



State of Quantum Computing in Singapore – August 2025

By Candace Gillhoolley | ImpactQuantum.com



Executive Summary: Focused Ambition, Measured Momentum

Singapore doesn't waste words—or time. One year into its National Quantum Strategy (NQS), backed by S\$300 million under RIE2025, the city-state is moving with its usual sense of deliberate intention. This isn't a headline grab; it's a methodical orchestration. And like much of Singapore's tech evolution, quantum is playing out as a long game—one that's less about spectacle and more about structure.

Early traction is evident. Infrastructure's being laid down with clarity, and the research community is already delivering translational potential. But the talent gap remains the quiet weight under the surface. What happens next hinges on partnerships, processor maturity, and turning scientific elegance into measurable milestones.

National Strategy & Infrastructure: From Building Blocks to Blueprints



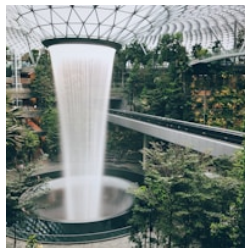
At the center of it all is the National Quantum Office (NQO), formed under A*STAR in 2022. The mission? Hold the whole orchestra together. Coordinate national R&D. Turn theory into infrastructure. Think central nervous system, not figurehead.

The strategy breaks into five carefully scoped initiatives:

Initiative	Focus
NQCH (Computing Hub)	Application co-development & cloud access
NQFF (Federated Foundry)	Device fabrication & prototyping
NQSN (Quantum-Safe Network)	Secure communication testbeds
NQPI (Processor Initiative, 2024)	Trapped-ion & neutral-atom R&D
NQSP (Sensor Programme, 2024)	Quantum-enhanced sensing tools

Taken together, this isn't just a testbed—it's a vertically integrated platform. A bit like a skyscraper with its own utilities and city planning department baked in. Hardware, software, cybersecurity, and sensing all under one national roof.

Academic Firepower & Startup Growth: R&D With Commercial Vectors



Singapore's Centre for Quantum Technologies (CQT), nested within NUS, continues to punch above its academic weight. It's no longer just a research powerhouse—it's now a launchpad. In 2025, CQT was tapped to steer processor development under NQPI, exploring both trapped-ion and neutral-atom architectures with long-term scalability in mind.

The startup scene, while small, is waking up. Around 10 active players now operate in:

Secure communications (e.g., SpeQtral)

Quantum simulation & cloud-native platforms (e.g., Horizon Quantum Computing)

Sensors and quantum photonics

SGInnovate has been pivotal in moving these ventures beyond the lab stage. Horizon Quantum's new partnership with IBM adds a layer of international credibility—plus access to global infrastructure and AI-accelerated toolchains. These aren't hobbyist plays; they're serious bets with eyes on international markets.



International Engagement & Strategic Partnerships: Global Access, Local Anchoring

In July 2024, Singapore signed an MoU with Quantinuum—unlocking access to their H-Series and Helios systems. That's not just compute access; it's a layered deal. Joint R&D on quantum-biological interfaces. Plans for an R&D hub in Singapore. And talent pipelines that train engineers, not just PhDs. This fits Singapore's usual pattern: trust over turf. It's never tried to wall itself off in the name of sovereignty. Instead, it's playing the long diplomatic game—embedding itself in global supply chains and securing privileged access to the tools that matter most.

G7 & Strategic Alignment: In the Conversation, If Not at the Table

Singapore doesn't sit at the G7 table—but the bloc could have ghostwritten its quantum goals. The S\$300M investment might look modest next to Japan's US\$7.4B or Spain's rising stack, but the focus is razor-sharp: cybersecurity, fintech, privacy-preserving analytics, and ethical R&D.

Singapore is already:

- Piloting quantum-safe networks in telecom and finance
- Contributing to OECD and APAC digital frameworks
- Championing interoperability and ethical standards in post-quantum systems



Opportunities & Challenges



Opportunities:

- **Regional quantum hub:** Singapore's open architecture makes it a natural bridge for Southeast Asia.
- **Private sector traction:** Interest is rising in banking, logistics, and infrastructure.
- **Global alliances:** Deals with Quantinuum, IBM, and others bring serious tech depth.

Challenges:

- **Talent bottleneck:** The skills gap is acute—and widening. There's demand for engineers, not just theorists.
- **Unclear KPIs:** Unlike the UK or Germany, Singapore hasn't published benchmarks or time-bound metrics.

Startup fragility: Seed-stage support is strong, but Series A+ funding and scale-up momentum remain shaky.

2025–2026 Outlook: What to Watch



As RIE2026–2030 begins to take shape, Singapore's quantum map will likely evolve in three directions:

Processor scaling: Moving beyond prototypes in NQPI and integrating into cloud networks.

Regional collaboration: ASEAN-level projects and student exchanges may anchor a broader ecosystem.

Milestone clarity: Expect pressure for more public indicators of impact—especially from investors and international partners.

Expected developments:

Public-sector quantum pilots in fintech and cybersecurity

NQSN's expansion to additional telcos and innovative city zones

Possible quantum-dedicated R&D clusters in Science Park or under JTC's tech precincts

Final Reflection: Holding the Line Between Precision and Pressure

Singapore's approach to quantum is like its architecture: vertical, clean, and intentional. But underneath that precision lies pressure—the need to accelerate talent development, deepen commercial traction, and articulate more precise definitions of success.

In a global race often obsessed with qubit counts and glossy demos, Singapore is writing a different story—one of careful structure, layered access, and long-term interoperability. The following 18–24 months will reveal whether that scaffolding can hold real weight.

Not the most significant player. Not the loudest voice. But one of the few is truly fluent in the language of strategic utility.

