Submission on Draft Research, Science and Innovation Strategy recevied:

Are you making your submission as an individual, or on behalf of an organisation?
Organisation

Name
Jane Budge

Name of organisation or institutional affiliation
NZTech

Role within organisation
Government Relations Manager

Email address (in case we would like to follow up with you further about your submission)
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Which of the below areas do you feel represents your perspective as a submitter? (Please select all that apply)

If you selected other, please specify here:

Gender

Ethnicity

Name of organisation on whose behalf you are submitting, if different to the organisation named above

In which sector does your organisation operate: (Please select all that apply)
Industry, Non-profit

If you selected other, please specify here:

How large is your organisation (in number of full-time-equivalent employees)?
over 1,000

Please indicate if you would like some or all of the information you provide in your submission kept in confidence, and if so which information.

Please upload your submission document here
NZTech-covering-submission-MBIE-RSI-and-vision-Final.pdf - Download File

8 November 2019

Ministry of Business, Innovation and Employment (MBIE)

To whom it may concern,

Research, Science and Innovation (RSI) Strategy development

1. Introduction

1.1. NZTech wishes to thank MBIE for the opportunity to submit on the draft Research, Science and Innovation (RSI) Strategy and vision. We suggest this is an excellent opportunity to discuss the future of research, science and innovation in New Zealand.

1.2. We would also like to commend you on a very thorough questionnaire. It covers many of the key issues required for consideration. NZTech is happy to offer any further assistance in helping the Ministry work through your final strategy.

2. Background

2.1. NZTech is the voice of organisations redefining the world we live in, through technology.

2.2. We are a member-led, not-for-profit organisation. We represent over 1000 organisations across the New Zealand technology landscape who collectively employ more than 10% of the New Zealand workforce.

2.3. Our membership ranges from start-ups and local tech firms to multinationals, ICT firms and high-tech manufacturers. We also represent various organisations that work closely with the technology sector to generate economic growth, such as national corporations, universities, banks and government agencies.

2.4. Our goal is to stimulate an environment where technology provides important productivity and economic benefits for all New Zealanders.

3. Questionnaire

3.1. Attached are our answers to your questionnaire. We broadly support the progress made so far.

4. Conclusion

4.1. Thank-you again for the opportunity to provide feedback on the draft Research, Science and Innovation (RSI) Strategy and vision. We are again happy to engage further with the Ministry to discuss our submission and provide any further assistance.

4.2. If you have any further queries do not hesitate to contact Jane Budge, Government Relations Manager, email: jane.budge@nztech.org.nz or cell (021) 393-112.

Yours sincerely,

Graeme Muller
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Research, Science and Innovation Strategy
Submission form

The Government is developing a Research, Science and Innovation (RSI) Strategy to set out our vision for RSI in New Zealand and its role in delivering a productive, sustainable, and inclusive future.

We are keen to hear the views of New Zealanders on the draft Strategy so that we can get a better understanding of what our country needs from RSI. We also are looking for feedback on how we can take action to ensure New Zealand's RSI system is optimised for success. These views will inform the direction of Government investment in RSI and the research and innovation areas for us to focus on as a country, as well as help us understand the challenges we need to overcome.

We encourage anyone with an interest to make a written submission.

How to have a say

We have included a number of questions in the draft RSI Strategy document to highlight issues on which we would like further input. We encourage you to use these questions as a guide when submitting your feedback.

This document provides a template for you to provide your answers. Please upload the completed document using our online submission page.

You do not have to fill out every section – we welcome submissions on some or all of the questions.

The closing date for submissions is 10 November 2019.

After the consultation period finishes, we will analyse the submissions received and incorporate the feedback in the final version of the strategy.

Confidentiality

Please note: All information you provide to MBIE in your submission could be subject to release under the Official Information Act. This includes personal details such as your name or email address, as well as your responses to the questions. MBIE generally releases the information it holds from consultation when requested, and will sometimes publish it by making it available on the MBIE website.

If you do <u>not</u> want some or all the information you provide as part of this consultation to be made public, please let us know when you upload your submission. This does not guarantee that we will not release this information as we may be required to by law. It does mean that we will contact you if we are considering releasing information that you have asked that we keep in confidence, and we will take your reasons for seeking confidentiality into account when making a decision on whether to release it.

