

## **Statement on the classification of quantum technologies within the newly proposed FIRB framework - July 9th 2021 FIRB draft.**

As the undersigned members of the Australian quantum community, we are concerned with the broad inclusion of the entire field of quantum technologies within the new Foreign Investment Review Board (FIRB) framework. Second generation quantum technologies, including quantum computers, quantum communication networks, and quantum sensors, have up to now been largely confined to Technology Readiness Levels 1-5. Commercially, while the horizon is optimistic, the field is in its infancy. Treating it as a mature, well developed and commercially competitive sector does not reflect the reality of these technologies or Australia's position in the global competitive landscape.

Of all technologies listed as "Indicative sectors" within the new FIRB framework, quantum is the only one with but a handful of commercially viable products, yet is categorised more broadly, for example, than Artificial Intelligence — a technology within every smartphone worldwide with a commercial market estimated at over A\$40B globally<sup>1</sup>. Quantum technology is a nascent industry that has only started its journey out of fundamental R&D laboratories in the past five years. Consequently the field is extremely vulnerable to shocks such as loss of investor confidence or premature restriction of the basic R&D and collaborations required to make the industry succeed. The capturing of the entirety of quantum technologies within this framework will create a significant barrier in establishing a domestic quantum economy. This will relegate Australia to a minor player in this rapidly expanding global market.

The notification requirements will no doubt cover our entire field, and given the broad categorisation of quantum and the caveat "for military use", which is a highly relevant modifier as the field is too young to appropriately differentiate between future military and civilian applications, the current classification system will require all aspects of quantum technology development to fall within the mandate. This, coupled with the categorisation of "other" which captures any technology that has received funding from foreign based defence or intelligence agencies, without the "military use" modifier, will effectively place all Australian quantum-based R&D from the past 20 years into the mandatory notification framework for all future commercialisation efforts within Australia.

Venture capital and other private equity based approaches to commercialisation in the quantum space will require investment from international sources if it is ever to be successful in Australia. The proposed FIRB framework will burden Australian-based start-ups and university spin-offs to modify fundraising and growth timetables to accommodate a potentially lengthy mandatory notification and review period, even for comparatively small levels of angel or seed level investment. This will hurt competitiveness and push these new entities overseas, taking relevant personnel and further diminishing the Australian quantum sector.

Our entire community is working to ensure that the insightful decisions made by the government in the late 1990's and early 2000's, which established Australia as a powerhouse of quantum R&D, does not go to waste as the field moves into its new phase of global development. The current classification in this new framework for foreign investment will ensure that a vibrant public/private ecosystem will be extremely difficult to achieve.

We ask that the Australian government begin active talks with senior members of the Australian quantum community to more accurately tailor how quantum technologies should be defined with respect to this new framework. This may take the form of re-introducing activity thresholds that trigger FIRB review, whitelisting investors by national origin or refining definitions of quantum technology to avoid complete capture of the field. This will ensure that relevant national security precautions can be maintained without unduly restricting the ability of the Australian quantum community to establish itself as the rest of the world accelerate their own efforts into quantum technology development.

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<sup>1</sup> <https://www.globenewswire.com/en/news-release/2021/06/28/2253975/0/en/Global-Artificial-Intelligence-Market-Size-2021-Rise-at-35-6-CAGR-Will-Grow-to-USD-299-64-Billion-by-2026-Facts-Factors.html>

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