From:	no-reply@mbie.govt.nz
To:	Research, Science and Innovation Strategy Secretariat
Subject:	Draft Research, Science and Innovation Strategy submission
Date:	Saturday, 9 November 2019 10:39:12 p.m.
Attachments:	Online-submission-form-uploadsdraft-research-science-and-innovation-strategy-submissionssubmission-form-research-science-and-innovation-strategy_privacy of natural persons.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
privacy of natural persons

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)
privacy of natural persons

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

If you selected other, please specify here:

Gender
Female

Ethnicity
NZ European

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.
Yes - Name and Email.

Please upload your submission document here
submission-form-research-science-and-innovation-strategy_privacy of natural persons.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 prioritiesincluded in Part 1 of the draft Strategy.

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

I am submitting as an individual. However I am informed by my role at a Tech Transfor Office of a NZ University, in addition to my experiences in academia and startups.

Q. 1-3

There is a gap

- Much of NZ's current capability focuses on return on investment, particularly export returns.
- We have limited scope to support the transfer of science and research with primarily social or environmental impact.

There could be a solution

- Examples such as Commercialisation Partner Network are a game changer to the NZ Research and Science Commercialisation Ecosystem.
  - Prior to Organisations like KiwiNet, Technology Transfer Offices of NZ Universities often had limited capability to pursue new opportunities. Since CPN, TTOs are able to more effectively evaluate new ideas and connect with industry partners to support transfer of IP.
- We need to support and bolster this type of mechanism to scale from commercialisation objectives with a financial focus (return on investment), to those with a primary impact focus (economy, environment and social benefit).

How this could be incorporated and benefit the RSI

- There should be an acknowledgement in the RSI that there are multiple ways in which to disseminate the results of science and research into society. Publications and commercialisation are just two examples of this.
- Providing scale for the commercialisation sector to drive impact would help accelerate the process towards a clean-green NZ AND Government priorities.

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. A potential risk in utilising these terms and defining them so broadly is that they could become an eligibility criteria that will hinder innovation rather than accelerate it, particularly if the two systems are managed by separate Government entities.

Q6-8. New Zealands' strength comes from being a fully functioning, developed micro-economy. Hence we have unique opportunities in sectors where research, science, product development, manufacturing (in-part) and market testing can all be performed in NZ.

- Medtech (specifically medical drugs or devices) is not one of these sectors due to the design of NZs' current medical regulatory system. However if we 'close the loop' this could be a strong sector.
- Food and natural products are a strength and should be enhanced.
- Sustainability is becoming a key focus for NZ businesses and could support our global brand. However we do not currently compete in this area compared to countries like Norway who have e.g. No Waste initiatives.

Q9. Key challenges:

Availability of a workforce and the funding mechanisms to support it.

- Commercialisation in the public sector find dealing with the challenge of finding, and holding onto, the right capability particularly difficult.
    - Hiring the right people at the right time is a particularly difficult prospect in NZ and in most sectors.
    - Large businesses are usually able to offer job security, reasonable pay and career development. In comparison, public view of the innovation sector is that entrepreneurs must be risk takers – sacrificing their paycheck or mortgaging their house – to prove they see value in an opportunity.
- PhDs are the workforce of research

    - PhDs are typically paid a small portion of the payrate for an equally experienced individual from industry. However because PhD programmes are typically 3 years this increases the level of commitment and resources required.
    - There is limited funding to a) entice students to enrol in, or b) support hiring of PhDs
    - There is a view from industry that PhDs, because they are 3-4 years are 'slow'
- Short-term projects are difficult to hire for
    - When needed, there isn't a pool of capability available
    - There is no, or limited, job security
    - Payrates are not competitive

There is a gap

There IS a potential workforce available from students and graduates at Universities. Tens of thousands of (mostly young) people are enrolled at each University in NZ.

These are people that are perfect candidates for innovation e.g. if a new graduate wishes to create a startup on a brilliant new idea, compared to breaking into the job market.

But, there is almost no ecosystem which will support them.

When it comes to the graph of investment system in NZ, there is a clear gap for a system that supports new opportunities from the public sector – particularly from students and graduates.

There could be a solution

The exception is a new programme called Momentum. This is a programme developed at the University of Auckland under the wing of PSAF. Momentum is an investment and mentor system that supports development of student(s) (and sometimes general public) IP.

While this is growing across various regions, this concept could be greatly expanded. Ideally it would scale to allow a greater throughput of people and IP, but also have a larger investment pool to back it.

How this could be incorporated and benefit the RSI

An acknowledgement of the workforce available to NZ could be incorporated into the RSI.

A gap in current capability and where current, or future iniatives, could scale to address current problems would benefit the goals of the RSI.

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.

I agree that this is just one of the key Challenges any innovation sector faces.

