Quantum Computing Strategy Training Course: Use Cases, Investment and Readiness

22 – 26 August 2027
Doha

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Programme Summary

Quantum computing strategy is the subject of this one-week training course for directors, heads of technology and strategy leaders, ending in a quantum readiness roadmap for one organisation. Executives are told that quantum machines will transform finance, logistics and chemistry, yet most claims outrun the hardware available today. The programme moves from what quantum computers can and cannot do to use case screening, investment decisions and security planning, using prepared sector cases. Mars Training Centre UK delivers this programme on quantum computing strategy to mixed-organisation cohorts.

The Business Case

Boards are asked to fund quantum projects, buy vendor access or change security plans, often on advice that mixes genuine progress with promotion. Leaders who can test a claim, rank use cases by evidence and stage spending can avoid early waste while still preparing for the technology that does mature.

- Investment Waste: Falls when spending is staged against evidence of near-term value rather than headline claims.
- Security Exposure: Is reduced when data with a long confidentiality life is identified before cryptography is replaced.
- Skills Gap: Narrows when a small, named team and a pilot plan replace unfocused experimentation.

Principles and Evidence Base

- NIST post-quantum cryptography standards FIPS 203, FIPS 204 and FIPS 205: Applied in Session 4 to judge which systems need a cryptographic transition plan.
- Hybrid quantum-classical methods: Applied in Sessions 2 and 3 to test whether a problem gains anything from quantum hardware.
- Hardware families superconducting, trapped-ion, photonic and annealing: Applied in Session 1 to read vendor claims against what each design can do.

Intended Participants

- Directors who approve technology investment and must question vendor and adviser claims.
- Strategy and innovation leaders who build the case for emerging technology programmes.
- Heads of technology and data who would host pilots and manage supplier access.
- Risk and security leaders who own the long-term protection of sensitive records.

Typical settings include banking, asset management, energy, logistics and public sector bodies.

Learning Outcomes

1. Participants will be able to evaluate vendor and adviser claims against the limits of current quantum hardware.
2. Participants will be able to classify business problems by whether quantum, hybrid or classical methods suit them.
3. Participants will be able to prioritise use cases in finance and other sectors by evidence and value.
4. Participants will be able to construct a staged investment case with stop points and measures.
5. Participants will be able to diagnose data and systems at risk from future code-breaking capability.
6. Participants will be able to justify a quantum readiness roadmap to a board or investment committee.

Programme Structure

Day 1: Quantum Computing Strategy Foundations

What can quantum computers do today, and what can they not?

- Qubit and Superposition Primer
- Hardware Family Comparison
- Error and Scale Limits Review
- Vendor Claim Test Sheet
- Cloud Access Options Map

Day 2: Problem Fit and Use Case Screening

Which business problems gain from quantum methods?

- Problem Type Classification
- Hybrid Quantum-Classical Method Review
- Optimisation Use Case Screen
- Simulation Use Case Screen
- Classical Alternative Benchmark

Day 3: Value, Cost and Investment Choices

How much should be spent, and in which stages?

- Use Case Value Ranking
- Build, Partner or Buy Options
- Staged Funding Model
- Pilot Stop-Point Criteria
- Skills and Team Plan

Day 4: Security Exposure and Transition Planning

Which data and systems are at risk from future code-breaking?

- Long-Life Data Inventory
- Cryptography Dependency Map
- NIST Post-Quantum Standards Reading
- Transition Sequence Draft
- Supplier Assurance Questions

Day 5: Readiness Roadmap for One Organisation

Do the findings join into a roadmap a board can approve?

- Applying the Session 2 Use Case Screen
- Testing the Session 3 Funding Model
- Checking the Session 4 Transition Sequence
- Reviewing Board Questions and Objections
- Completing the Readiness Roadmap

Methodology

The programme is a structured exercise built on prepared cases from a bank, an energy company and a logistics operator. Participants test vendor claims, screen problems, rank use cases and plan spending in small groups, then defend their roadmap to peers acting as an investment committee. Technical material is kept at the level a decision maker needs.

- Suggested activity: Testing a vendor presentation against a claim checklist.
- Suggested activity: Ranking six use cases by evidence, value and cost to test.
- Suggested activity: Drafting a staged funding plan with stop points.

Capstone Output

Each participant completes a quantum readiness roadmap for one organisation. It holds a ranked use case list, a staged funding model with stop points, a skills plan and a security transition sequence. At work it goes to the board or investment committee and sets the questions applied to every later quantum proposal.

Frequently Asked Questions

Is quantum computing strategy training suitable for leaders without a physics or programming background?

Yes. Quantum computing strategy is taught through plain explanations and prepared cases. You need responsibility for technology, investment or risk decisions, but no mathematics, physics or coding background.

Which standards does quantum computing strategy rest on in this programme?

Quantum computing strategy here rests on the NIST post-quantum cryptography standards, FIPS 203, FIPS 204 and FIPS 205, for security planning, together with hybrid quantum-classical methods and hardware families for judging use cases.

How is the roadmap from quantum computing strategy training used at work?

You take the readiness roadmap to your board or investment committee, use its staged funding model to release money in steps, and keep its question list for later quantum proposals.

How does quantum computing strategy differ from a programme on artificial intelligence strategy?

Quantum computing strategy concentrates on judging an immature technology, its limited use cases and its security consequences, while an artificial intelligence strategy programme concentrates on deploying proven tools across operations.