

Information Request Response Form

In response to the Request

By: Ministry of Business, Innovation and Employment (MBIE)

For: Quantum Technology Discovery Process (2026)

Date of submission: Monday 9th March 2026

Instructions for Respondents

1. Read the Information Request which outlines what information we seek and from whom.
2. Fill in this form.
 - Answer the questions you feel are relevant to your organisation / activities / interests. You do not have to provide responses to every question.
 - Feel free to include images and graphs in this document.
 - Do not insert links to long documents if possible. They may not be viewed.
 - If you do not want specific information shared publicly, please label it as SENSITIVE.
3. Everything written in **PURPLE** is information to help you fill in the form. Delete all **PURPLE text** before submitting your filled in Response Form.
4. Everything shaded in **BLUE** is customisable by you. When you have completed these areas please un-shade them.
 - The purple boxes are Respondent Tips. Delete these after reading.
 - Write your response in the blue sections. **Un-shade the blue once you have filled these out.**
5. Submit your Response to nziatestablishment@mbie.govt.nz no later than 5:00 pm (NZT) on 6 March 2026.

Section 1. About you

This response is from Technology New Zealand, reflecting the views of its newly-formed Quantum Forum.

| Item | Detail |
|--------------------------------|---|
| Name: | New Zealand Technology Industry Association Incorporated (TechNZ), reflecting the views of its newly formed subgroup, the Quantum Forum |
| Trading name (if different): | Tech New Zealand (formerly known as NZTech) |
| Physical address: | Office B, Level 1, 368 Beach Road, Mairangi Bay, Auckland 0630 |
| Postal address: | P.O. Box 65-503, Browns Bay, Auckland 0754 |
| Registered office: | Office B, Level 1, 368 Beach Road, Mairangi Bay, Auckland 0630 |
| Website: | https://technewzealand.org.nz |
| Type of entity (legal status): | Incorporated Society |
| NZBN registration number: | 9429043098002 |
| Country of residence: | New Zealand |
| NZ GST registration number: | |
| Contact person: | Graeme Muller |
| Position: | Chief Executive |
| Phone number: | |
| Mobile number: | 021 0252 0767 |
| Email address: | graeme.muller@technewzealand.org.nz |

Section 2. Your response

General information about you

1. What is your role or interest in New Zealand's quantum science, innovation and technology ecosystem?

Tech New Zealand seeks to be the national connector for New Zealand's tech ecosystem. We bring people, communities, and partners together to grow the tech economy, build skills and inclusion, accelerate sustainable innovation, and ensure technology is trusted and safe.

2. How do you currently engage with quantum technology or quantum-adjacent capabilities?
Insert an 'X' for any that apply:

Conducting research related to quantum science, innovation and technology

Developing quantum hardware, software or systems

Developing quantum-adjacent technologies such as sensing and materials

Providing quantum-related products and / or services to the market

Applying quantum technologies developed by others

Supplying components, subsystems, infrastructure, or services into quantum value chains

Exploring potential future applications or markets enabled by quantum capability

Other: TechNZ recently formed a Quantum Forum, to connect NZ participants and interested parties across the quantum and photonic ecosystem.

Information about your research

3. Describe your current and potential areas of research. Please note ANZSRC (Australia and New Zealand Standard Research Classification) codes, if relevant.

n/a

4. Detail your research group affiliations. Who are you working with (domestically and internationally)?

n/a

Information about your commercial / business activities or potential

5. Describe your quantum-related products, services, business activities, or potential.

n/a

6. Describe the maturity and commercialisation of your quantum-related research, including:

- your organisation's experience with commercialising quantum technology research;
 - current technology readiness levels (TRLs);
 - pathways and anticipated timeframes to commercialisation.
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n/a

7. What is your current or anticipated commercial model related to quantum technology (e.g. IP licensing, product sales, services, export of components, contracts, grant, spin-outs)?

n/a

8. Which markets or customer segments do you see as the primary opportunity for your quantum-related research, products or services? (e.g. health, energy, space, telecommunications, defence)

n/a

Opportunities and barriers

9. What, if anything, distinguishes New Zealand-based researchers and firms from other participants in the global quantum technology market?

Quantum-related opportunities can be categorised as:

- Quantum sensing
- Quantum communications
- Quantum computing
- Quantum simulation
- Photonics technologies
- Post-Quantum cryptography.

We are aware of the advanced work of scientists and innovators in NZ university & CRI organisations affiliated with the Dodd-Walls Institute, notably:

- quantum memory for sensing and communications – to link quantum computers, and for space-based communications
- optical micro-resonators or microcombs, highly precise measurement tools
- conversion of supercooled microwave photons to room-temperature optical photons, for communications and computing
- developing Ising machines, for solving computationally complex problems.

