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 2:59:25 p.m.
Attachments:	Online-submission-form-uploadsdraft-research-science-and-innovation-strategy-submissionsCawthron-ECR-NRSI-Submission.pdf

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
Kiely McFarlane

Name of organisation or institutional affiliation
Cawthron Institute

Role within organisation
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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
Cawthron Institute's Early Career Researchers

In which sector does your organisation operate: (Please select all that apply)
Research

If you selected other, please specify here:

How large is your organisation (in number of full-time-equivalent employees)?
250

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
Cawthron-ECR-NRSI-Submission.pdf - 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.

We have chosen to not respond to Q1-3.

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.

We have chosen to not respond to Q4-9.

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.

We have chosen to not respond to Q10.

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 11

We agree with many aspects of the definition of excellence presented in the Draft Science Investment Strategy; that science excellence is pushing the boundaries, that it should not be entirely based on publication numbers and citation indices, that it requires the best team and a global perspective. We also agree that diversity in the science system will encourage new and innovative thinking, and that when research is investigating a topic that is directly associated with a particular demographic that the science excellence evaluation should take account of how this demographic is represented and/or included in the research.

Question 12

We support MBIE in developing a science system in New Zealand that is inclusive and diverse, however, we feel that multiple issues still exist for achieving this goal:

- There is little appreciation of the multiple forms of diversity that have been affected by dominant approaches to science and research (beyond binary gender categories and ethnicity – e.g., nationality, sexuality, gender identity, socio-economic status, primary language, disabilities), and that diversity in science is often an intersectional issue. For example, international research has shown that women of colour face a double jeopardy of discrimination on the basis of gender and ethnicity.
- Retention of diversity in researchers is just as important an issue as achieving diversity in hiring, funding, etc. Research on gender diversity in the sciences for example has highlighted a 'leaky pipeline' for women in academia, where the gap in gender participation increases over career stages as historically marginalised identities do not advance or drop out (e.g., move into different careers) in greater numbers for a range of personal, cultural, and institutional reasons. Diversity policies should aim to retain diverse identities through consideration of barriers (e.g., parental leave) and disincentives to career progression (e.g., pay gaps, unequal administrative responsibilities).
- Barriers to entry and retention are social and cultural (by which we mean the culture of science, particular disciplines, or organisations) as well as institutional. For example, sense of belonging is an important determinant of career progression;

peer stereotypes, a lack of people from similar demographics in one's field or organisation, and exclusion from social networks can all degrade this sense of belonging. Consideration must therefore be given to how cultural barriers can be disrupted, supportive cultures nourished, and appreciation of diversity promoted across the range of organisations and forums that researchers work in; i.e., responsibility to promote diversity extends beyond hiring or review institutions.

Below are suggestions on initiatives that might help to achieve real diversity in New Zealand's research workforce (note that our recommendations are particularly targeted towards ECRs as a means of promoting diversity through the wider workforce):

1. We believe that MBIE and RSNZ should collect more comprehensive, de-identified information on researcher diversity to enable assessment of progress towards improving diversity. At present information is only collected on a few narrow categories, which both ignores other forms of diversity and artificially focuses diversity policies on those categories.
2. We support valuing intellectual diversity (i.e., diversity of ideas, knowledges, methodologies, theories) in project appraisal (as stated under the definition of excellence), noting that this is likely to also foster greater diversity in researchers and research teams. We also suggest that one way to promote appreciation of intellectual and researcher diversity through project appraisal is to include a more diverse selection of people in appraisal panels and as reviewers.
3. The science system should support the retention of diversity in researchers by developing opportunities for mentoring, networking, and promoting the research of minority identity groups or those that have traditionally been marginalised in the scientific community. For example, MBIE should: consider who is included as speakers at events and whose work is promoted via newsletters and websites; ensure that research grant forms are not framed in ways that exclude or discourage intellectual diversity; and support the creation of events, online networks, or peer support systems that help to better connect researchers who are part of minority groups. At the same time, greater awareness is needed of the additional demands that are often placed on minority researchers' time when they are asked to be representatives for diversity in working groups, committees, student mentoring, project development, and other administrative activities. If MBIE is to encourage diversity initiatives then it needs to adequately resource them so that organisations and researchers have the time and support to participate.
4. MBIE could help to institutionalise a culture of zero tolerance towards harassment, assault, and discrimination through the creation of clear and current policies. At present many science organisations have sexual harassment policies (or similar), but the existence, coverage, and awareness of these policies is highly variable. MBIE could provide leadership and guidance in this area by creating and circulating its own policy/code of conduct, and by establishing expectations for organisations and individuals that are funded by MBIE (e.g., funded organisations could be required to create and maintain policies; researchers could be required to declare that they will follow MBIE's code of conduct on all MBIE-funded research bids).
5. Ensure that research contracts are sufficiently flexible to enable researchers to continue and complete projects/positions despite significant life events (e.g., provisions for mental health support and disability support; flexibility for researchers returning from parental leave), and provide clear communication about contingencies. Both the actual and perceived flexibility of research contracts is an important determinant of whether researchers apply for specific types of funding, and can complete them. Flexibility is particularly important for minority researchers,