If you do not specify that you would prefer that information you provide is kept in confidence, your submission will be made public. While we will do our best to let you know that we plan to publish your submission before we do so, we cannot guarantee that we will be able to do this.

Contribution of Research, Science and Innovation

This strategy is about New Zealand's Research, Science and Innovation (RSI) at a high-level. Its aim is to identify challenges and opportunities that will have the broadest impact on our research and innovation activities. For this reason, it mentions few specific areas or sectors of research and innovation. For this draft version of the Strategy, we are keen to hear from researchers, innovators, businesses, and providers of public services on what the RSI system could be doing to accelerate progress on Government's priorities.

Question 1:   Where can the RSI system make the greatest contribution towards the transition to a clean, green, carbon-neutral New Zealand?

Question 2:   Where else do you see it making a major contribution?

Question 3:   What else could else the RSI system be doing to accelerate the progress towards the Government's priorities*?

Please type your submission below. If applicable, please indicate the question(s) to which you are responding.

Q1

The technology sector has many examples that can support New Zealand to transition to a clean, green, carbon-neutral New Zealand, including: biotechnologies, data analytics, digital transformation processes and more.

Q2.

Again, the technology sector has many examples that can drive improvements in productivity and sustainability both here and abroad. Our membership is happy to discuss these opportunities with you.

Q3.

No response

Researching and innovating towards the frontier

Question 4: Do you agree that the RSI Strategy should be focused on innovation at the "frontier" (creating new knowledge) rather than behind the frontier (using existing knowledge to improve the ways we do things)?

Question 5: In which research and innovation areas does New Zealand have an ability to solve problems that nobody else in the world has solved? Why?

Question 6: In which areas does New Zealand have a unique opportunity to become a world leader? Why?

Question 7: What do you consider to be the unique opportunities or advantages available to the RSI system in New Zealand?

Question 8: What RSI challenges are unique to New Zealand, that New Zealand is the only country likely to address?

Question 9: What are the challenges of innovating in the public sector? How do they differ from those in the private sector?

Please type your submission below. If applicable, please indicate the question(s) to which you are responding.

Q4.

While the focus of the RSI system should be on innovation at the frontier, we also suggest there are opportunities for existing knowledge to improve the way we do things, particularly when this new knowledge is combined in new innovative ways.

Q5.

If we solve New Zealand's biggest problems, in many cases we are possibly also solving some of the world's biggest problems. Most places in the world are having to deal with climate change issues, inclusiveness, increasing food output with reduced environmental impact, cyber security, digital identity, and housing a growing population etc.

Q6.

Our membership suggests we should be considering looking at what we do well and using our small nimble size to augment this via a focussed RSI system. We have wonderful food production systems, a strong social system and we do a great job at finding solutions to lots of global niche challenges. We suggest we should be enabling these skills.

Q7.

Some of our unique advantages include our size and the ability to have a strong connected and well-coordinated system. We can engage with the entire communities involved in the RSI system, including: universities, CRI's, independent researchers, industry groups and government. This leads to a more coordinated and collaborative approach to discussions across the entire system.

Q8.

The Maori world view is uniquely New Zealand and we can leverage off this uniqueness.   In many cases this supports the development of different approaches to global problems in a uniquely New Zealand way. This will clearly differentiate New Zealand in areas such as social/health services and environmental management.

Q9.

The public sector has different drivers, such as financial and governance constraints which can hold back the public sector from being truly innovative. Changes to the public service procurement process allowing for more innovation are needed to overcome some of these challenges.

Our key challenge – Connectivity

Please type your submission below.

Q10.

Yes, we agree this would definitely enable better and stronger connections. There appears to be a lot of wasted innovation in the current system through duplication of effort across institutions. Better connections and communication could alleviate this.

The current funding models lead to siloed behaviour and a competitive national RSI system verses a more coordinated and collaborative system.

Across many sectors there also appears to be a lack of alignment between industry needs and the RSI system. We suggest what is the point of RSI investment if it doesn't create practical solutions?

