical networking. The likely 2026 path is not a sudden replacement of the Internet; it is a layered set of specialized networks for national labs, telecom testbeds, financial services, defense, and high-security research environments.

10. Quantum Sensors

Quantum sensing is one of the most commercially plausible quantum sectors in the near term. Applications include GPS-denied navigation, underground/underwater detection, precision timing, RF spectrum sensing, magnetic-field imaging, gravimetry, biomedical imaging, semiconductor metrology, and infrastructure monitoring. The U.S. sensing ecosystem benefits from defense demand, national-lab metrology, chip-manufacturing needs, and advanced manufacturing clusters.

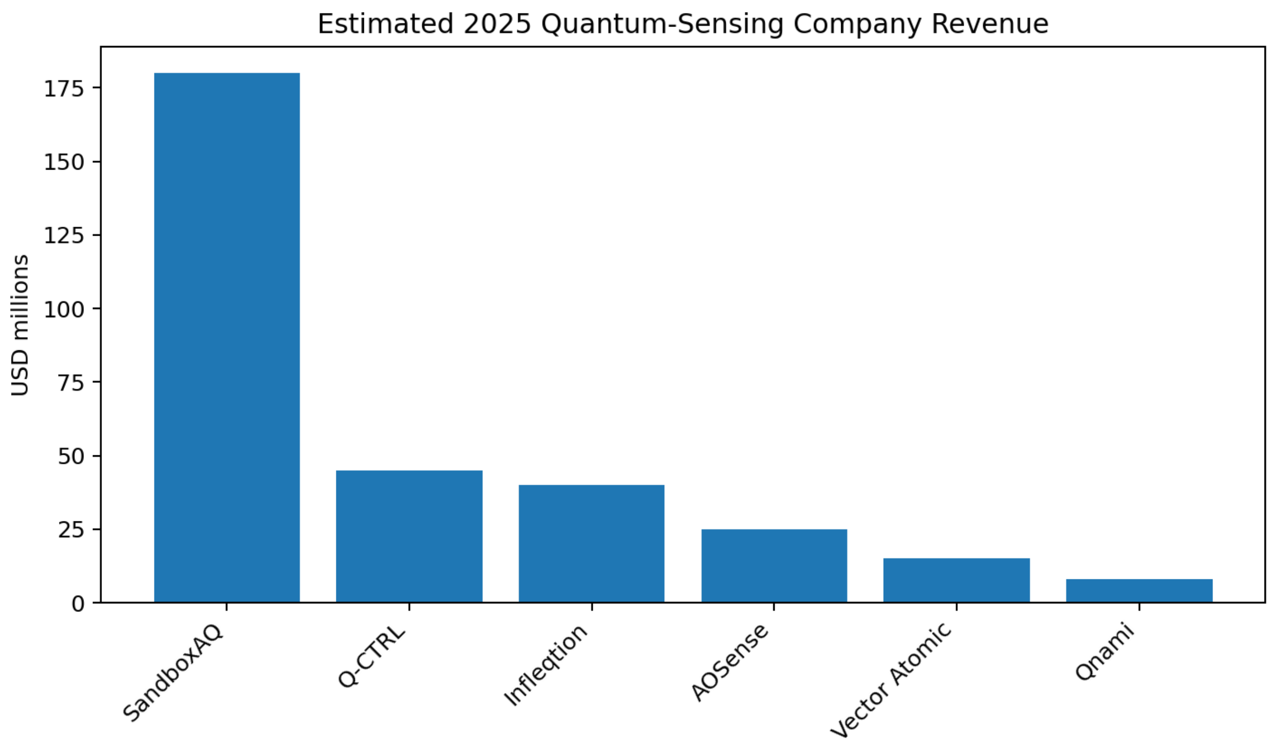

Figure 1. Estimated quantum-sensing company revenue. Private-company values are modeled estimates.

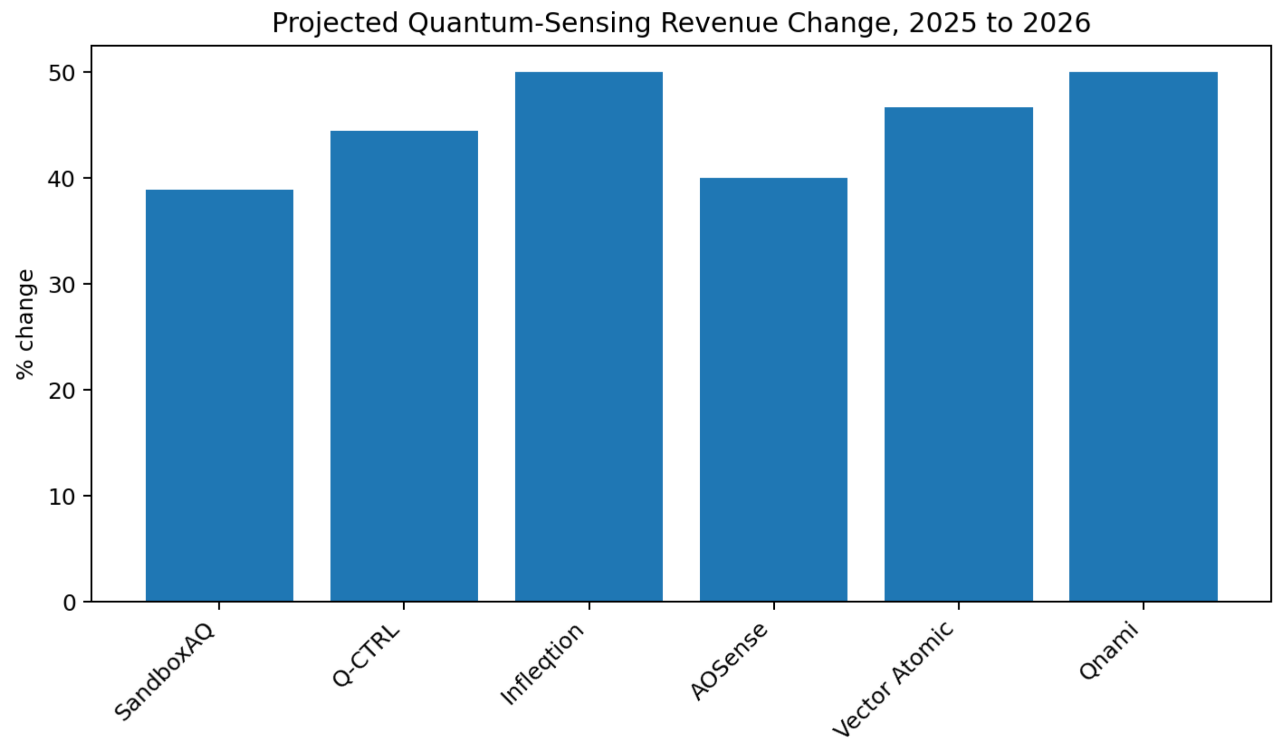

Figure 2. Projected quantum-sensing company revenue change, 2025 to 2026. Modeled estimates.

11. U.S. Quantum Workforce

The workforce gap is multidisciplinary. A mature U.S. quantum workforce needs physicists, electrical engineers, computer scientists, software engineers, control engineers, cryogenic technicians, photonics specialists, cybersecurity/PQC experts, product managers, compliance specialists, and manufacturing technicians. A major strategic issue is converting quantum from an elite Ph.D.-only labor market into a layered workforce with technician, bachelor's, master's, doctoral, and continuing-education pathways.

