From:	no-reply@mbie.govt.nz
To:	Research, Science and Innovation Strategy Secretariat
Subject:	Draft Research, Science and Innovation Strategy submission
Date:	Sunday, 10 November 2019 12:45:58 p.m.
Attachments:	Online-submission-form-uploadsdraft-research-science-and-innovation-strategy-submissionssubmission-form-research-science-and-innovation-strategy_DW.docx

Submission on Draft Research, Science and Innovation Strategy recevied:

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

Name
David Wratt

Name of organisation or institutional affiliation

Role within organisation

Email address (in case we would like to follow up with you further about your submission)
davidwratt@me.com

Which of the below areas do you feel represents your perspective as a submitter? (Please select all that apply)
Researcher, Public sector, Provide services to researchers, Provide services to users of research

If you selected other, please specify here:

Gender
Male

Ethnicity
Pakeha

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)

If you selected other, please specify here:

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

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
submission-form-research-science-and-innovation-strategy_DW.docx - Download File

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

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 not 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*?

* see list of the Government's twelve priorities included in Part 1 of the draft Strategy.

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

Question 1: Finding ways to reduce emissions of greenhouse gases from agriculture - especially methane and nitrous oxide - will be a very important contribution.

Question 2: To support priority 2 (supporting thriving and sustainable regions) we also need (in particular):

(i) Research and innovation that facilitates adaptation to the climate changes that are going to occur and that will impact on our regional productive activities and the safety of our homes and investments, even if there are major international reductions in emissions.

(ii) Research leading to innovative approaches to reduce inputs of harmful materials into our waterways, and to improve our water quality.

(iii) Research into innovative ways of protecting and enhancing our unique ecosystems and species (terrestrial, freshwater and marine), including support for predator-free New Zealand goals.

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.

A Comment about pages 14-19 not covered by the questions above - Our RSI System (Second paragraph on Page 14): I suggest you add "museums" to your list of organisations comprising the RS&I System. The collections held by museums, and the taxonomy capabilities of their staff are important resources, and museum staff also undertake research.

Question 4: The creation of new knowledge at the frontier is a very important part of the RSI system, but it should not be the only focus. In particular, ongoing support for appropriate routine observations and databases is important too. For example continuing to measure climatic parameters in standard ways, and continuing to maintain climate databases (where climate includes freshwater and ocean conditions as well as atmospheric conditions) is vital in order for us to know how much and how rapidly our climate is changing, for adapting to changes, and for developing and testing new knowledge of climate processes. In addition, support is needed for long-running longitudinal studies, such as the Dunedin Multidisciplinary Health & Development Study (https://dunedinstudy.otago.ac.nz) which has been running for nearly 50 years. And support for capabilities such as taxonomy will help us identify and deal with new invasive organisms (an increasing risk under changing climate), and document the many still-unknown species in our ecosystems.

It would be a tragedy if support for long-term base activities such as these was overlooked due to undue emphasis only on "frontier" areas. And in defining frontiers I think the lens should not only be global. There are also frontiers which are important for New Zealand (for example the incorporation of Mātauranga Māori, research and innovation in areas important to Maori and Pacific Islands people, and understanding and protecting our unique terrestrial and ocean ecosystems), which may not be seen as "frontiers" by other countries

but which are very important to us.

So I suggest two (often overlapping) areas of focus: (i) Creating new knowledge at the frontier, and (ii) Maintaining and building regional knowledge that will help us understand and protect / improve New Zealand's environmental and social systems.

Questions 5-8: We can make a particular contribution to building knowledge about environmental processes (atmosphere, ocean and ice) and species and ecosystems which are important in our region. (The region including Polynesia , the Southern Ocean, and Antarctica as well as New Zealand and its EEZ) - and in undertaking relevant ongoing monitoring and measurement of these. Other countries are unlikely to focus on particular aspects which are special to our region.

