

19 August 2020

Dear Review Panel

**RE: Major Reforms to the Foreign Investment Review Framework Consultation**

I am writing to provide feedback on the Foreign Investment Reform Bill exposure draft. To start I ask a question of our policymakers:

- Do you want to have the strongest and most advanced financial sector globally?
- Do you want to have a sovereign advantage in pharmaceutical discovery for pandemic preparedness?
- Do you want domestic leadership in autonomous vehicle networks?
- Do you want to have sovereign capability in early threat detection for defence?
- Do you want to capitalise on the most profound export-industry opportunity of this generation?

The entire potential of quantum technology to support these ambitions – outlined in detail in CSIRO’s Quantum Technology Industry Roadmap – is now imperilled by the unintended consequences of this draft legislation. Quantum technology is likely to prove as transformational in the 21<sup>st</sup> century as harnessing electricity was in the 19<sup>th</sup>. Australia now has a once-in-a-generation opportunity to *lead* the development of a global industry and has already begun this journey.

I am a quantum physicist and the founder and CEO of Q-CTRL. Q-CTRL is Australia’s first venture-capital backed quantum technology company, specialising in a discipline called quantum control engineering. We have been featured on the cover of the Australian Financial Review, in Forbes and Wired, and have become a top-ten-global quantum technology company by funds raised because our technology may hold the key to enabling a global trillion-dollar industry.

Q-CTRL is a story of successful research commercialisation. We currently employ nearly 40 people – less than three years since founding – and hope to grow to over 100 Australian employees in the next several years. Main Sequence Ventures, affiliated with CSIRO, was our initial lead investor. With their help we have raised multiple venture capital rounds including a Series A attracting AU\$22M – one of the largest VC deals of 2019 in Australia. Our total capital raised has included 44% from foreign investors.

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The broad definitions of “national security businesses” in this draft legislation encompass effectively all emerging quantum technology companies and place our sector at a tremendous disadvantage relative to competitors formed in regions with larger and more mature investor bases including the US and EU. Simply put, Australian venture capital is insufficiently mature to support growth in our industry at this stage, meaning that fully realising the potential of quantum technology in Australia necessitates the involvement of foreign investors.

Investors in the famed Silicon Valley have many options globally, and inhibiting our access to them puts at risk Australian prosperity. As I describe in the attached detailed submission, the nominated FIRB process for national security businesses disproportionately impacts early stage technology companies, disincentivizes foreign investors in the US and other Five Eyes nations from investing in Australian technology, and ultimately gives a better deal to the foreign investors who remain willing to participate, at the expense of Australian companies and employees.

Australia risks cutting off the nascent quantum technology industry at its knees by implementing an expensive and time-consuming review process (on the scale over which startups are born and die) on low-risk early stage companies. Proceeding without amendment will ensure that Australia fails to capitalise on its long-term investments. Moreover it will increase the likelihood that technology development in a critical area - where other nations are investing billions of dollars - occurs offshore, missing Australia’s opportunity to develop sovereign capability.

We are keen to work with the Treasurer to develop amendments which ensure the stated goal of protecting Australian national security while avoiding unintended consequences that could hobble this industry. In the following material we present a detailed discussion of the risks presented by this draft legislation to Australian technology SMEs in general, and quantum technology companies specifically. In addition we present simple, risk-based suggestions for amendments to the legislation that would ameliorate these concerns and ensure a viable quantum technology flourishes in Australia.

Yours sincerely,



Prof. Michael J. Biercuk  
Chief Executive Officer & Founder

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### Summary of Risks to Australian Technology Small and Medium Enterprises (SMEs)

The proposed changes to foreign-investment review have an outsized effect on Australia’s emerging technology startup space.

This sector promises enormous opportunities for large-scale rewards in economic prosperity and enhanced national security if Australian SMEs can be aligned with the needs of the defence and national-security sector. Early-stage technology companies provide the additional benefit that nearly all capital available to a startup is allocated directly towards staff costs, making the impact of this sector on jobs-growth outsized. Quantum technology is a special and noteworthy sector within the Australian technology ecosystem due to its recognized importance in industries from finance and drug discovery through to national defence. Nonetheless, the Australian technology sector lags behind international counterparts in the availability of domestic private capital.

The proposed legislation will have the following major negative unintended consequences without substantial amendment:

- 1) This legislation will disproportionately curtail critical early and mid-stage foreign investment from allied nations in the nascent quantum technology industry.
- 2) It will disadvantage Australian technology-focused SMEs aligned with perceived or actual “national security” activities by disincentivising a critical pool of potential foreign lead investors from Silicon Valley, the five eyes, and friendly APAC nations.
- 3) The review process will disadvantage Australian technology-focused SMEs by jeopardizing business operations through delays on influxes of capital essential to maintain basic operations. It will also force them to raise capital *earlier* than they otherwise would have due to the time required for foreign-investment review, reducing valuations and net benefits for Australian founders.
- 4) The broad national security definition will harm Australian national security by creating a perverse incentive for the Australian SME technology sector to avoid engaging with local defence in order to minimize new regulatory requirements.