who as a whole experience greater health needs, family commitments, and personal pressures than the general population, and are therefore more likely to require flexible work arrangements or a leave of absence. At present there is little information on MBIE and funding websites about leave policies, options, and available support in the event of a significant life event. Researchers' awareness of the options and support available to them is therefore likely to be highly variable across organisations. We recommend that MBIE 1) make information on research contract flexibility/contingencies publicly available on ministry and funding websites; and 2) seek feedback on how leave policies, support, etc are operating at present, with a view to identifying any contractual barriers for minority researchers to apply for funding or complete projects.

6. Include representatives of diversity organisations and/or actively seek feedback from diverse researchers when developing diversity policies, strategies and initiatives. Even simple things like the language used when collecting diversity statistics can be off-putting to members of that minority. Proper consultation and co-design can overcome these issues.

We have chosen to not respond to Q13-14.

Guiding Policy – Impact

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

Please type your submission below.

We have chosen to not respond to Q15.

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.

Questions 16-18

In our response to Q19, we discuss barriers to forming connections amongst ECRs in New Zealand (and internationally) and present several initiatives to improve connections.

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.

Question 19

To respond to this question we have grouped our thoughts and suggestions on nurturing ECR talent in New Zealand under four categories:

- Better Communication and Consultation with ECRs
- Improvements to the ECR-Specific Funding Systems
- Improvements to the General Funding Systems
- Promoting Connectivity and Development Amongst ECRs

<u>Better Communication and Consultation with ECRs</u>

We feel that better communication and consultation with ECRs about ECR-specific issues will help to alleviate the investment in developing initiatives that do not necessarily solve the problems ECRs face. We also feel that ECRs have valuable contributions to make to the wider science system despite our limited experience.

The Cawthron ECR group welcomes the opportunity to assist with the co-design of specific initiatives that will improve career stability for ECRs in New Zealand and better support the development of talent that we can retain in New Zealand. We would be happy to discuss future initiatives with working groups in-person or via skype. We also feel that other ECR groups established around New Zealand would be similarly receptive to providing feedback on future science initiatives, prior to their instigation. Future initiatives could also include involving ECRs on funding assessment panels and during policy development.

Improvements to the ECR-Specific Funding Systems

We feel there are significant deficits with the current funding opportunities for ECRs. We recognise that efforts are being made to improve these deficits, and in this submission, we outline suggestions for improvements.

A major deficit is that there are no funding mechanisms to support independent research by ECRs directly out of their PhD. The Rutherford Foundation Post-Doctoral Fellowships are targeted at researchers several years out of PhD, the Marsden Fast Starts are for researchers slightly more progressed with their research career, and the Rutherford Discovery Fellowships are for ECRs progressing into their mid-career. Previously, the FoRST Post-Doctoral Fellowships performed an admirable role nurturing New Zealand's emerging talent during this critical period. However, no such independent research funding options exist in the current system. We have observed that ECRs in some institutions consequently have to hop from research contract to research contract with little job security, and may need to supplement part-time research positions with other income streams. This leads to a drop in the track record of these researchers that can be difficult to overcome, as well as a drop in their passion to participate in the science system. An expansion of the Rutherford Foundation Post-Doctoral Fellowship programme might rectify this problem (see below), or the creation of a 'level playing field' where a proportion of the postdoctoral fellowships are awarded to researchers based on years of post-PhD research experience (e.g., on average 50% awarded to applicants with 0-2 years post-PhD experience and 50% awarded to applicants with 2-4 years post-PhD experience).

Rutherford Foundation Post-Doctoral Fellowships could be much more effective at boosting ECR development if there were significantly more post-doctoral fellowships awarded each year. The Rutherford Foundation Post-Doctoral Fellowships fund only 5-10 post-doctoral researchers per year. This makes the fund very competitive and puts it out of reach for the majority of applicants straight out of their PhD. The amount of funding provided to recipients also limits many researchers, as there is no contribution to institutional overheads (so that post-docs are likely to require further funding to cover their salary and overheads) and the contribution towards research expenses is small. We note in particular that the research expenses budget is insufficient to cover the costs of cutting-edge science (e.g., one set of next-generation genetic analysis would deplete the research expense budget provided), and the limited budget also doesn't provide for professional development opportunities such as attendance at international conferences. The Rutherford Foundation Post-Doctoral Fellows would also benefit from networking opportunities like those offered to the Rutherford Discovery Fellows.

Whilst resolving these deficits will require significant investment in the number and size of fellowships available, addressing this problem will reduce the loss of science talent post-PhD and develop a new generation of innovative thinkers.