However I feel the key challenge NZ faces is adequately supporting its workforce and security of funding and job security.

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.

Q12.

Key challenges are the availability of a workforce and the funding mechanisms to support it.

This includes adequately utilising the workforce to increase diversity.

There is a gap

There IS a potential workforce available from students and graduates at Universities. Tens of thousands of (mostly young) people are enrolled at each University in NZ.

They bring new ideas from a range of diverse backgrounds.

When it comes to the graph of investment system in NZ, there is a clear gap for a system that supports new opportunities from the public sector – particularly from students and graduates.

There could be a solution

The exception is a new programme called Momentum. This is a programme developed at the University of Auckland under the wing of PSAF. Momentum is an investment and mentor system that supports development of student(s) (and sometimes general public) IP.

The program developed out of a need to increase the diversity of the groups that contributed towards the PSAF programmes. The program brings in students with new ideas and new insights, from a diverse background, to increase innovation.

How this could be incorporated and benefit the RSI

An acknowledgement of the workforce available to NZ could be incorporated into the RSI. This should include the challenges and drivers that decrease diversity of the workforce that have a direct impact on innovation in NZ.

A gap in current capability and where current, or future iniatives, could scale to address current problems would benefit the goals of the RSI.

Guiding Policy – Impact

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

Please type your submission below.

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.

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.

Q19-21.

Researchers, particularly at Universities, spend a large portion of their time seeking funding:

- For security of their role
- For security of the roles of the researchers and students that work for them

This is in part because:

- The funding pools are too small.
- The funding processes take too long.
- The funding processes have no alignment to hiring the right capability at the right time. (e.g. Feedback given soon before Project start dates)

How this could be incorporated and benefit the RSI

There should be an acknowledgement of current pitfalls such as those above and the flow on effect.

Incorporating this into the RSI could direct to where and how science and research funding should be bolstered up to the required 2% of GDP.

i.e. this would address a key missing feature in the RSI, which is the lack of context:

If its not broken, why innovate?

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.

See answers to Qs 1-3 & 9.

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.

See answers to Q1-3, 9 and 12.

The potential solution Momentum, while initially student focus, also looks for innovations by the public.

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.

See answers to Q1-3 & 9.

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.

See answer to Q6-8.

New Zealands' strength comes from being a fully functioning, developed micro- economy. Hence we have unique opportunities in sectors where research, science, product development, manufacturing (in-part) and market testing can all be performed in NZ.

- Medtech (specifically medical drugs or devices) is not one of these sectors due to the design of NZs' current medical regulatory system. However if we 'close the loop' this could be a strong sector.
- Food and natural products are a strength and should be enhanced.
- Sustainability is becoming a key focus for NZ businesses and could support our global brand. However we do not currently compete in this area compared to countries like Norway who have e.g. No Waste initiatives.

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.

Q34&35 - See answer to Q12.

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 & 40.

Researchers, particularly at Universities, spend a large portion of their time seeking funding:

- For security of their role
- For security of the roles of the researchers and students that work for them

This is in part because:

- The funding pools are too small.
- The funding processes take too long.
- The funding processes have no alignment to hiring the right capability at the right time. (e.g. Feedback given soon before Project start dates)

How this could be incorporated and benefit the RSI

There should be an acknowledgement of current pitfalls such as those above and the flow on effect.

Incorporating this into the RSI could direct to where and how science and research funding should be bolstered up to the required 2% of GDP.

i.e. this would address a key missing feature in the RSI, which is the lack of context

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.

I am submitting as an individual. However I am informed by my role at a Tech Transfor Office of a NZ University, in addition to my experiences in academia and startups.

In general, the RSI is lacking in detailed information – in not just defining potential focus features and the scope for action, but also in defining the current NZ ecosystem.

- For instance, in describing the NZ investment system, the CPN is missing from the overview. This is important given it is a major component, providing commercialisation support for NZ Universities and their Tech Transfer Offices.

There should be a greater acknowledgement of current problems and their likely influence on the current ecosystem.

- This would address a key missing feature in the RSI, which is the lack of context

There is concerning references or statements that have been made at different positions in the RSI (including 'regulations' and 'open access IP') that are not adequately clarified.

- Regulations should support acceleration of, and not be a barrier to, innovation
- Every University, public research organisation and business manage, control and own their IP.
- In the context of the RSI, these statements appear to allude to a centralisation or nationalisation of IP.
    - Centralisation or Nationalisation of IP (e.g. through a management body) is likely to have the adverse effect of reducing innovation by 'pooling' IP together and reducing competitiveness
    - Centralisation or Nationalisation removes each Organisations right to maintain, manage and focus their investment and business practises for the competitiveness and betterment of the Organisation.
- Centralisation or Nationalisation of (just) the funding mechanisms to support IP transfer is positive
    - An example would be the CPN