The evidence suggests local SMEs provide the opportunity for the development of novel sovereign technological capabilities of relevance to national security and may in the future become critical parts of the national security industry. In their earliest stages such companies are primarily focused on (i) ensuring they can continue to attract essential operating capital, and (ii) identifying essential opportunities and markets (including the defence market) where they can build activities. This draft legislation poses an existential threat to such plans.

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**Suggested Amendment**

We recommend the incorporation of risk-based tests to avoid ensnaring early-stage Australian technology SMEs – including quantum technology companies – at a time in their lifecycle where the compliance burdens may prove fatal to the success of the business, denying potential long-term benefits to Australia.

The explanatory memorandum defines the nominal target businesses for Foreign Investment Review; “[1.42] National security businesses are endeavours that if disrupted or carried out in a particular way may create national security risks.” Concretely, with this definition in mind we recommend:

1. **Exemption or exclusion of certain early-stage businesses from the definition of national security businesses.** The risks of foreign ownership posed by early-stage companies are fundamentally different than those posed by established organisations embedded in the national security industry. Early stage businesses have the least national security relevance based on the above definition, but suffer the greatest potential negative impact from the proposed changes. We recommend thresholds based on business maturity (>10 years of operation), total capital raised (>\$100M), or amount of annual defence-derived revenue (>\$20M/y).

*Benefits:* This approach ensures that onerous restrictions are not placed on early stage companies which have limited ability to either pose national security risks or wait for/ pay for foreign investment review. It also reduces the number of necessary reviews across the sector, reducing time to completion for more mature companies.

2. **Exemption of review for investors from Five Eyes nations.** In the context of defence technology exports certain nations are generally granted special permissions as recipients of Australian exports. Foreign investment review for national security businesses should align with defence export principles and grant exemption from review for nominated owners based in Five Eyes nations.

*Benefits:* This approach harmonizes the preferential treatment of intelligence sharing nations with foreign investment review, and again minimizes reviews for low-risk investments.

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### Expanded Discussion

In the following we provide further discussion of the four key risks identified above:

- 1) Quantum technology is an exceptionally promising area that represents Australia’s greatest export-market and sovereign-technology capability opportunity of this generation. The field has attracted enormous inflows of foreign research investment – primarily from the United States – since the late 1990s and has made Australia a major destination for quantum research. Australia not only has exceptional strength in fundamental research in this area, but it has begun to develop a home-grown industry as well. The potential economic benefits of this field are captured through the CSIRO’s quantum technology roadmap and indicate total addressable global markets measured in the range of trillions of dollars by 2030. In short, quantum technology may have transformational benefits ranging from advanced computing for pharmaceutical research through to autonomous navigation for long-haul freight networks.

The potential technological benefits of this field – despite its early stage of development – have been identified by Australian defence through inclusion of quantum technologies for computing, sensing, and navigation in defence industry and sovereign capability priorities. Accordingly, any businesses with activity in this area may be automatically captured as national-security businesses, under the guidance of paragraph 1.51 of the explanatory memorandum. This means that foreign review is expected to be in force *from day one of the existence of quantum technology companies*.

As described in greater detail in topic #2 below, Australia lacks a mature venture capital industry with a multi-stage interest in so-called “deep tech” research driven fields like quantum technology. Foreign investment is essential for this field to grow – it will fail if we severely curtail the ability of early and mid-stage startups to raise capital from foreign lead investors interested in a stake >10% equity ownership.

This combination of facts means that this sector – which may represent Australia’s best opportunity for both economic prosperity and sovereign technological capability – will be disproportionately disadvantaged before it even emerges. Q-CTRL is Australia’s first venture-capital-backed quantum technology company. It could be the first of many, but adding a three month compliance burden – and fees of perhaps tens of thousands of dollars – to a pre-seed or angel-funded company is likely to kill many more potential startups than technologies it protects.

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- 2) Foreign investment from Silicon Valley is essential for early-stage technology companies in Australia. Australian venture capital is immature relative to international ecosystems such as Silicon Valley. Accordingly, Australian SMEs have access to a much smaller pool of domestic capital than their counterparts in the US with whom they compete; by adding a new regulatory burden with zero-dollar thresholds for review triggers, they will now face new disincentives for foreign investors to commit to investments in Australia.

SquarePeg Capital – Australia’s largest VC fund - has a portfolio where 57% of the total VC capital raised into Australian companies is from foreign sources, totalling over \$971M of foreign-capital inflow. Even the relatively younger Main Sequence Ventures – a fund only three years old – reports 25% of the capital raised by their portfolio companies comes from foreign source.