Naturally, there are players in other international countries active in the development of quantum and photonics technologies.

- Quantum computers – we believe other players are well ahead in developing computationally useful quantum computers – both hardware and accompanying operating software stacks.
 - Quantum key distribution (QKD) and quantum-secured networks, that are thought to be intrusion-proof.
 - Post-quantum-cryptography (PQC) network encryption equipment and software, to protect data (typically in transit) based on NIST-approved quantum-safe encryption protocols.
 - There is gradual exploration and development of quantum-based software, algorithms, and models for solving complex computational use cases.
 - Chemical modelling for drug development, battery and energy technologies, microchip manufacture
 - Biotechnology, e.g. medicines and vaccines based on mRNA
 - Advanced materials development, e.g. for aerospace
 - Complex global supply-chain optimisation, complex energy grid optimisation
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- Random number generators, stronger cryptography, stronger data decryption
 - Financial market risk, pricing and behavioural analytics.
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10. Where do you see New Zealand having the best chance to position itself in global quantum value chains? Are there any gaps or niches that New Zealand could fill?

New Zealand already has strong science in some of the areas listed above. We don't have a strong track record in providing secure funding and support for scientific innovations; or development into commercial products; or market development for those products; or in capturing value for the NZ taxpayer as that process occurs. Improving this support and value capture is one of our major opportunities, in quantum and photonics, as with broader areas of scientific innovation.

While NZ has that opportunity to continue to grow and commercialise our deep research, we also have opportunities to cultivate skills and companies enabling us to enter related markets with a much lower bar to enter, notably PQC encryption software, and quantum-based software, algorithms and models.

11. From a research perspective, which of the following are the most significant barriers or bottlenecks to expanding research and commercialisation of quantum technologies? Rank the following (give a score of 1 to 6, with 1 being most significant) and provide an explanation:

- 2 Talent and workforce capability
- 3 Infrastructure and equipment
- 4 Regulatory requirements (e.g. approvals, licences, specific rules) or uncertainty
- 1 Early-stage investment funding
- Cultural or practical factors in the New Zealand context
- Other: [please describe]

1 Early-stage investment funding

Continuous and predictable funding is the baseline requirement for retaining scientific talent and maintaining the continuity and momentum of scientific development. The same is also required for the effective commercialisation of those technological developments, with a view to astute models for ownership and commercial return on those investments for the NZ taxpayer. Currently, sectoral funding is already fragmented across multiple organisations, increasing the continuity risks and administrative overhead of both administering and applying for funding.

2. Talent and workforce capability

The science sector needs a steady stream of high-calibre candidates to grow and deepen our capabilities, supported by the early investment above. We need more and better maths and physics, but also more engineering, software, and commercialisation skills. Our STEM subject achievement rates are poor, and efforts to address this are often frustrated by politically correct distractions. Government changes to immigration settings for talented migrants have also been frequent and disempowering to both employers and migrants.

3. Infrastructure and equipment

The sector could benefit from specific infrastructure to assist scientific development. These use cases could span many areas, so it's useful to prioritise spending through business cases on infrastructure which will be frequently used over a long life cycle; or on building infrastructure which in itself advances the science.

Specifically regarding quantum computing platforms – these are very difficult and expensive to acquire and operate, and are rapidly evolving in capability hence also in obsolescence. In our opinion, the NZ

Government should resist diverting scarce funding from growing the essential scientific and commercialisation efforts into a symbolic “trophy” platform. As with previous generations of significant computer development, a small financial commitment to a shared access model (time-sharing / bureau) on a trusted provider’s offshore systems is likely to provide a much lower-cost option, better suited to initially small pioneering software development efforts.

Over some years, the economics of growing use cases earlier may flip this dynamic in favour of onshore hosting, although we anticipate that this could be 5-10 years away, during which time large refinement in the capabilities of quantum hardware and software will evolve. There may be a case to be made for a platform for more urgent national interest cryptography use cases, although the state of software development for these use cases is not widely available in the public domain.

4. Regulatory requirements

While we support increased funding for research and commercialisation, we also support tighter mechanisms for retaining ownership of the commercial advantages of these developments for the NZ taxpayer. Funding commercial and venture capital / incubator organisations to privatise the gains of publicly funded research seems contrary to the interests of the taxpayer.

