

From: no-reply@mbie.govt.nz
To: [Research, Science and Innovation Strategy Secretariat](#)
Subject: Draft Research, Science and Innovation Strategy submission
Date: Friday, 8 November 2019 4:25:00 p.m.
Attachments: [Online-submission-form-uploadsdraft-research-science-and-innovation-strategy-submissionsBunce_RSI_submissionNov19.docx](#)

Submission on Draft Research, Science and Innovation Strategy received:

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

Individual

Name

Michael Bunce

Name of organisation or institutional affiliation

Environmental Protection Authority

Role within organisation

Chief Scientist

Email address (in case we would like to follow up with you further about your submission)

michael.bunce@epa.govt.nz

Which of the below areas do you feel represents your perspective as a submitter? (Please select all that apply)

Researcher, Public sector

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

Bunce_RSI_submissionNov19.docx - [Download File](#)



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: It is important to consider that the best science has translation pathways into the community. With regard to contributions into a clean, green NZ some thought should be given to research that has the potential to engage community groups, iwi and students. An emphasis on community science programs may assist in getting more NZ science directly to the public – for example; I think there will be an increasing demand for programs where youth can make a tangible difference to the environment.

Question 1,2,3: While NZ has many research priorities the need for a robust system for biological monitoring is urgent. NZ and its agencies (including EPA, MFE, DoC etc) can make good decisions without good data. As echoed in the recent PCE report there is a black hole in environmental reporting.

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.

Question#4: There should always be a funding pot available to innovate – the so-called blue sky research. The issue at play is that this should not come at the cost of more routine science that is needed to make informed decisions. For example – there is a pressing need to continue to measure the biodiversity in our oceans/river/land in a standardised way. While not particularly innovative the work is vital to making decisions on fishing quotas, impacts of industry and how our oceans change in response to climate change.

Question5&6: NZ relies heavily on its environmental assets, from farming to tourism, the blue and green economies keep New Zealand ticking. It can (and should) lead in the area of sustainable environmental practices. With its progressive stance on mineral extraction, zero-carbon and predator-free 2050, NZ can become a world leader in its environmental decision making.

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.

Q10 – yes connections are vital. Between research domains but also between research and industry as well as between research and the community. All of these connections need nurturing. Funding that rewards activities at the interface (e.g. National science challenges) is likely to bring areas together.

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.

Excellence is such a subjective term. In a NZ context what is more 'excellent'. (i) a Nature/Science paper or (ii) a dataset collected over 10 years that provides a direction for a group to take that preserves the environment?

The use of Excellence is wrapped in other terms such as 'engagement' 'impact' and 'relevance'. Research in NZ may straddle these areas and can't rely purely on a metric like citations or impact factor.

Guiding Policy – Impact

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

Please type your submission below.

I think submissions on impact can be assessed at the point of funding. But, it is possible to convene a panel akin to a “Productivity Commission inquiry” or an “Independent working group” appointed by ministers every 4-5 year that is charged with evaluating and ranking impact that comes out of an institution. The PBRF may be heading down this same path?

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:

Connections are incentivised by funding – according MBIE, RSI has some leavers to pull. After working in Australia for 14 years connections could be improved by co-funded research models. Where academics leads projects (see ARC linkage scheme) and where industry leads project (see CRC-P scheme).

To encourage more industry and philanthropic funding some consideration to tax breaks to the donator could be considered.

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.

Q19: Place greater emphasis on non-traditional outputs it may be appropriate for a wider definition of 'performance'. For example, how many higher-degree students are mentored in an institution? What professional development programs are in place to mentor talent and skills? I would argue performance in research should extend beyond publications and into the wider research environment. In its current form funding models are still fixated on the 'publish or perish' mentality.

Q20 – NZ already has great Fee structures for overseas students.

Q21, More early and mid-career fellowships of about 4 years. Give research the time and space to flourish.

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.

Contributing and partnering on international programs should receive more focus. There are large benefits to incentivising partnership grants.

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.

PROACTIVELY RELEASED

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 and 31: Continue to develop projects that have direct translation to the public. Including, but not limited to, community science programs.

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.

I think the National Science challenges are a great model to build scale in a focussed area.

Continuity of funding is the key item when attempting to build scale.

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.

I think the single key area that needs focus is Biomonitoring.

This encompasses rivers, estuaries, seas and land. From making good decisions to biosecurity there needs to be an emphasis on world-class biomonitoring. In this area we continue to use 19th Century tech for a 21st Century problem.

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.

The Maori integration into research projects is very much on a case by case basis. Accordingly, it is hard to generalise.

My only point in this area is that there needs to be a move away from transactional responses with Maori to a more interwoven approach.

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.

Q40: Coordinated research in the area of environmental reporting is in desperate need of support. See PCE report. Databases that make it accessible need to be considered – see Australia's Atlas of Living Australia that is starting to be used by a number of stakeholders from industry to school students.

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.

This is a hard question to respond to – research priorities and areas can change rapidly. I think MBIE should look how other countries splits its spends across areas to see if any key areas are outliers.

PROACTIVELY RELEASED

General

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

Please type your submission below.

Formulating an overarching strategy document is a tough ask – every researcher can argue that their research is important and strategic.

I like the concept of the National Science Challenges – but these are few in number and there is a lot of duplication in governance. Smaller initiative that might act as a seed for bigger ‘challenges’ might also provide an avenue for smaller operations/areas to build and partner.

I think serious consideration need to be given to encouraging a culture of research in New Zealand beyond CRI’s and universities. Getting industry involved in research (beyond fee for service contracts) and private donors needs considerable thought. The partnerships of people and industry with researchers is, in my opinion, one of the most important areas to nurture via funding as it immediately ensures the research has stakeholders who care about the outputs.