Question 9: A particular challenge of innovating in the public sector is the limited resource many government departments (and regional councils) have for supporting applied research and its application (the dotted circle towards the right-hand side of the figure on Page 15 of the draft strategy). There is also much potential for improved connections between staff in public service departments, and appropriate science providers and scientists. A further challenge is that the combination of annual government budgetary cycles and delays / inertia in contracting research to support priorities emerging from these can lead to very tight time scales for undertaking the needed research.

Our key challenge – Connectivity

Question 10: Do you agree that a key challenge for the RSI system is enabling stronger connections? Why or why not?

Please type your submission below.

YES.

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.

Question 13: We do need to draw on the best technology, people and ideas internationally. But competition for (and costs of) some of these people will be high, and they do not always settle well to living in New Zealand. So it is vitally important that we also maintain and build the talent of our New Zealand RSI workforce. This includes maintaining various essential core capabilities which are currently at risk (for example taxonomy). And building a strong Treaty Partnership and Vision Matauranga input and capability will depend largely on supporting and building capabilities of New Zealanders.

Guiding Policy – Impact

Question 15: How can we improve the way we measure the impact of research?

Please type your submission below.

Question 15: We need to look well beyond journal publications as a metric.

For example in the environment / public policy area factors such as the following list could all be considered as signals that research / innovation activities are likely to have impact:

- Involvement of scientists in advisory roles and working parties
- Engagement in regional / international activities (e.g. the Intergovernmental Panel on Climate Change IPCC, the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services IPBES)
- Evidence of contracted work from government departments and agencies and regional government
- Evidence of co-development and co-operation with research users.
- Science and innovation support for New Zealand innitiatives with Pacific Island countries.

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.

Question 18: The Envirolink scheme is a very effective way of stimulating connections between science providers and regional government, and of facilitating development and uptake of innovative science-based policies and actions. The current annual funding (only $1.6M) could usefully be increased. (Also, Envirolink could be added to the investment system picture on Page 14 of the draft document. Leaving it out of this diagram (and versions of it from previous years) probably means Envirolink tends to be overlooked during consideration of future RSI investments).

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.

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.

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.

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.

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.

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.

The suggested three areas of focus are worthy ones, but they do not support all 12 government priorities from Page 9 of the draft strategy. In particular if New Zealand is to successfully transition to a clean, green carbon neutral future, and support thriving and sustainable regions, appropriately targeted environmental and social research is required.

So I also favour a research focus on **innovative approaches to an environmentally and socially sustainable future** . This would include aspects such as socially resilient communities, a green carbon neutral and climate-resilient future, clean water, and healthy terrestrial and marine ecosystems.

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.

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.

Question 38: From my experience with and observation of several of the "natural resource" National Science Challenges (e.g. Our Land & Water, NZ's Biological Heritage, Deep South, Sustainable Seas, Resilience to Natures Challenges), these have had a very positive effect in facilitating links and innovative co-development between research providers and users. They have also strengthened collaboration across providers. The Government and MBIE should develop clear policy and signals about continuation of the NSC model beyond the second 5-year funding tranche, and prepare a process for decisions about continued funding of some of these NSCs (possibly with some modification in form and goals) and any initiatives for new NSCs.

Question 39: The CRI model has generated very good connections with end-users, and facilitated innovative uptake of relevant research results. However collaboration between individual CRIS and research institutes, and between CRIs and Universities, has not always been as good as it could have been. MBIE could usefully continue to encourage this through its processes - and the NSCs have been helpful in this area.

I've been through several major disruptions of research providers and the RSI system in my career, and have seen some of these lead to loss of key staff and connections, and to other sub-optimal results. I strongly favour building on the strengths of the current science and innovation providers rather than dramatic restructuring of the RSI System.

Question 40: Scientist exchanges (e.g. six month postings), and continuing consultations about sharing infrastructure and capabilities, with Australian institutions - especially CSIRO Business Units - could provide further opportunities.

Actions – General

Question 42: How should the Government prioritise the areas of action, and the initiatives proposed under each area?

Please type your submission below.

General

Question 43:	Do you have any other comments on the Strategy which have not yet been addressed?

Please type your submission below.