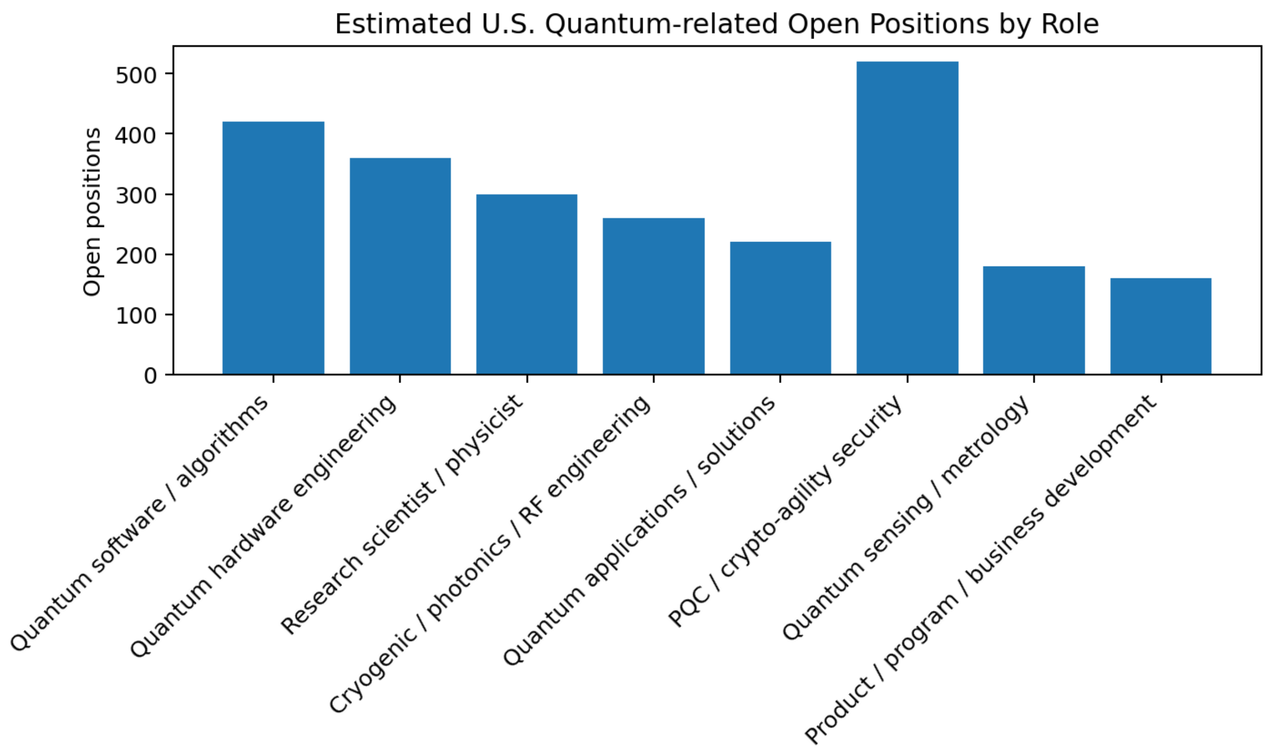

Figure 3. Estimated U.S. quantum-related open positions by position type.

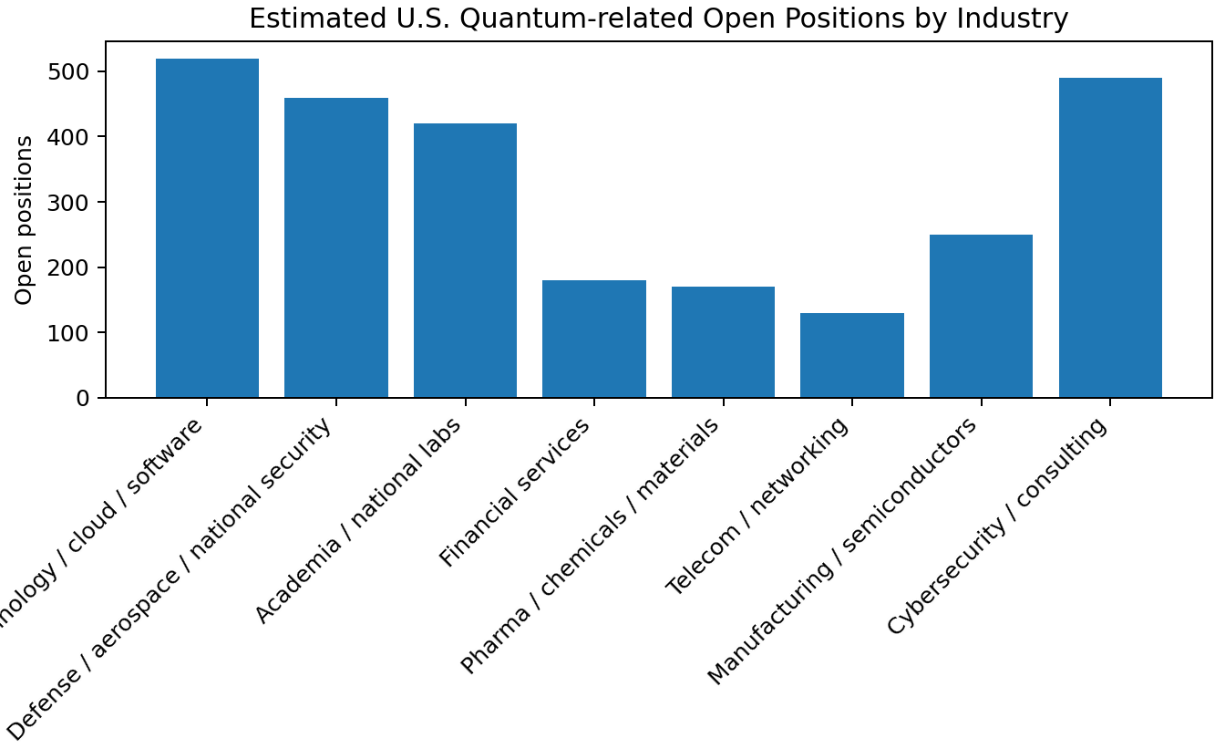

Figure 4. Estimated U.S. quantum-related open positions by industry type.

