



ABAC Statement on Quantum July 2026

The Quantum Opportunity

Quantum technologies are emerging as one of today's most important innovations. What was once considered a long-term research frontier is rapidly becoming a commercial reality. Quantum sensing, communications, and security are already seeing commercial deployment. At the same time, commercial-scale quantum computing is advancing faster than previously anticipated, with practical applications expected to begin emerging within the next five years. Quantum preparedness needs to begin now to meet the cybersecurity implications, with post-quantum cryptography (PQC) migration timelines expected as early as 2029.

If we want to shape the responsible development and governance of quantum computing and its application, we need to understand its potential and impacts, inform our societies and take action now.

The rapid acceleration of technology, including Artificial Intelligence (AI), creates an opportunity for APEC economies to consider and plan for the opportunities and disruption of quantum capabilities. Application of quantum technologies will have transformative impacts globally and on the APEC region, its peoples, communities, and businesses will have material near, medium, and longer term economic and strategic implications. Some estimates suggest quantum technologies could generate trillions of dollars in economic value globally by 2035¹.

Economies, businesses, and investors are increasing their investment in quantum, though this represents only a fraction of investment in other areas like AI, and they are beginning to focus on preparedness. But more needs to be done. Fragmented and rapidly evolving regulatory frameworks, standards and guidance on research and development, and application of quantum capabilities are emerging. There is a responsibility to utilize the power of this innovation and technological revolution for the benefit of all, and to ensure that it is sustainable. Economies will need to develop the governance, standards and approaches to mitigate potential risks of misuse.

Quantum technologies can be a key future enabler of trusted digital connectivity in our region, noting that current and foreseeable developments are significantly changing the risk and opportunity landscape for business, economies and societies more broadly.

Impact on industry, risk and infrastructure

ABAC acknowledges that many economies, as well as large and technologically advanced companies, may not yet fully understand how the quantum era will affect their operations, competitiveness, security posture and long-term resilience, or what practical steps are required to prepare. Nevertheless, quantum applications are expected to have significant impacts on finance, aerospace, automotive, data centers and energy, health and medicine, chemical, logistics and transport cybersecurity including cryptography, communications and defense industries.

The potential for quantum technology to compromise digital security poses a significant risk; there is an urgent need to address PQC. Economies and business leaders should focus their attention on developing PQC as a multi-year effort. Widely used encryption standards can be broken by a sufficiently powerful quantum computer, risking exposure of sensitive banking data, transactions and communications. Focused

¹ https://bit.ly/McKinseyReport_QuantumTechnologyMonitor

and timely efforts to integrate post-quantum cryptography within cybersecurity frameworks are essential to mitigate emerging quantum-related risks and ensure comprehensive data protection and operational resilience.

Quantum technologies are already being applied to accelerate or improve AI. It has the potential to help harness and analyze sparse data, or vast data sets, more efficiently and/or accurately to help solve problems. For example, computational compression can make AI less energy intensive. However, in the longer term, quantum technologies are also expected to be a disruptor to some of the design and utilization of the digital infrastructure used to build and enable AI.

Specialized cloud and data center infrastructure, as well as software-level integration with existing digital, cybersecurity and operational systems may be required. Quantum computing also depends on advanced hardware capabilities, including semi-conductor manufacturing, precision engineering, advanced packaging, cryogenic systems, photonics, and other enabling technologies. ABAC notes that APEC economies possess complementary strengths and capabilities across these critical hardware and supply chains.

APEC's Role in Cooperation and Responsible Deployment

APEC has a significant opportunity to lead greater regional cooperation on standards, ethical development and governance, workforce readiness, cybersecurity transition planning, and the responsible deployment of quantum technologies. APEC economies – including Australia, Canada, China, Japan, Korea, Singapore, Chinese Taipei and the United States– have already launched quantum strategies, including governance measures and guidelines for post-quantum regulation. Many of these economies are also investing heavily in research, talent, infrastructure, commercialization and cybersecurity preparedness. APEC is uniquely positioned to help economies navigate the opportunities and challenges of quantum technologies – including APEC's focus on AI and the interplay between these two technologies.