Guiding Policy – Excellence

Question 11: Do you agree with the definition of excellence presented here as the best thing possible in its context? Why or why not?

Question 12: How can we achieve diversity within our research workforce? What are the current barriers preventing a diverse range of talent from thriving in the RSI system?

Question 13: Do you agree that excellence must be seen in a global context, and draw from the best technology, people, and ideas internationally? Why or why not?

Question 14: Do you agree that excellence is strengthened by stronger connections?

Please type your submission below. If applicable, please indicate the question(s) to which you are responding.

Q11.

No response

Q12.

Diversity needs to be addressed at multiple levels starting with an investment in raising awareness throughout the school system. We also need to be actively working to provide role models and mentors throughout the system, changing work practices to attract and support a diverse workforce and measuring and targeting improvements.

Q13.

Yes – if we want to compete globally, we need to compare globally and work globally.

Q14.

Yes, better international connections provide many benefits.

Guiding Policy – Impact

Please type your submission below.

Q15.

Measuring impact is difficult. However, we agree that consideration should be made to how you could measure against the Treasury Living Standards Framework. We also suggest an external lens, such as input from industry, should be considered when working out how to measure impact. This could lead to better outcomes such as being more productive, reducing our environmental impact, increasing customer reach and satisfaction, creating new products, and potentially driving new revenues.

Guiding Policy – Connections

Question 16: Where do you think weak connections currently exist, and what are the barriers to connections at present?

Question 17: What actions will stimulate more connectivity between parts of the RSI system?

Question 18: How could we improve connections between people within the RSI system and people outside it, including users of innovation, and international experts, business communities, and markets?

Please type your submission below. If applicable, please indicate the question(s) to which you are responding.

Q16.

Currently, we suggest some of the connectedness between industry and the RSI system is only to meet requirements needed for MBIE research grants rather than true collaboration to solve real industry issues and opportunities.

Q17.

Our members suggest more openness. For example, there are large data sets in the health sector which are often restricted to health research. However, making this data more available to data scientists and AI specialists could create new science or innovations. We understand the privacy concerns, however, the gains are likely to be exponential. We also suggest there are many ways to ensure the integrity of the data is maintained.

Q18.

Increased transparency of research, more open research and open data policies, combined with proactive industry engagement processes might stimulate more interest from industry to engage and help direct research toward broader benefits.

Provide the opportunity for industry to receive more funding with RSI partners so industry can more actively drive the RSI needs?

We also suggest better connections between the R&D ecosystems supported by Callaghan Innovation with the RSI systems.

Actions – Making New Zealand a Magnet for Talent

Question 19: How can we better nurture and grow emerging researchers within New Zealand and offer stable career pathways to retain young talent in New Zealand?

Question 20: How could we attract people with unique skills and experience from overseas to New Zealand?

Question 21: What changes could be made to support career stability for researchers in New Zealand? What would be the advantages and disadvantages of these approaches?

Question 22: Do you agree with the initiatives proposed in the Strategy to support and attract talented researchers and innovators? Are any changes needed for these initiatives to be successful? Are there any other initiatives needed to achieve these objectives?

Please type your submission below. If applicable, please indicate the question(s) to which you are responding.

Q20.

Government could take a macro messaging and marketing role promoting New Zealand as a Science and Innovation centre, similar to how EducationNZ promotes New Zealand as an education centre, and Tourism NZ promotes New Zealand as a tourist destination.

We even suggest this could be a role for an agency like Callaghan Innovation. This could ensure a long term marketing campaign to increase target audiences understanding of New Zealand as an RSI centre.

Q22.

Yes, our members agree with initiatives to encourage campaigns such as 'Curious Minds' for increasing youth interest in RSI. This is likely to have the longest and most significant return on any investment.

Q23.

No response

Q24.

No response

Actions – Connecting Research and Innovation

Question 23: What elements will initiatives to strengthen connections between participants in the RSI system need to be successful?

Question 24: What elements will initiatives to strengthen connections between participants in the RSI system and users of innovation need to be successful?

Question 25: What elements will initiatives to strengthen connections between participants in the RSI system and international experts, business communities, and markets need to be successful?

Question 26: Are there any themes, in addition to those proposed in the Strategy (research commercialisation and international connections), that we need to take into consideration?