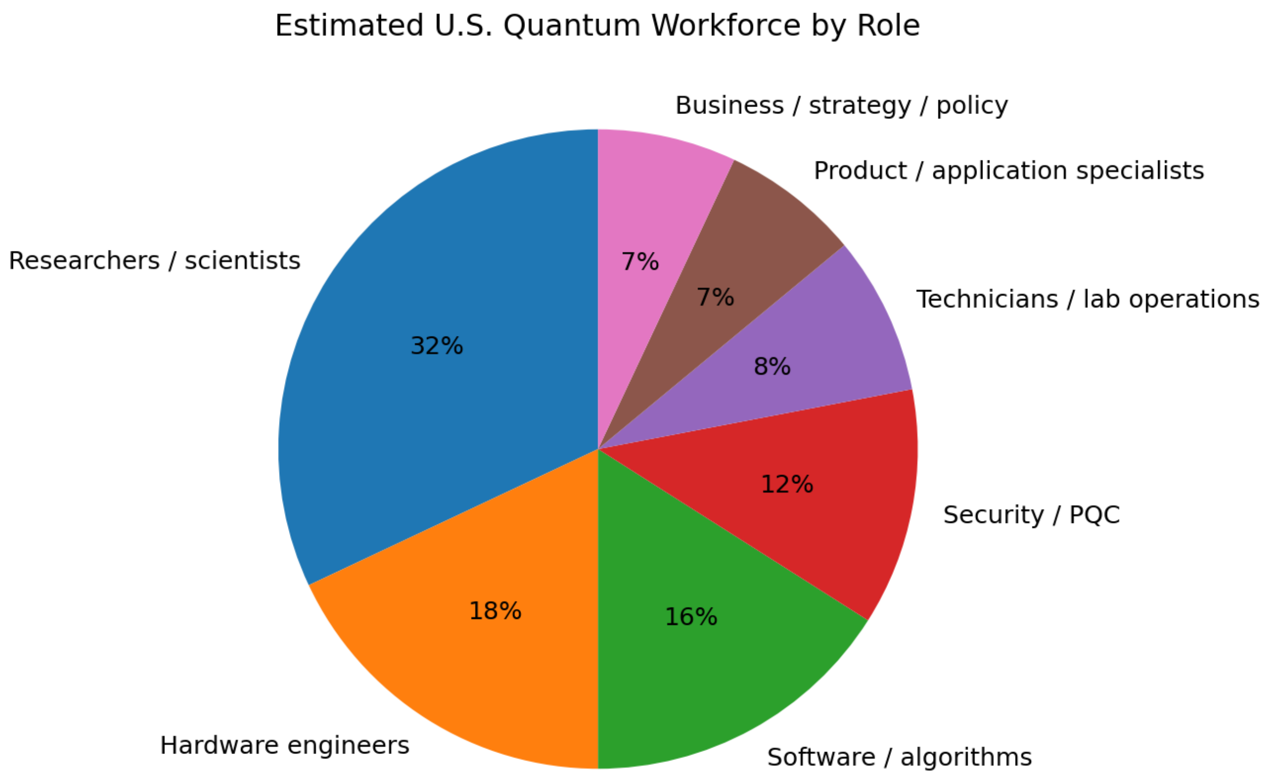

Figure 5. Estimated U.S. quantum workforce distribution by role.

12. U.S. and Global Quantum Technology Markets

Market estimates vary because analysts define the sector differently: some include only quantum-computing hardware/software/cloud revenue; others include enabling components, sensing, communications, security, consulting, and government-funded R&D. For this report, the market exhibits use a conservative baseline for global quantum computing and quantum sensing and modeled U.S. shares.

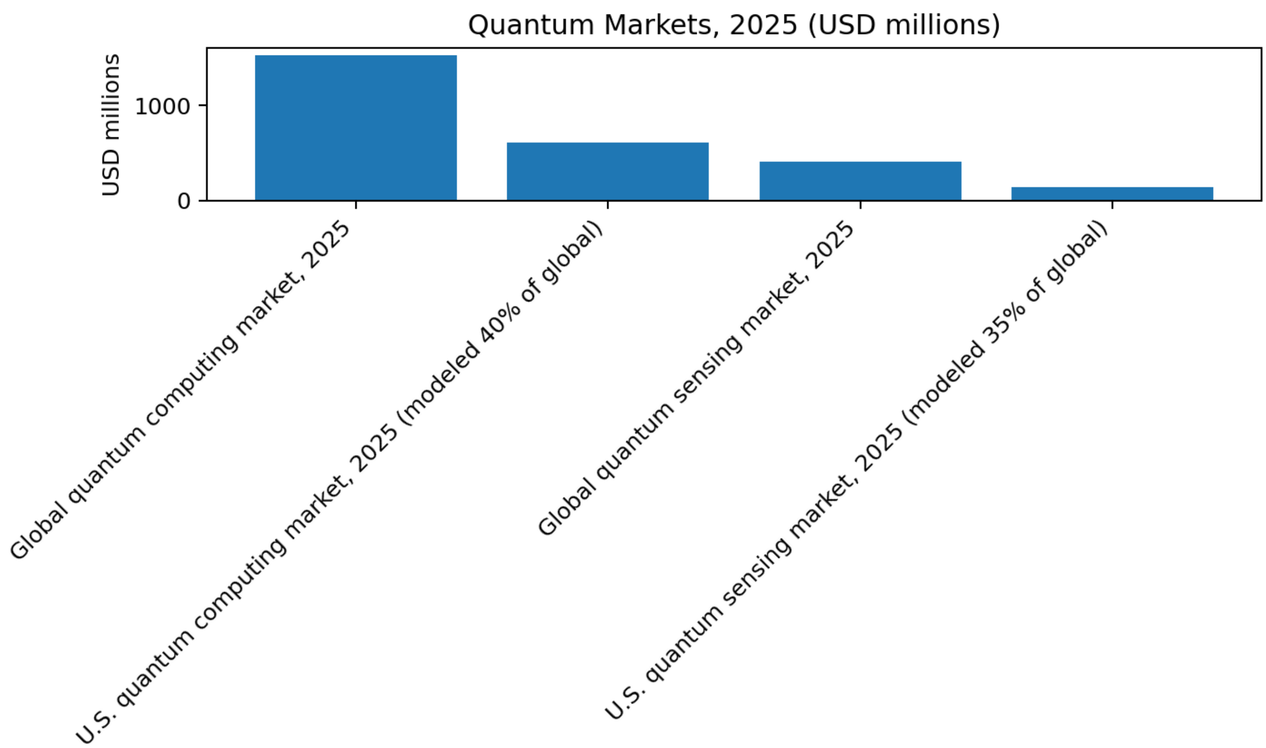

Figure 6. 2025 quantum market comparison. U.S. market values are modeled estimates.

Market Baseline Table

Metric	Value	Basis
Global quantum computing market, 2025	1,530.0	Fortune Business Insights / market-research baseline
U.S. quantum computing market, 2025 (modeled 40% of global)	612.0	Model estimate based on U.S. private-investment leadership
Global quantum sensing market, 2025	414.6	Global Market Insights baseline
U.S. quantum sensing market, 2025 (modeled 35% of global)	145.1	Model estimate

13. U.S. Government Funding of Quantum

U.S. government funding remains foundational. Federal support flows through DOE, NSF, NIST, DARPA, DoD, IARPA, NASA, and national laboratories, while state governments are increasingly using quantum as an economic-development strategy. Illinois, New Mexico, Connecticut, Maryland, Colorado, California, New York, Massachusetts, and the broader Midwest are examples of state or regional ecosystem development.