The Australian VC community lacks the diversity of investors that is required to support early-stage companies seeking to scale globally. Main Sequence Ventures, taking its first tranche of Limited Partner funding from CSIRO, was specifically stood up to help address this substantial gap, but remains quite unique in Australia for scale and scope of activities. This class of investor is essential for capital-intensive deeptech SMEs, making this sector particularly reliant on foreign investment.

Importantly the trigger threshold of 10% ownership or more in a national security business - with control at the Board level (Explanatory memorandum paragraph 1.69) - specifically targets potential foreign *lead investors* who are most sorely lacking in the Australian VC community for Australian early-stage companies beginning a process of global scaling.

The growing interest of Silicon Valley investors in Australian technology SMEs is at risk of dislodgement through onerous new regulatory frameworks. VCs seek to work fast – closing deals in weeks from the time they decide to invest. If the new regulations are implemented as drafted, why would a Silicon Valley investor pursue an Australian option with a new regulatory complication when they can make unhindered investments in other geographies within the US? Australian companies are already facing an uphill climb to attract the capital they need, and the >10X difference in scale of population and economics between Australia and the US adds a major disadvantage to Australian technology SMEs. Anything that disincentivizes Silicon Valley or similar VCs from investing in Australian SMEs is potentially disastrous

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- 3) Early-stage Australian technology SMEs are particularly disadvantaged by the proposed legislation because the required review period effectively shortens the capital runway over which they may be active before seeking additional funding.

*A potential 90 day foreign-investment-review period has a completely different impact on an established organization than it does on a high growth startup. Similarly, fees of tens of thousands of dollars can be a prohibitive impost for early-stage organisations. An established business will generally fund operations based on both cash reserves and a steady incoming revenue stream. By contrast, most early-stage companies are either pre-revenue or operating at a substantial loss. Capital runways available for expenditure in such early-stage companies are typically 12-18 months, meaning that frequent fundraising is required while revenue is small or non-existent.*

A startup seeking investment will typically start their investment process with approximately six months of remaining capital-runway remaining. A 90 day review period – if it could be guaranteed – extends the necessary time for the investment process by 50%. (We note FIRB is explicitly stating they cannot meet statutory time frames at present – even before a dramatic expansion of the companies mandated to undergo FIRB review.) This is a substantial change in relevant timescales and has impacts on expected progress against business milestones.

By forcing organizations to begin a capital raising process 50% earlier than they normally would, they will in turn be forced to accept lower valuations and hence greater capital dilution – to the specific disadvantage of the Australian parties involved. Again, this issue particularly disadvantages early-stage technology companies who are essential *in the long term* to national prosperity and national security.

- 4) The proposed legislation disincentivises Australian technology SMEs from engaging with R&D aligned to stated defence priorities. It ultimately pits the existential requirement to raise capital in a timely and commercially advantageous manner against Australian defence’s stated desire to improve engagement with the SME sector as a vital contributor to defence capability. Therefore the legislation as drafted may ultimately undermine the availability of sovereign technological capability to safeguard Australian National Security.

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The explanatory memorandum states, “1.42 National security businesses are endeavours that if disrupted or carried out in a particular way may create national security risks.” This definition is objectively clear to a reasonable reader but conflicts with following definitions provided in the explanatory memorandum.

For instance, the text of paragraphs 1.47, 1.48, 1.50, and 1.51 explains that the definition of “national security businesses” would include early stage businesses seeking to develop novel technologies aligned with stated defence priorities. An early-stage startup seeking funding through a program such as the Defence Innovation Hub for a prototyping exercise of a new technology aligned with a defence research priority would therefore be captured as a national security business. Objectively, however, the company’s early stage conflicts with the notion that the business, “if disrupted or carried out in a particular way may create national security risks.” How can an early-stage company seeking seed funding for research create a national security risk if the project is disrupted?

It is important to point out that even though these businesses may have ideas of great relevance to defence strategic priorities, they are under no commercial obligations to engage with defence or pursue these business activities. Engaging with Australian defence is already considered a difficult proposition for most technology SMEs – a fact publicly acknowledged in the Defence Science and Technology Strategy 2030, “More, together.” The proposed legislation adds another compliance burden that serves as a disincentive to pursuing activity in the defence market when they could otherwise address civilian commercial technologies.

*This example highlights the importance of establishing thresholds of technological maturity in the definition of a national security business, to ensure that it applies to cases where disruption to defence would be real.* In the absence of monetary thresholds, valuation thresholds, or any form of activity tests for national-security-related engagements (e.g. defence-focused R&D), this definition captures an exceptionally broad range of small businesses and degrades sovereign capability.

Finally, we note that the principles used in the explanatory memorandum give defence exceptionally broad discretion to shape or curtail foreign investment in any new technical areas. Paragraph 1.51 indicates that if defence decides to list any topic area as an “investment priority” – even if the area is nascent and not ready for military use – that it will attract a designation that the area may attract FIRB limits on foreign investment. This is an extraordinary allocation of authority to defence that moves outside the general principle of *risk-based* technology controls in favour of limiting anything in which defence has *interest*.

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