It is also too soon to judge whether the creation of the NZ Institute for Advanced Technology will increase fragmentation, or add clarity to the landscape, which includes MBIE, TEC, the Dodd-Walls Institute (representing universities and CRIs), the KiwiNet TTOs, the TTOs outside of Kiwi Net, the funded incubators, public providers such as REANNZ (incorporating NeSI), the Marsden Fund Council, the Royal Society, etc.

12. What types of new businesses or spin-outs could emerge if the right research and infrastructure were available in New Zealand?

Most likely, deep tech companies in the strength areas of current quantum and photonic research; potentially a PQC security software company; and one or more companies with commercially applicable quantum software models and applications.

13. What has prevented these opportunities from being pursued to date?

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- Scarcity/insecurity of funding for product development, and for market development (either from government or the private sector);
 - Competition in international markets, especially from multinationals with strong funding for and skills in product and market development, and already with momentum and referenceability in related/adjacent markets;
 - Therefore, the high risk of not achieving significant international market share and profitable returns.

14. How do you perceive the availability and attractiveness of early-stage investment opportunities in quantum technology?

Commercially, risky; but nationally, strategic. This aligns quantum and photonics opportunities to government (rather than private) investment, but with a corresponding responsibility to commercialise the returns for the taxpayer, rather than donating the fruits of public research and commercialisation to the private sector.

15. From a business perspective, which of the following are the most significant barriers to getting New Zealand quantum-related products and services to domestic and international markets? Rank the following (give a score of 1 to 8, with 1 being most significant) and provide an explanation:

- Access to specialised infrastructure or facilities
- 3 Ability to attract and retain globally competitive talent
- 1 Availability of patient growth capital
- 4 Difficulty securing early customers or reference clients
- Small domestic market
- 2 Fragmentation between research and industry
- Regulatory or export control uncertainty
- Other: [please describe]

(1) Because the commercial returns are very uncertain (in time, probability and size), and competition is likely to be widespread, private investment is likely to be underwhelming. Public funding for the public good, with the possibility of a commercial return, is likely the only viable model to enter these markets.

(2) The bridge from innovative science to useful product development, to building a commercial vehicle successful in international markets, is a massively difficult journey, requiring long-term commitment of funding and talent. Currently government fragmentation of funding and effort does not make this easier. Clarity over the long-term purpose of eventually maximising NZ's international market success is essential.

(3) Enough money in (1) and purpose in (2) could attract specialised talent, but for maximum benefit, we should be growing our focus on STEM education at large, and ensuring immigration and employment settings for science and commercialisation are as friendly as possible and stable over the long term.

(4) New Zealand is only one of many countries with quantum and photonics ambitions, and commercial products are already being rolled out in selected parts of these fields by participants from many countries. Some are by specialised niche players, but many are from large well-established industrial technology providers, with long and strong histories in product commercialisation and broadly established routes to market. New Zealand players will need to be both fast to market and agile in gaining market footholds in addressable market niches.

Designing an effective national research platform

16. What specific areas of quantum technology (enabled and / or adjacent) should a national research platform focus on to maximise economic benefits to New Zealand?

Investments in a “national research platform” are unlikely to end up with one solution. These are likely to span a range of quantum, photonics and supporting technologies, and should be guided by the scientific progress and needs of researchers within universities and CRIs, typically aggregated and advocated through the Dodd-Walls Institute, and commercialising through technology transfer offices (TTOs).

For the next few years, our need for genuine quantum computing capabilities is likely to be small, so in particular we do **NOT** advocate for the diversion of scarce investment away from essential research and commercialisation capabilities, towards a dedicated NZ-based quantum computing platform.

However, we do advocate for prompt engagement with the quantum computing training tools and time-slicing “bureau” offerings which are already emerging, to enable the rapid upskilling of a quantum software sector through our academic institutions.

Also for:

- increased and consolidated investment in scientific research and innovation;
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- investment in commercialisation with the goal of eventual taxpayer return;
 - workforce upskilling in STEM at large, and quantum and photonics in particular;
 - enlightened migration and employment policies which encourage skilled inbound immigration on a stable long-term basis.
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17. What barriers (identified earlier) could be addressed through a national quantum technology research platform, and which may sit outside its scope?

If the “national research platform” was a New Zealand government subscription to bureau/shared quantum computing resources, then this could enable some niche areas of scientific innovation, and could grow skills development for a quantum software industry.

However, this investment should remain modest for the foreseeable, to enable continuing and ideally growing funding of broader quantum and photonics research and commercialisation. Other “platform” investments should be guided by science and commercialisation business cases, informed by the science sector.

18. What core functions and operating models could help a platform support rapid progress towards commercial outcomes?

Uptake of quantum computing training tools and time-slicing “bureau” offerings which are already emerging, would enable the rapid upskilling of a quantum software sector through our academic institutions.