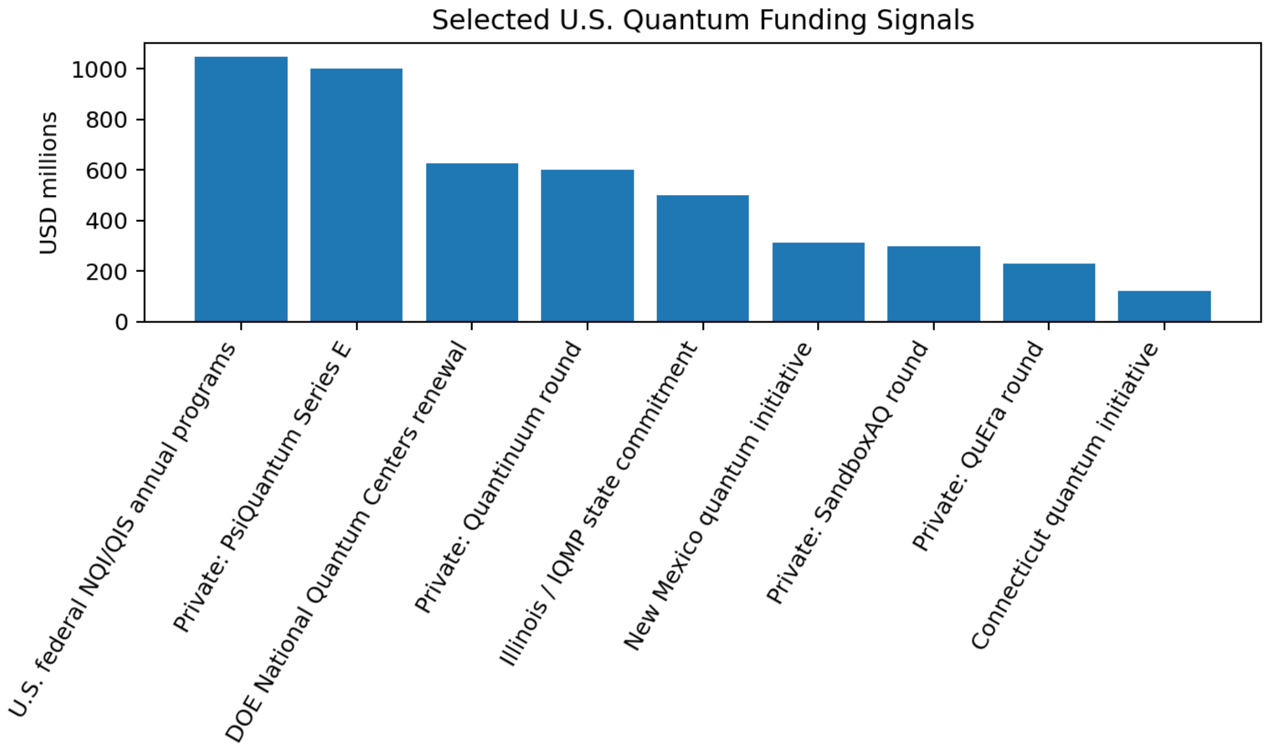

Figure 7. Selected U.S. quantum funding signals and private rounds, USD millions.

14. U.S. Private Funding of Quantum

Private funding is increasingly concentrated in large rounds for companies with credible system roadmaps, differentiated hardware modalities, or national-security relevance. PsiQuantum, Quantinuum, QuEra, SandboxAQ, IonQ, D-Wave, Rigetti, Infleqtion, Q-CTRL, and related suppliers illustrate a market in which capital formation is selective and milestone-driven. Public companies face volatility because revenue is small relative to R&D expense, while private companies often depend on strategic investors, sovereign funds, defense programs, and state-level incentives.

15. U.S. Patents on Quantum Science and Quantum Technologies

Quantum patenting continues to accelerate. The United States remains highly competitive, especially in quantum computing, quantum communications, and quantum sensing, but China has become a dominant filer in several global patent datasets. Patent activity should be interpreted carefully: quantity does not equal enforceable quality, and global patent families, grants, priority filings, and U.S. grants each tell different stories.

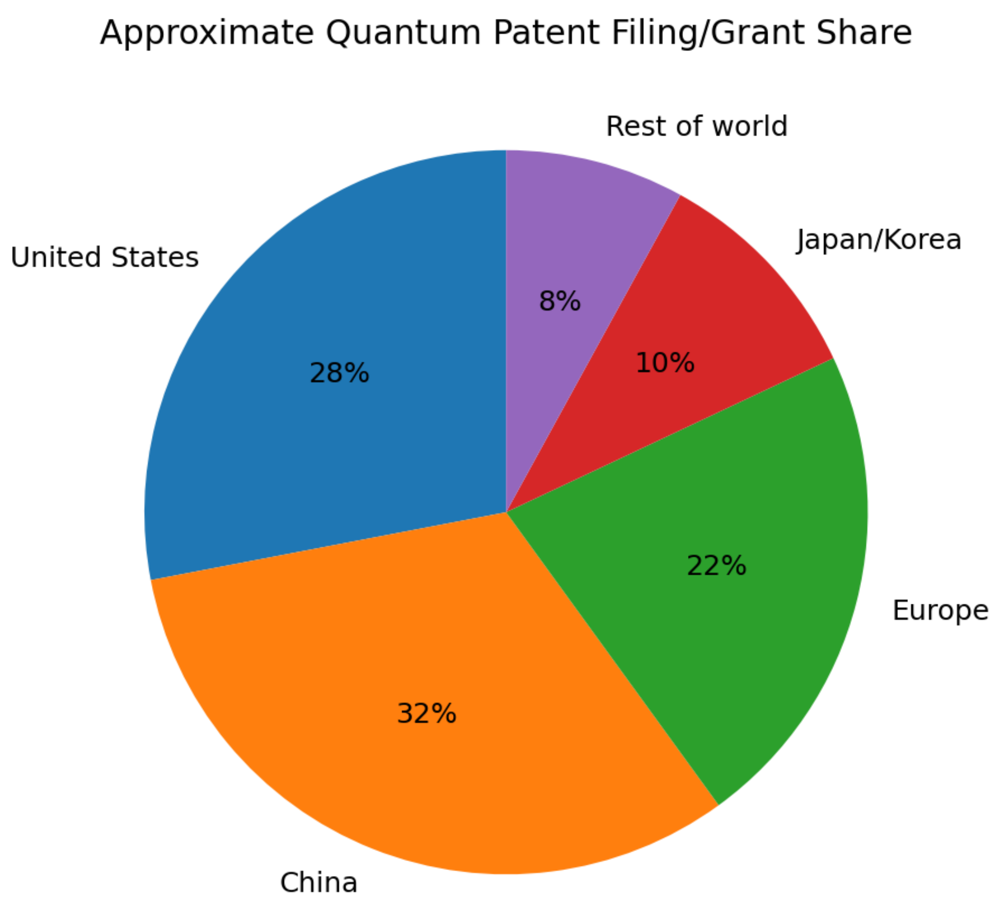

Figure 8. Approximate regional share of quantum patenting activity. Based on 2025 patent-landscape reporting; values are approximate.

16. U.S. Quantum-engaged Organizations and Ecosystem

The U.S. quantum ecosystem includes pure-play quantum startups, large technology companies, telecom providers, aerospace/defense contractors, semiconductor firms, cybersecurity companies, universities, national labs, federal agencies, state economic-development authorities, standards bodies, and nonprofit consortia.