Please type your submission below. If applicable, please indicate the question(s) to which you are responding.

Q23.

No response

Q24.

We suggest research needs to have a better commercial focus for it to be of interest to industry. Currently, there does not appear to be any intention of commercialising research other than as an incentive to obtain a grant. The commercialisation entity for most institutions, in particular the CRI's, appear to be haphazard after the fact rather than proactively built in from the start within any research.

Increasing the Tech Incubator system, especially deep tech transfer, would be an excellent idea. However, as long as they are not siloed and competing for the same funding. Some specialisation and coordinated collaboration between the incubators, and across institutions, might make it easier for industry to engage.

Q25.

More multi-party collaboration is needed.

Q26.

Currently, there doesn't appear to be much coordination across the incubators, accelerators, research institutions, supporting economic development agencies, private/industry accelerators, and the industry bodies. Callaghan Innovation manages them from a funding perspective but more could be done to create a more coordinated and collaborative system.

If there were clearer specialisation with the research institutions supporting and feeding all the incubators it might improve industry engagement. Industry needs to understand what is trying to be achieved for better engagement.

Actions – Start-up

Question 27:	How can we better support the growth of start-ups?
Question 28:	Do the initiatives proposed in the draft Strategy to support growth of start-ups need to be changed? Are there any other initiatives needed to support start-ups?
Question 29:	What additional barriers, including regulatory barriers, exist that prevent start-ups and other businesses from conducting research and innovation?

Please type your submission below. If applicable, please indicate the question(s) to which you are responding.

Q27.

As a small nation we should be able to do better at identifying and supporting startups. Callaghan Innovation works with the various incubators and regional business partners to create places of support for the startups. However, we suggest the entire system is currently geared towards delivering what government needs rather than what the startup potentially needs.

There is currently no co-ordinated New Zealand Startup ecosystem and we recommend there needs to be one national organisation so all Startups can opeated within one connected ecosystem.

The Scale-Up system deployed by Callaghan Innovation is a great start but again the focus appears to be on how it can help government rather than how it helps the startups. Can this platform be extended to include resources and activities for startups across New Zealand that helps connect startups and create supportive networks to help celebrate and support their growth?

A Startup ecosystem could also provide an avenue for connection and promotion of startups. Is there potential to collaborate with Callaghan Innovation to design an industry/government startup entity?

NZTech has considered launching a StartupNZ Association. Currently, our operational approach is that our membership covers the cost of running the association and startups contribute very little membership funding. NZTech would be happy to work with government and Callaghan Innovation to set up a startup entity.

Q28.

We suggest the proposed initiatives are a great starting point.

However, one often cited observation is our cultural dislike of failure which often doesn't push startups sufficiently enough which can lead to a lack of growth. We recommend that some work be undertaken investigating other jurisdictions and how they support the growth of their startups.The Startup Genome project provides valuable insights.

Q29.

There are still some issues for how software R&D are treated when it comes to government support or incentives for startups. It doesn't stop digital startups from getting on with business, but it doesn't incentivise them to undertake research which may help them succeed or fail faster.

Actions – Innovating for the public good

Question 30: How can we better support innovation for the public good?

Question 31: What public-good opportunities should our initiatives in this area be focused on?

Please type your submission below. If applicable, please indicate the question(s) to which you are responding.

Q30.

Our members recommend more be considered rather than just traditional science, such as data science and AI.

Q31.

If we apply data science and machine learnings across New Zealand's big issues these are likely to be able to be commercialised and exported. For example, in areas such as health improvement, education improvement, climate and environmental sustainability improvement.

Actions – Scale up

Question 32: What is the best way to build scale in focused areas?

Question 33: Do the initiatives proposed in the Strategy to build scale in focused areas need to be changed? Are there any other initiatives needed to build scale?

Note: see following page to comment on possible areas of focus

Please type your submission below. If applicable, please indicate the question(s) to which you are responding.

Q32.

Having a "platform" to build an ecosystem around appears to help. For example, Rocketlabs and the development of a space industry, America's Cup Yacht building and its carbon fibre and sensor/data focus, Xero and its digital b2b business focus.

