Australia GEM

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Australia mission aims

• The primary aim of the GEM to Australia was to engage with key stakeholders in the Australian quantum technologies sector, including academic institutions, research organisations, startups, and government bodies. The mission sought to understand the landscape of quantum technology research and development in Australia, identify areas of strength and opportunity, and explore avenues for bilateral collaboration that could accelerate the development and commercialisation of quantum technologies.





Australian jobs estimated to be created in the quantum technologies sector by 2045^a



The UK is Australia's 5th most frequent partner for bilateral agreements^d

where





Quantum Australia conference

objectives

- Assessment of the Australian QT landscape: To gain in-depth knowledge of Australia's quantum technologies sector, including ongoing research projects, investment trends, government support structures and policy initiatives.
- Identification of collaboration opportunities: To pinpoint areas where UK and Australian businesses, academics and government entities could collaborate on quantum technology development, focusing on areas of mutual strength and interest.
- Facilitation of UK-Australia partnerships: To lay the groundwork for future partnerships and collaborative projects between UK and Australian entities in the field of quantum technologies, enhancing the global competitiveness of both nations.
- Insights into regulatory and market conditions: To understand the regulatory, funding, and market environment in Australia for quantum technologies, thereby enabling UK entities to navigate these aspects effectively in pursuit of collaborative ventures.
- Establishing recommendations for strategic engagement: To provide actionable recommendations for UK stakeholders on how to engage with the Australian quantum technology sector, including potential funding mechanisms, partnership models, workforce development and knowledge exchange mechanisms.

AUKUS

• The AUKUS partnership presents a unique opportunity for the UK to enhance collaboration in the quantum technology sector with Australia, the US and Japan. The UK and Australian MoDs are well engaged in conversations around knowledge exchange in quantum technology development for defence applications, best practices and strategic alignment. The engagement of the UK in AUKUS can present a broader opportunity for UK businesses and supply chain to engage in the Australian landscape and for technology transfer to other areas of applications.

Key points 1

- The GEM to Australia in February 2024 unveiled a dynamic and rapidly evolving quantum technology landscape, with by strong research foundations, significant government and industry investments and a collaborative ecosystem.
- The mission, encompassing visits and discussions in New South Wales, Victoria, South Australia, and Queensland, underscored the potential for deepening UK-Australia collaboration across various facets of quantum technologies, including computing, sensing and applications, in sectors such as healthcare and defence.
- Australia's commitment to becoming a global quantum technology leader is evident through its strategic investments in infrastructure and talent, alongside fostering international partnerships.
- The mission identified notable strengths in Australia's quantum research and innovation capabilities, particularly in academic institutions e.g. the University of New South Wales, the University of Sydney, Adelaide University, the University of Queensland, RMIT, and the University of Melbourne; and in companies such as Q-CTRL, Diraq, QuantX labs, Silanna and Silicon Quantum Computing.
- Workforce training and development is a key focus of the Australia quantum strategy at national and regional levels through several training incentives and centres of excellence, targeting pressing industrial needs in nanofabrication, computing and sensing capabilities.

Key points 2

- The Australian National Fabrication Facility ANFF also represents a competitive advantage for the Australian quantum landscape providing state-of-the-art infrastructure for several businesses and universities.
- With a history of successful collaboration between the UK and Australia, characterised by academic excellence and knowledge sharing, including highest co-author citation impacts than ones generated by both countries on their own, and strong partnerships in defence, space, and health sectors, there are ample opportunities for UK and Australian stakeholders to engage in joint research initiatives, technology exchanges and commercial ventures.
- The mission highlighted challenges that need addressing to fully capitalise on these opportunities, including the need for targeted skills development, interdisciplinary collaboration, and overcoming commercialisation and standardisation barriers. In response, the report recommends the establishment of a UK-Australia quantum technology forum, exploration of joint funding opportunities and the development of skill-building programmes.
- The Innovate UK GEM has laid a solid foundation for future UK-Australia partnerships in quantum technologies. By leveraging each country's strengths and addressing the challenges identified, there is a clear pathway towards achieving mutual economic growth, innovation, and maintaining a competitive edge in the global quantum technology arena.

Key Conclusions

- **Complementary strengths** span universities and businesses across computing, sensing and communications.
- Shared vision for innovation and growth arising from strong ecosystems.
- Potential for bilateral benefits: Many opportunities will lead to economic growth, job creation, and technology development.
- A Shared view of the challenges to overcome: appropriate regulation and standards, intellectual property management, data security, and workforce skills.

Next steps

Next steps include a bilateral quantum alliance, joint funding mechanisms, business innovation support, and collaboration in education/training.

In summary, the mission has laid a solid foundation for UK-Australia collaboration in the quantum technologies sector. By building on the insights and recommendations from the mission, both countries can advance their quantum technology capabilities and achieve significant mutual benefits in the years to come.

Thanks to team