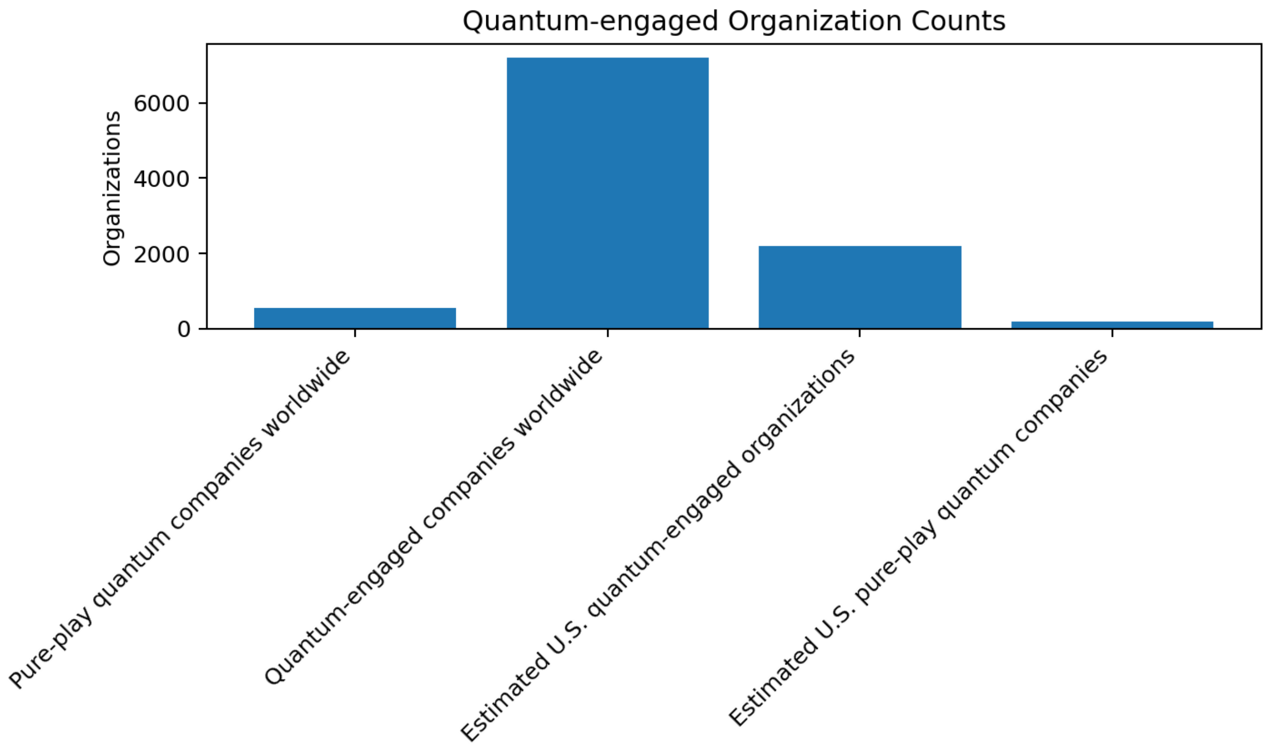

Figure 9. Quantum-engaged organization counts: global reported counts and modeled U.S. estimates.

Ecosystem Category	Representative Organizations
Large technology / cloud	IBM, Google, Microsoft, Amazon, NVIDIA
Pure-play / hardware	IonQ, Quantinuum, Rigetti, D-Wave, PsiQuantum, QuEra, Infleqtion
Quantum software / control	Q-CTRL, Classiq, Zapata AI legacy ecosystem, Strangeworks, QC Ware
Quantum sensing / timing	AOSense, Vector Atomic, SandboxAQ, Qnami, ColdQuanta/Infleqtion
Government / labs	DOE labs, NIST, DARPA, NSF, NASA, IARPA, DoD labs
Universities / hubs	MIT, Harvard, Stanford, Caltech, University of Chicago, UIUC, Maryland, Colorado, Yale, Princeton, Duke
Consortia / nonprofits	QED-C, Chicago Quantum Exchange, Quantum Economic Development Consortium, IEEE Quantum, Optica, APS, AAAS quantum programs

17. Non-Profit U.S. Quantum Groups

Key nonprofit and consortium actors include QED-C, Chicago Quantum Exchange, IEEE Quantum, Optica, APS, Quantum Industry Coalition, university-led Quantum Leap Challenge Institutes, regional quantum alliances, and standards-focused bodies. These groups reduce fragmentation by aligning workforce development, standards, testbeds, public-private partnerships, and commercialization pathways.

18. U.S. Quantum Computing Market - 2025

A reasonable modeled estimate for the U.S. quantum-computing market in 2025 is approximately $0.6 billion when using a $1.53 billion global baseline and assigning roughly 40% to the United States. This includes hardware access, cloud services, quantum software, professional services, and ecosystem revenue; it excludes much broader long-term total addressable market claims.

19. Global Quantum Computing Market - 2025

Third-party market estimates place the global quantum-computing market around $1.5 billion to $1.6 billion in 2025, depending on definitions. Growth expectations remain high, but practical enterprise adoption is gated by error correction, reliable advantage, skilled users, and integration with classical computing.

20. 2025 Quantum-Computing Company Revenue

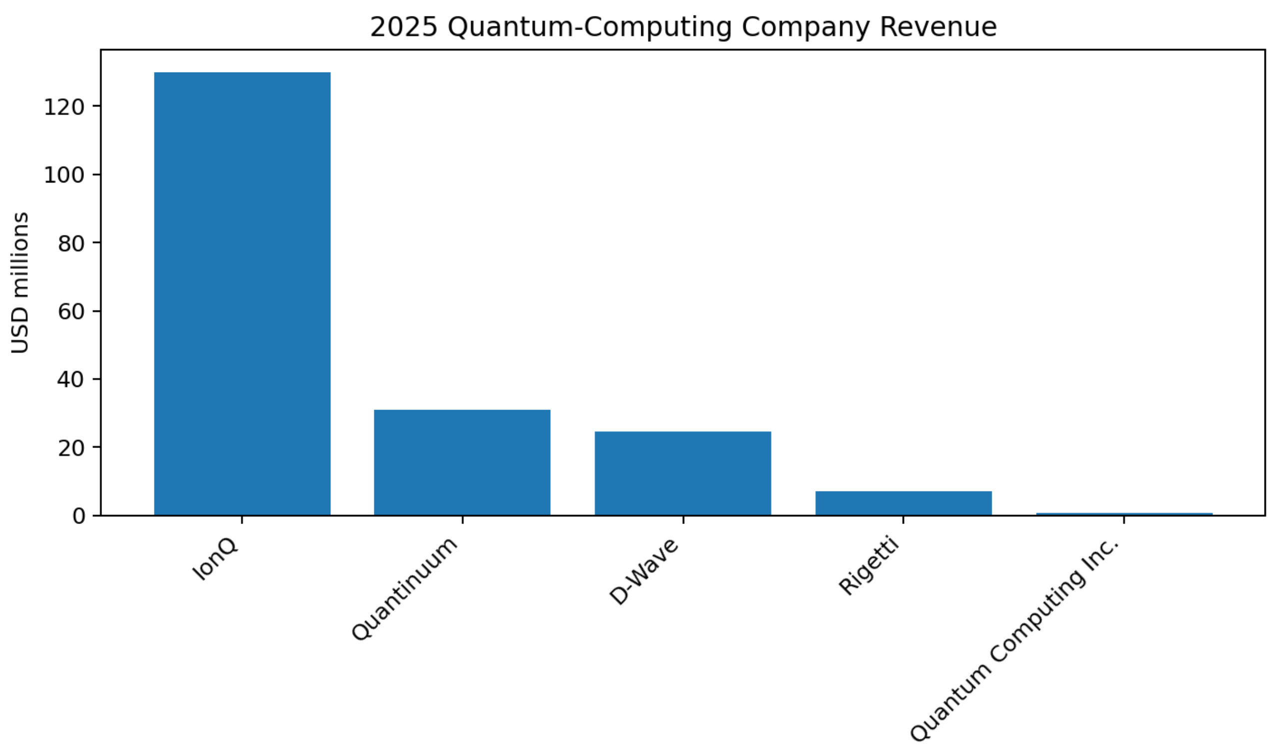

Figure 10. 2025 quantum-computing company revenue, USD millions.

