From:	no-reply@mbie.govt.nz
To:	Research, Science and Innovation Strategy Secretariat
Subject:	Draft Research, Science and Innovation Strategy submission
Date:	Friday, 25 October 2019 2:05:13 p.m.
Attachments:	Online-submission-form-uploadsdraft-research-science-and-innovation-strategy-submissionsHERA-comments-re-Draft-RSI-Strategy.docx

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
Troy Coyle

Name of organisation or institutional affiliation
HERA

Role within organisation
CEO

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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)
Research , Industry, Non-profit, Interface of research and industry

If you selected other, please specify here:

How large is your organisation (in number of full-time-equivalent employees)?
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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
HERA-comments-re-Draft-RSI-Strategy.docx - Download File

25 October 2019

Sent by upload to website.

Dear Minister Woods,

Re: Consultation on the draft Research, Science and Innovation Strategy

Thankyou for this opportunity to provide feedback on the above.

As an independent Research Association, HERA is actively engaged in the New Zealand research, science and innovation ecosystem.

We have three over-arching comments.

1. A key way to achieve the 2% of GDP target is to provide greater support for manufacturing innovation, research and development

We note the 2% of GDP target by 2027. While we agree that significant work is required to achieve this target, we also have concerns that the target is too low given the targets that other nations have set for themselves. This is likely to make it very difficult for New Zealand to achieve the ambitious vision of being a "*global innovation hub*" and "*world-class*".

Manufacturing is the highest contributor to New Zealand's total expenditure on R&D (at 20%). Manufacturing BERD looks great. Manufacturing GERD not so much. Manufacturing BERD represents some 42% of the national BERD, yet just <15% of GERD. Government funding has tended to overly support the primary industries and a key policy initiatives need to provide a stronger articulation of Government support to innovation in manufacturing in New Zealand, as a key way to reach the 2% target.

Specific roadblocks to manufacturing currently accessing Government incentives for R&D include:

- It's hard to obtain Government funding in a policy environment that focuses on high margin products and high tech.
- Funding programs often articulate specific support for start-ups but not for well established, large scale companies who may be very well capitalised but inexperienced in transformative R&D and be operating with low margins preventing large R&D investment. Yet transformation of these businesses is likely to have significant impact on New Zealand's social, natural, human and physical capital.

2. Imbedding the Living Standards Framework in all RSI considerations will ensure that the RSI system supports the Government's overall focus on inter-generational wellbeing.

We strongly support greater consideration of the Living Standards Framework in the RSI and stronger reference to it in the RSI Vision. Therefore, we strongly support references to "sustainable" and "inclusive" in the vision statement. We also support the greater emphasis on climate change in the RSI system. However, we support inclusion of stronger impact criteria when focusing in this area and consideration of greater support to the more established companies (*i.e.* not just start-ups), who if able to transform, will have the greatest impact on emission reductions.

3. Impact measures require greater consideration and application in funding decision-making and progress reporting

We believe that impact is often not given due consideration, leading to large funding going to projects that have questionable engagement with industry and society more broadly. The projects that are most likely to have success in terms of supporting inter-generational wellbeing are those that have active engagement with the value chain and end-users, whether they be corporate or societal. Currently, despite often being a criteria for funding, the engagement is not meaningful nor is it measured via feedback from end-users.

4. Inclusion is key

Some of the typical governance approaches within RSI are elitist. For example, inclusion of the word "best" in the statement "Ensure the RSI system is open to the best Māori thinkers and researchers". Perhaps, the intent was in reference to being able to attract competitive funding, in which case "best" would be appropriate. However, surely, the system more broadly needs to be open to all Māori researchers who wish to engage, regardless of whether or not they are the best? These subtleties in language reinforce many of the stereotypes of a competitive, elitist system, which are likely to discourage diverse engagement in STEM.

Our more specific comments are as follows.

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

To support a transition to a clean, green and carbon-neutral New Zealand, the RSI system needs to underpin and support the regulatory system that is aimed at achieving the same. Therefore, the opportunities for the RSI system to better support meaningful change towards that transition are as follows:

- Signaling planned regulatory changes and providing RSI incentives to transition whenever regulatory changes are created as disincentives to not transition (*i.e.* the one should support the other).
- Focus on support for start-ups promising the development of transformative new technologies while assessing their potential to provide impact through engagement with the industries that require these new technologies. ‘
- The biggest impact on carbon performance will be via transformation of a small number of industries (*e.g.* building and construction, meat and dairy, transport) and within those industries, a small number of entities, *e.g.* Fonterra, Air NZ, NZ Steel *etc.* These are well established, usually capital intensive, companies, industries and sectors where the greatest focus will give the greatest impact. Yet, the strategy seems to more favour start-ups and higher tech industries. Meaningful change requires engaging these companies and industries more significantly in the RSI system and a journey of adopting new innovations towards carbon neutrality. This is also important in the context that a unique part of the NZ manufacturing industry (which has the highest BERD of any

sector), according to the 2018 MBIE Manufacturing Report, is the unusually high level of low to medium tech participants.

- Identifying the key impact areas to allocate greater R&D support for these. There is ample available research to identify these key areas.
- Greater impact could also be derived by determining agreed success measures that are more holistic. For example, life cycle analysis vs embodied carbon or circular economy vs recycling.
- Greater success will require an increase in multi-disciplinary research to effect change. This type of research is often neglected in research funding criteria.

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 way we do things)?

Given the overall vision is focused on positioning NZ as a global leader, this will require the more lofty ideal of extending the frontier of research. However, the more important question is how much consideration is given to research impact vs research quality. We believe that impact is often not given due consideration, leading to significant funding going to researcher-led projects that have questionable engagement with industry and society more broadly.

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?

The key unique opportunities for New Zealand relate to:

1. focus on intergenerational wellbeing as an underlying context for research and innovation; and
2. Tikanga Māori and Vision Mātauranga.

In terms of specific capabilities, in our industry it would be related to seismic building design and associated construction practices.

Emerging opportunities for strength would be in alternative proteins for food, biomimicry, production innovation and sustainable packaging and waste processing.

Yours sincerely,
Dr Troy Coyle
CEO