If we start where New Zealand has deep technologies being commercialised successfully and collaborate closely with the leading companies already taking that technology to market we can build an ecosystem around them. Success attracts success.

Q33.

No response

Scale up – Choosing our areas of focus

For this draft iteration of the strategy, **we seek input on the selection of possible areas of focus**. We will consider establishing around five focus areas, but, depending on the eventual selection, are likely to introduce them over time, rather than immediately. In addition to the criteria set out in the Strategy document, we invite stakeholders to consider the following factors in their suggestions –

- The ambition of this strategy to focus efforts in the RSI portfolio at the global frontier of knowledge and innovation.
- Ways in which the RSI system can accelerate progress on the government's goals.
- The focus areas already determined by *From the Knowledge Wave to the Digital Age*.
- Work already underway where we are already seeking to build depth and scale in the RSI system.

The following areas could be a useful start, and are highlighted in *From the Knowledge Wave to the Digital Age:*

- **Aerospace**, including both autonomous vehicles and our growing space industry.
- **Renewable energy**, building on recent investments in the Advanced Energy Technology Platform.
- **Health technologies** to improve delivery of health services and explore opportunities in digital data-driven social and health research.

We invite comment on these suggestions and welcome input on other possible focus areas.

Please type your submission below.

We recommend also considering at least one cross cutting or horizontal focus area as a means of hedging sucesses, and also as a potential opportunity for competitive advantage.

We would recommend having a RSI focus on data and data analytics as it is the foundation for all digital activities and will under pin the success of most verticals (including the above focus areas).

Actions – Towards an Extended Vision Mātauranga

This section of the draft Strategy signals our intention to consult and collaborate further with Māori stakeholders to co-design our responses and initiatives. From that perspective, we consider the signals in the draft Strategy to be a start, rather than a set of final decisions. Nonetheless, we are keen on initial feedback in the following areas.

Question 34: Does our suggested approach to extending Vision Mātauranga focus in the right five areas? If not, where should it focus?

Question 35: How can we ensure the RSI system is open to the best Māori thinkers and researchers?

Question 36: How can we ensure that Māori knowledge, culture, and worldviews are integrated throughout our RSI system?

Question 37: How can we strengthen connections between the RSI system and Māori businesses and enterprises?

Please type your submission below. If applicable, please indicate the question(s) to which you are responding.

We broadly support a focus on more inclusion of Te Ao Maori in the RSI system as we believe a Maori world view is New Zealand's real unique competitive advantage. However, we note we're not fully qualified to comment on how best to achieve this.

Q34.

No response

Q35.

No response

Q36.

No response

Q37.

No response.

Actions – Building Firm Foundations

Question 38: Do the current structures, funding, and policies encourage public research organisations to form a coordinated, dynamic network of research across the horizons of research and innovation? What changes might be made?

Question 39: Is the CRI operating model appropriately designed to support dynamic, connected institutions and leading edge research? What changes might be made?

Question 40: What additional research and innovation infrastructure is necessary to achieve the goals of this Strategy? What opportunities are there to share infrastructure across institutions or with international partners?

Question 41: What elements will initiatives in this area need to be successful?

Please type your submission below. If applicable, please indicate the question(s) to which you are responding.

Q38.

Current structures, funding and policies have created a world class RSI system. However, these structures and funding models also create silos, unnecessary competition and a lack of coordination within industry. We recommend looking at introducing some elements of structure and funding that encourage and support entrepreneurialism within the system. Israel appear to do this well.

Q39.

The CRI's are excellent institutions. Although more could be done to ensure they are better connected and structured to get even more value for New Zealand from their great scientists and research.

Q40.

We suggest consideration of more open connected data across the entire RSI system.

Q41

No response

Actions – General

Please type your submission below.

Q42.

Alignment with industry transformation plans and other key policies like being carbon free.

General

Please type your submission below.

Q43.

Our members suggest that the current RSI system invests very little into computer science, IT research, and IT science, yet digitalisation is happening rapidly across all parts of the economy.

We recommend more attention be given to developing science and research that underpins the foundational computer science such as data analytics, artificial intelligence, spatial data, cyber security and sensors – all of which is foundational to any focus area or sector.