Quantum-Computing Company Revenue Table

Company	2025 Revenue	2026 Projection	Change %	Basis
IonQ	130.0	235.0	80.8	2026 midpoint guidance / outlook
Quantinuum	30.9	41.7	35.0	Modeled +35% growth, equal to 2025 YoY
D-Wave	24.6	35.0	42.3	Modeled from bookings momentum; no official annual guide located
Rigetti	7.1	21.3	200.0	Analyst estimate cited in 2026 reporting
Quantum Computing Inc.	0.682	1.2	76.0	Modeled from low revenue base and Q4 run-rate

21. Quantum-Computing Company Projected Revenue Change, 2025 to 2026

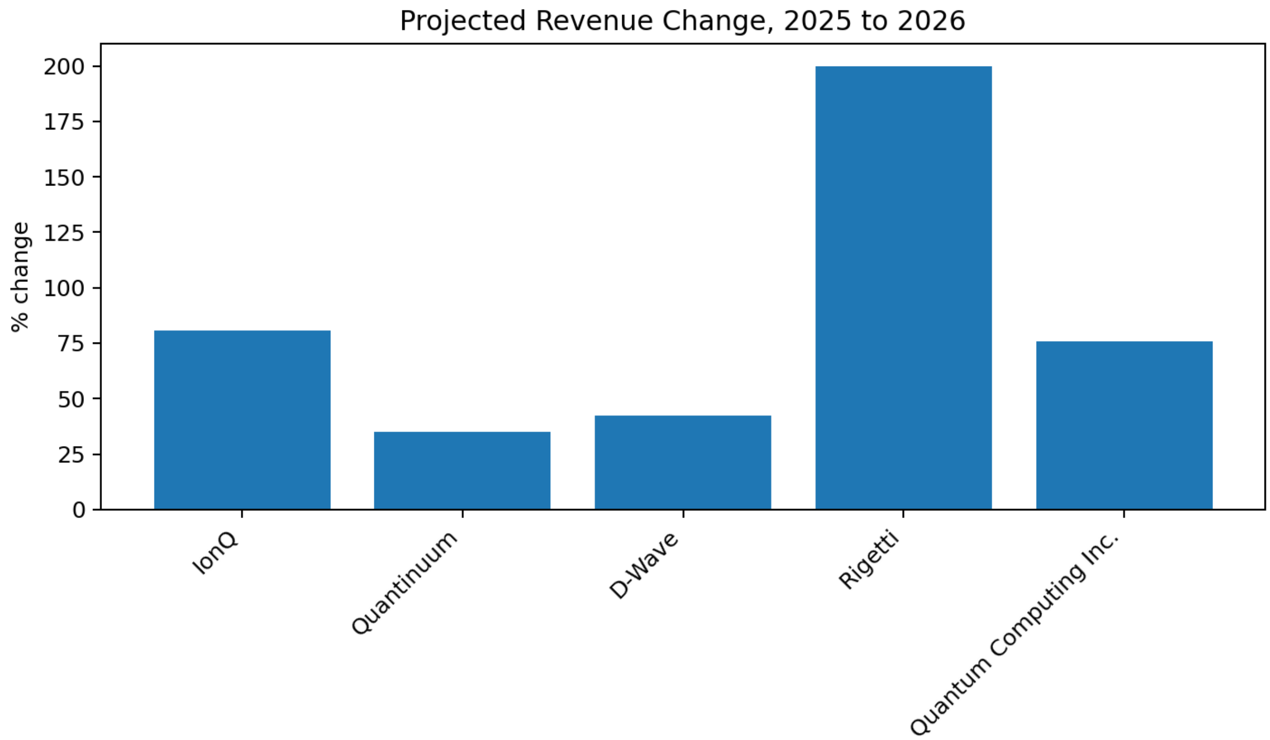

Figure 11. Projected quantum-computing company revenue change, 2025 to 2026.

Interpretation: IonQ's 2026 revenue outlook is the strongest public-company signal in this sample. Rigetti's projection is high-growth from a smaller base. D-Wave has strong bookings momentum but quarterly revenue can be lumpy because system sales are episodic. Quantinuum is a high-R&D, high-valuation platform company preparing for public markets. Quantum Computing Inc. remains a very small revenue base.

22. U.S. Quantum Sensing Market - 2025

The U.S. quantum-sensing market is estimated here at approximately $145 million in 2025, modeled as 35% of a $414.6 million global quantum-sensors baseline. This reflects U.S. strength in defense, timing, navigation, semiconductor metrology, and national-lab metrology, while acknowledging that exact country-level revenue is not consistently disclosed.

22. Global Quantum Sensing Market - 2025

Published 2025 global quantum-sensing estimates vary from roughly $170 million to more than $430 million depending on market definition. This report uses a $414.6 million baseline because it captures a broader commercial sensor definition. The market is expected to grow through defense, navigation, timing, healthcare, industrial inspection, and semiconductor applications.

24. U.S. and Global 2025 Quantum Sensing Company Revenue

Most quantum-sensing companies are private and do not publish audited annual revenue. The sensing revenue table therefore uses modeled estimates and should be treated as directional, suitable for market-mapping and strategic planning rather than investment valuation.

Quantum-Sensing Company Revenue Estimates

Company	2025 Revenue	2026 Projection	Change %	Basis
SandboxAQ	180	250	38.9	Private company; estimated quantum/AI-security/sensing-related revenue
Q-CTRL	45	65	44.4	Private company; estimated controls/sensing/software revenue
Infleqtion	40	60	50.0	Private company; estimated quantum systems/sensing revenue
AOSense	25	35	40.0	Private company; estimated cold-atom sensor revenue
Vector Atomic	15	22	46.7	Private company; estimated timing/navigation revenue
Qnami	8	12	50.0	Private company; estimated quantum microscopy/sensing revenue

25. U.S. Quantum-related Open Positions by Position Type

Position Type	Open Positions
Quantum software / algorithms	420
Quantum hardware engineering	360
Research scientist / physicist	300
Cryogenic / photonics / RF engineering	260
Quantum applications / solutions	220
PQC / crypto-agility security	520
Quantum sensing / metrology	180
Product / program / business development	160

26. U.S. Quantum-related Open Positions by Industry Type

Industry Type	Open Positions
Technology / cloud / software	520
Defense / aerospace / national security	460
Academia / national labs	420
Financial services	180
Pharma / chemicals / materials	170
Telecom / networking	130
Manufacturing / semiconductors	250
Cybersecurity / consulting	490

27. U.S. Quantum Workforce by Role

Role	Share %
Researchers / scientists	32
Hardware engineers	18
Software / algorithms	16
Security / PQC	12
Technicians / lab operations	8
Product / application specialists	7
Business / strategy / policy	7

28. Strategic Assessment for 2026

Issue	Assessment
Most near-term value	PQC migration, quantum-safe architecture, sensing/timing/navigation, quantum-inspired optimization, and quantum/HPC/AI hybrid research.
Highest technical uncertainty	Large-scale fault-tolerant quantum computing timelines, logical-qubit cost, and true business advantage over classical/HPC/AI alternatives.
Highest national-security priority	PQC, cryptographically relevant quantum computing monitoring, quantum networking, sensing for defense/navigation, and supply-chain resilience.
Best workforce lever	Create technician-to-Ph.D. pathways and retrain classical engineers in cryogenics, photonics, RF, software, PQC, and systems integration.
Best enterprise action in 2026	Build a crypto inventory/CBOM, run PQC pilots, evaluate quantum sensing use cases, and track quantum computing through disciplined proofs of concept.