A good example is the IBM Qiskit software stack for quantum computing and algorithms research <https://quantum.cloud.ibm.com/>

19. Are there international models or partnerships we should consider adopting?

Quantum strategies are being developed and executed by many leading nations:

- Australia - <https://www.industry.gov.au/publications/national-quantum-strategy>
 - UK - <https://www.gov.uk/government/publications/national-quantum-strategy>
 - USA - <https://www.quantum.gov/strategy/>
 - Canada - <https://ised-isde.canada.ca/site/national-quantum-strategy/en/canadas-national-quantum-strategy>
 - European Union - <https://digital-strategy.ec.europa.eu/en/library/quantum-europe-strategy>
 - Germany - https://www.bmfr.bund.de/EN/Research/EmergingTechnologies/QuantumTechnologies/quantumtechnologies_node.html
 - France - <https://quantique.france2030.gouv.fr/>
 - Switzerland - https://quantum.scnat.ch/en/science_and_innovation/swiss_quantum_strategy/uuid/i/79a17716-3fa8-5ab6-aa18-9640400f28a7-Swiss_Quantum_Strategy
 - Japan - <https://www8.cao.go.jp/cstp/english/quantum/index.html>
 - South Korea - https://quantuminkorea.org/wp-content/uploads/2024/06/Koreas-National-Quantum-Strategy-2023_c.pdf
 - Taiwan - <https://www.quantumtaiwan.org/en/>
 - Singapore - <https://nqo.sg/nqs/>
 - China – (news reports) - <https://thequantuminsider.com/2026/03/05/chinas-new-five-year-plan-specifically-targets-quantum-leadership-and-ai-expansion/> and <https://thequantuminsider.com/2023/04/13/chinese-quantum-companies-and-national-strategy->
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[2023/](#)

- India - <https://static.pib.gov.in/WriteReadData/specificdocs/documents/2025/mar/doc2025317521101.pdf>

Each nation’s strategy is formed in the context of its own strengths, weaknesses, ambitions, and willingness to fund them. They all include ambitious technological developments, product commercialisation, and workforce upskilling.

The Dodd-Walls Institute is coordinating many international research collaborations between NZ and numerous international research partners.

20. What collaboration models have worked well for your organisation in the past (and what hasn’t)?

21. What would make a platform genuinely attractive for your organisation or firm to engage with? What would discourage your participation in a national platform?

22. Are there international partners or ecosystems that New Zealand firms should align with to accelerate commercial outcomes?

Yes – although these will be determined by technological alignment, market opportunity, investment appetites, track records on corporate ethics, international geopolitics, and international conventions and restrictions on technology exports.

23. What are the main risks and barriers to setting up a successful platform? How could they be mitigated?

Diversion of funding from the key activities of scientific research, product commercialisation and market-building, into an onshore quantum computing platform.

24. What additional supports would be needed to advance New Zealand's quantum technology sector?

- Consolidated and assured long-term funding of innovation and commercialisation
 - Better protections and returns for the New Zealand taxpayer from product commercialisation
 - More STEM education
 - More positive immigration and employment settings
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Anything else?

25. Looking ahead 10 years, what would success look like for New Zealand's quantum technology sector from your perspective?

- Some successful NZ companies succeeding in niche Q&P markets
 - Taxpayer returns from these and/or their IP
 - A healthy Q&P scientific and academic sector
 - More ambition in NZ's supporting education system
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26. Is there anything else you would like to share that would help inform this Discovery Process?

Section 3. Respondent's declaration

| Topic | Declaration | Respondent's declaration |
|--|---|--------------------------|
| Information Request Terms: | I/we have read and fully understand this Information Request, including the Terms. I/we confirm that the Respondent agrees to be bound by them. | Agree |
| Conflict of Interest declaration: | The Respondent warrants that it has no actual, potential or perceived Conflict of Interest in submitting this Response. | Agree |
| Details of conflict of interest: | None | |

DECLARATION BY THE RESPONDENT

I/we declare that in submitting the Response and this declaration:

- the information provided is true, accurate and complete and not misleading in any material respect
- the Response does not contain any material that will infringe a third party's intellectual property rights
- I/we have secured all appropriate authorisations to submit this Response, and to make the statements and to provide the information in the Response.

By signing this declaration the signatory below represents, warrants and agrees that they have been authorised by the Respondent to make this declaration on its/their behalf.

Signature:  _____

Full name: Graeme Muller _____

Title/position: Chief Executive _____

Name of organisation: Technology New Zealand _____

Date: 9 March 2026 _____