Opportunity over fear in quantum technology: Biercuk

Australia and its allies are now faced with a once-in-a-generation opportunity to build a greenfield quantum technology industry, predicted by analysts to be worth more than $1 trillion over the next decades.

In policy discussions and frameworks we need to collaboratively prioritise the upside of this commercial opportunity for Australia, rather than the perceived downsides of proliferation risk.

Quantum technology promises to be as transformational in the 21st century as harnessing electricity was in the 19th. The applications are nearly limitless: from new financial and AI algorithms to novel solutions in materials engineering and industrial chemistry by quantum computers; from new ways to track underground water to the ability to navigate undersea or in deep space using quantum sensors.

I founded Q-CTRL in November 2017 with the mission to make quantum technology useful for real applications through our special capabilities in quantum control. We're a global business and appear on most 'top ten' lists for the world's best quantum startups; we're also Australia's first venture-capital-backed quantum tech startup.

Navigating the Australian landscape as an early entrepreneur in the Australian quantum tech industry, I've had the unique opportunity to look across many intersecting policy initiatives and how they are currently shaping the quantum sector in Australia.

Examined holistically, Australia's policy approach to date has largely been about mitigating potential downsides via restrictions: new constraints on foreign investment; new emerging export controls; new defence industry compliance standards that are not fit for purpose in cloud-native tech startups, and likely more regulations to come.

Any of these may be sensible on its own; in aggregate Australian policy around quantum technology is all stick and no carrot. It's choking our aspirations and limiting the opportunity.

Breaking out of this requires us to prioritise opportunity over fear.

Fund a range of efforts, in parallel, at truly transformational scale

When we invest in the quantum opportunity, we need to think differently than we have in the past. It's time to build a program that breaks out of the small funding increments that foster reliance on government programs rather than helping industry partners reach critical scale.

We need to see government investing in many different programs – even supporting multiple teams working on the same topic. Some R&D failure must be embraced in order to move at a global pace. Otherwise, Australia will just be left behind in a fast-moving sector…again.

Prioritise structures that enable commercial opportunities

The most concerning regulatory instruments right now limit both inbound capital investment and outbound export opportunities via overlapping, piecemeal restrictions (for example, the Foreign Investment Review Board and Defence Export Controls). Any new government quantum technology programs involving the private sector should guarantee that dual-use commercial opportunities can be capitalised upon, granting advance clearance for export and commercialisation plans.

The risk that tech will move offshore to focus on larger contiguous (hence unrestricted) markets with better VC funding and broader customer bases like the US is real and validated by decades of experience.

Share and jointly develop sovereign capability between AUKUS partners to accelerate R&D and produce a force-multiplier effect enabling impact at scale

Australia is seeing early wins in the establishment of globally competitive commercial startups. But our sector is now faced with a new dilemma – how do we sustain companies that transition from startups to scaleups and need growth funding?

The AUKUS pact between Australia, the UK, and US, may focus on submarines, but in announcing it, the Prime Minister explicitly referenced an opportunity for technology sharing to include quantum tech.

It's time that we actively redefine sovereign capability to include solutions built and funded between the AUKUS allies. Let's start with modest cross-border partnerships with a path to growth in the future.

Quantum technology truly promises to be one of the most significant export opportunities for Australia in the 21st century. The technology is here. The talent is here. The will is here. Even government recognition is here.

The current moment should be seen for what it is – an opportunity to deliver pride, prosperity, and strategic advantage.

A quantum technology policy framework which reflects this is within reach, if we just shift our focus first and foremost to target the upside we see.