Sources and Notes

- **National Quantum Initiative FY2025 Annual Report:** https://www.quantum.gov/wp-content/uploads/2024/12/NQI-Annual-Report-FY2025.pdf
- **GAO-26-107759, Updating the National Strategy Could Promote U.S. Leadership in Quantum Technologies:** https://files.gao.gov/reports/GAO-26-107759/index.html
- **NIST, finalized post-quantum encryption standards:** https://www.nist.gov/news-events/news/2024/08/nist-releases-first-3-finalized-post-quantum-encryption-standards
- **NIST PQC Standardization Project:** https://csrc.nist.gov/projects/post-quantum-cryptography/post-quantum-cryptography-standardization
- **NSF Quantum Leap Challenge Institutes:** https://www.nsf.gov/mps/quantum-leap-challenge-institutes
- **MIT Sloan, Quantum Index Report 2025 coverage:** https://mitsloan.mit.edu/ideas-made-to-matter/new-mit-report-captures-state-quantum-computing
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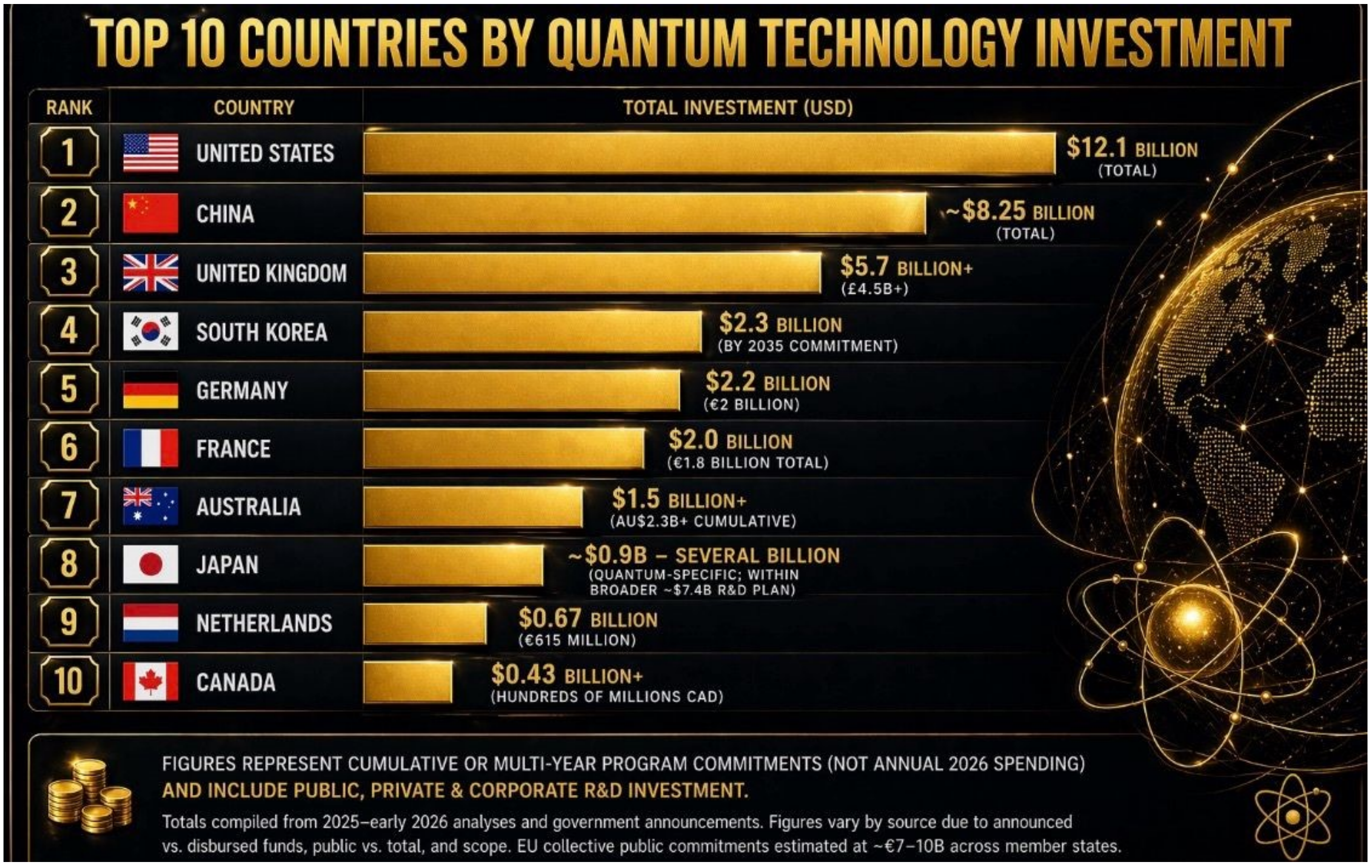
Caveat: Third-party market sizes and private-company revenue estimates differ materially by definition. Figures labeled modeled should be treated as directional planning estimates, not audited financial statements.

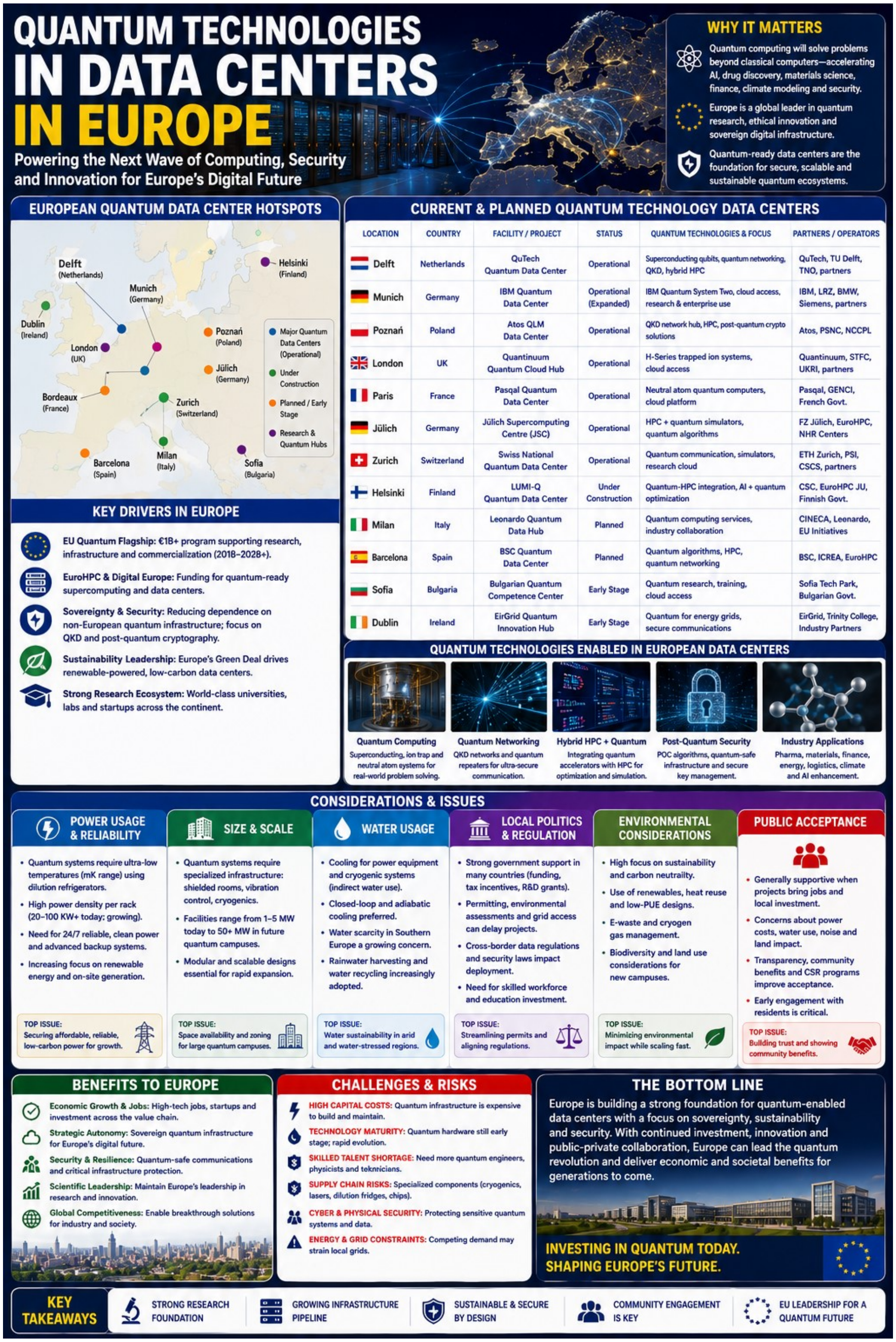
Attachment 1 – Top 10 Companies in Quantum