Enhancing predictability and reducing uncertainty will be essential to enable sustained investment, commercialization, and deployment. The emergence of scalable and applicable quantum technologies may vary significantly across economies and sectors based on a range of possible deployment scenarios, longer transition periods and uneven levels of readiness. Therefore, closer collaboration among economies, industry, and academia — including through pilot initiatives, the sharing of practical experiences, use cases and best practices, and cross-border cooperation — can help accelerate the transition from research to scalable industrial and societal applications.

APEC's role can include encouraging and supporting international cooperation, avoidance of duplication, interoperability and consensus, and preventing the adoption of conflicting approaches to governance. APEC's strength in delivering capacity building within the region can be leveraged to ensure that all economies are equipped to meet the challenges of developments in quantum technology and reap their benefits, while addressing risks, and adopting appropriate, consistent and responsible governance arrangements.

ABAC calls on APEC economies to focus on securing the digital economy, preparing people and businesses for transformation, and supporting practical deployment of quantum technologies to improve productivity, strengthen competitiveness and address major economic and societal challenges. ABAC recommends APEC economies:

- **Work towards adoption of appropriate governance arrangements**, including possible shared standards and regulation, seeking collaboration and cooperation in identifying opportunities and risks, and creating an enabling, responsible, interoperable, non-discriminatory policy environment for quantum. These measures protect privacy, trade secrets and intellectual property by promoting transparency, accountability, safety and security. ABAC encourages APEC to include quantum computing in a new Collective Action under the Five Year Review of the Aotearoa Plan of Action.

- **Encourage responsible innovation and development of quantum technology capabilities**, while prioritizing ethical considerations and removing unnecessary barriers by promoting trust, accountability, transparency.
- **Promote the development of practical quantum computing use cases by integrating quantum technologies into economy-level digital and innovation strategies**, including examining the potential impact of quantum technologies in leveraging and amplifying AI, and in sectors addressing complex societal and industrial challenges, in accordance with the circumstances and priorities of each economy.
- **Develop policy measures, shared evaluation frameworks, and industry engagement mechanisms** to reduce uncertainty regarding technological maturity, business value, and deployment pathways, thereby enabling informed investment and adoption decisions for quantum computing applications.
- **Establish long-term, coordinated policy frameworks and economy-level programs** that support the commercialization, deployment, and scaling of quantum computing solutions.
- **Create and support public-private-academic partnerships and pilot programs** to accelerate the transition of quantum computing from research environments to real-world industrial and societal applications.
- **Engage the public and stakeholders**, including diverse and representative voices, in discussion on the potential and risks of quantum, prioritizing quantum literacy, including informing communities on the need to move to PQC.
- **Support research into PQC within cybersecurity frameworks** and initiate strategic transition plans to quantum-resistant cryptography, along with developing frameworks to ensure the technology is harnessed securely when it becomes commercially viable.
- **Strengthen cross-border collaboration mechanisms**, including through the sharing of practical experiences, use cases, and best practices to enable scalable and practical quantum computing applications across the Asia-Pacific region.

ABAC's commitment:

Recognizing the significant contribution which quantum technologies could make towards achieving the APEC Putrajaya Vision goals for an open, dynamic, resilient and peaceful Asia-Pacific community by 2040, for the prosperity of all our people and future generations, **ABAC commits to a multi-year work program on quantum computing, across a number of workstreams, focused on:**

- **Sharing information** regarding quantum research, development and application with a particular focus on digital and financial security, data and privacy protection.
- **Sharing best practices** in quantum governance, regulation and interoperability, and on efforts and effectiveness of public stakeholder engagement on how quantum will impact business, economies and societies and how to prepare and harness the benefits, and mitigate the risk.
- **Sharing industry sector specific information** on potential applications, experience and risks, including issues such as quantum readiness and awareness, PQC, cybersecurity and resilience, innovation, commercialization, and talent development, business preparedness, investment certainty, workforce implications, digital trust, and supply chain resilience.