

Quantum Opportunities sprint

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Why this sprint?

Quantum technologies are no longer ten years away. They're arriving this decade, and leaders need to understand what this means for your organisations.

Quantum computing isn't just faster—it's fundamentally different. The upshot is that quantum technologies are going to be disruptive, rather than incremental. We're already seeing transformative problems solved by quantum algorithms. And the moment we have functioning quantum computing at scale will be a watershed for IT security—traditional encryption will break.

The Quantum Opportunities sprint equips executives with the fundamentals, applications, and strategic implications of quantum computing, communications, and sensing. You'll explore frameworks for spotting quantum-solvable problems, assess quantum-safe security strategies, and develop approaches tailored to your sector. The sprint concludes with an applied project focused on your own organisational context.

- + Build a strategic understanding of quantum computing, communications, sensing, and post-quantum cryptography
- + Evaluate the potential implications of quantum technologies for industry, government, and society
- + Identify business and policy problems that may be addressed by quantum solutions
- + Articulate governance and risk considerations for security, regulation, and organisational readiness
- + Develop narratives and roadmaps that prepare organisations for quantum disruption
- + Receive the USYD digital badge, a credential recognising executive capability in quantum opportunity and governance

Assumed knowledge

Understanding of your organisation's structure, operations, and how value is created within your business context.

Time commitment

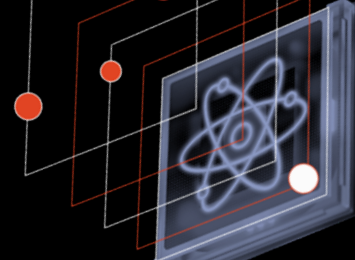
The core sprint content is self-paced over two weeks, comprised of videos, additional readings, and workbook activities. We recommend setting aside 30-60 minutes daily for core content. There are two live sessions of around 90 minutes each, which are recorded. Networking events are optional but valuable for connecting with your cohort.

Learning outcomes

- 01 Evaluate the emerging quantum landscape and its strategic implications for organisations
- 02 Identify business and policy problems that could be addressed through quantum solutions
- 03 Articulate governance and risk considerations for security, regulatory, and organisational readiness for quantum technology

What is involved?

The sprint combines online learning with live interactive sessions. Online modules include video content featuring University of Sydney Nano Institute faculty and IBM experts, additional readings, a practical workbook, and cohort discussions. Each module builds toward a final project where you'll develop a quantum assessment for your own organisation, incorporating the principles and tools explored throughout the sprint.



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Modules

Module 1 *Foundations*

This module establishes the scientific and strategic foundations you need to understand quantum technologies. You'll explore what quantum computing actually is and how it differs from conventional computing, examine the history of quantum physics from early breakthroughs to today's quantum era, and understand why Australia punches above its weight in quantum research. We'll examine real-world cases and explore why maintaining a watching brief is now essential for business leaders.

Module 2 *Applications*

Quantum technologies are already finding real-world applications. This module examines the current state and trajectory of quantum hardware, explores quantum communications and sensing deployed in healthcare and mining, and investigates quantum computing use cases across cryptography, materials science, and optimisation problems in logistics, finance, and scheduling. You'll learn to distinguish genuine quantum advantages from hype and understand which applications are emerging first.

Module 3 *Implications*

Your organisation faces both quantum opportunities and quantum threats. This module provides frameworks for spotting quantum-solvable problems inside your organisation and understanding approaches to future-proof security strategies. You'll explore quantum experimentation platforms including cloud access for pilot projects, and examine governance, risk, and security considerations including post-quantum cryptography and algorithmic disruption. The module addresses the questions boards should be asking and how to prepare organisations for quantum disruption.

Assessment

The final project requires you to develop a quantum assessment for a real organisational challenge. Drawing on sprint concepts and tools, you'll identify a business or policy problem that could benefit from quantum solutions, evaluate quantum-safe security strategies, and articulate governance considerations. Projects should demonstrate clear understanding of the principles while providing actionable insights tailored to your specific