Attachment 2 – Top 10 Countries in Quantum



Attachment 3 – Quantum Technologies in U.S. Data Centers, Current and Planned

Attachment 4 – Quantum Technologies in European Data Centers, Current and Planned



Attachment 5 – Quantum Technologies in Chinese Data Centers, Current and Planned

Attachment 6 – Quantum Technologies in Japanese Data Centers, Current and Planned

Attachment 7 – Quantum Technologies in Indian Data Centers, Current and Planned

Attachment 8 – the Current State and Importance of the Illinois Quantum and Microelectronic Park (IQMP)

Illinois Quantum and Microelectronics Park (IQMP): Current State and Importance (2026)

Executive Summary

The Illinois Quantum and Microelectronics Park (IQMP) is a 128-acre quantum technology campus being developed on the former U.S. Steel South Works site in Chicago. It is designed to become one of the world's leading centers for quantum computing, quantum networking, advanced microelectronics, workforce development, and commercialization.

Key Facts

• 128-acre campus
• Anchor tenant: PsiQuantum
• Shared cryogenic facility
• Quantum Research Center
• IBM Quantum System Two planned
• National Quantum Facility and National Quantum Algorithm Center
• Strong partnerships with Argonne, Fermilab, University of Chicago, Northwestern, UIUC and others.

Strategic Importance

IQMP strengthens U.S. technological leadership, accelerates commercialization, supports national security, creates high-technology jobs, revitalizes Chicago's South Side, and positions Illinois as a global quantum hub.

Economic Impact

Illinois has committed approximately $500 million toward launching IQMP. Additional investments from industry and government are expected to total billions of dollars over the coming decade.

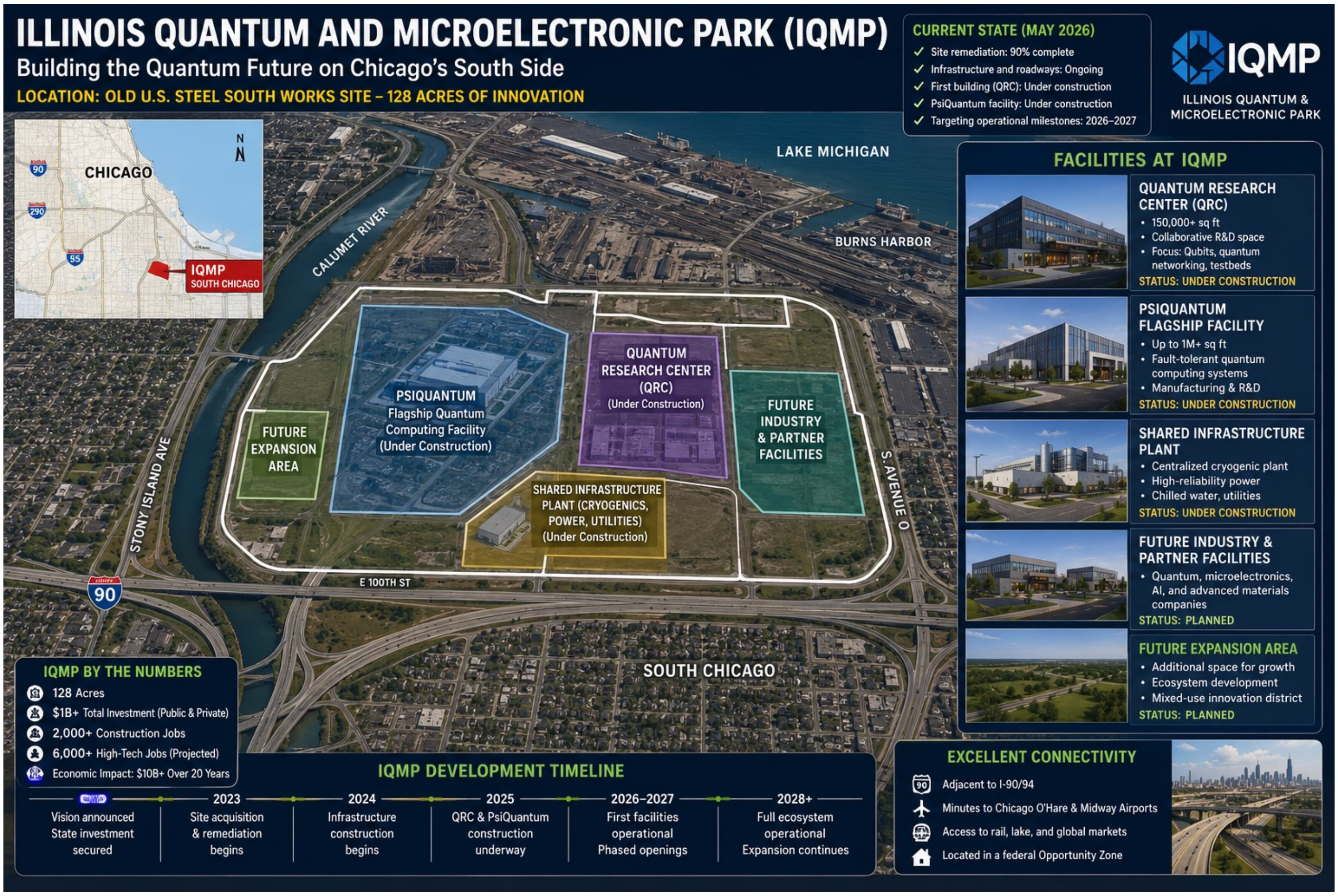
Technology Areas

Fault-tolerant quantum computing, photonic quantum hardware, quantum networking, quantum software, quantum algorithms, advanced microelectronics, post-quantum cybersecurity, cryogenic engineering.

Challenges

Commercial scalability, workforce development, supply chains, cryogenic infrastructure, power availability, long development timelines, and international competition.

IQMP Diagram



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