Marsden Fast Start grants are an important pathway for ECRs to continue pursuing their independent research and to develop their leadership potential. From our experience of this fund, we note two issues of concern that warrant attention:

1. $300k over three years evaporates once institutional overheads are incorporated:
    - A survey and/or review of ECR experiences with budgeting Marsden Fast Starts could illuminate the in/sufficiency of the $300k budget for its intended purposes. Special attention should be paid to how university-based vs other researchers account for their time within the budgetary process.

- The Marsden Fast Start grant could be increased in size (e.g., to $500k), although we accept that this would either require increased investment or a reduction in the number of projects awarded each year.

2. The temporal eligibility criteria are weighted against researchers who spend time working before doing their PhD. For example, a researcher who finished a Masters degree, did a year of research-related work, and then finished a PhD in five years, has only three years of eligibility to apply for a Marsden Fast Start. In contrast, someone who went straight from MSc and on to their PhD is in a much better position. If diversity and inclusion of researchers who have progressed through different life pathways is a goal of the New Zealand science system, then we suggest that this aspect of the Marsden Fast Start grants should be addressed in some way.

Rutherford Discovery Fellowships have been a wonderful initiative for propelling exceptional science talent in New Zealand into their mid careers. The level of funding is suitable for the outputs expected and the support framework offered to Discovery Fellows assists in further developing their potential. However, there is some concern amongst the ECR community that this fund is being increasingly awarded to recipients who have already progressed to a stable place in their independent research career but are still eligible for the fellowship (e.g., senior lecturers and associate professors). We commend the intent to ensure that researchers have opportunities to apply for funding up to eight years post-PhD, however, this does mean that those with less experience are unlikely to be successful with applications – comparisons between those with 3 years and 8 years of experience are likely to favour those with greater experience. We suggest that the key objectives of the Discovery Fellowships are re-evaluated (i.e., the talent it wishes to nurture) and, if necessary, the eligibility criteria are made more explicit. The preference given to researchers returning from overseas in the Rutherford Discovery Fellowships provides an unintended incentive for ECRs to leave New Zealand and develop their science career overseas. Whilst we think that luring talent back to New Zealand is a good initiative, thought should also be given to how we can incentivise ECRs to remain in New Zealand whilst still developing international experience and connections. A mechanism to facilitate this could be the formation of an ECR-specific category of Catalyst Seeding fund to encourage network development and more international collaboration funds (see sub-section on 'Promoting Connectivity and Development Amongst ECRs' below for more information).

In general, establishing a policy to provide feedback on ECR funding applications for all ECR-targeted funds would be hugely beneficial to the development of applicants. We accept that this would require investment to enable assessment panels to include feedback as part of the assessment process.

<u>Improvements to the General Funding Systems</u>

Under the current funding system, ECRs are required to be part of the research team to access general funding opportunities (e.g., MBIE Endeavour Fund programmes or Marsden Fund projects; excluding Fast Start grants). While this requirement is valuable in promoting the creation of ECR positions, assessment criteria can still mitigate against inclusion of ECRs in research teams. To be considered for these teams, the onus is on ECRs to leverage relationships, mostly dependent on their PhD supervisors or managers, to get in front of the potential team leaders. ECRs must then compete with both established researchers and cheaper PhD students to be included in research teams. Current criteria place ECRs in a middle ground where they are not considered to either contribute the same 'science excellence' as more experienced researchers, or the same 'impact' as training new PhD

students and nurturing the next generation of scientists for a lower cost to the research programme. As a result, there are larger numbers of PhD graduates who are then unable to find post-doctoral funding.

We observe that the make-up of the ECR community is generally more diverse than previous generations of scientists presently in the science system. With science becoming more interdisciplinary, cross-cultural and diverse, and this being a proposed area of development of the Draft Science Investment Strategy, we feel that mechanisms that increase the inclusion of ECRs in more research programmes will also help with the goal of achieving diversity in New Zealand science.

Placing more emphasis on the importance of nurturing ECRs post-PhD in the assessment and scoring criteria for these funds may encourage more principal investigators to include post-doctoral researchers on programmes. The inclusion of younger researchers on funding assessment and review panels might also lead to more value being placed on the inclusion of post-doctoral researchers on research programmes.

Promoting Connectivity and Development Amongst ECRs

We feel that promoting ECRs to connect and support each other rather than to compete will lead to a more inclusive and innovative science system in New Zealand. ECR groups are now present in most research institutes and universities and allow for interdisciplinary communication, peer-development and support networks. Belonging to a group gives people self-confidence and therefore increase chances that people will speak up about their needs. MBIE should be aware of these groups and actively contribute to their success. This could happen by sending key people for discussions and to provide development. This should be achievable in a small country such as New Zealand and would help both sides to obtain a realistic understanding of how ECRs perform in their environment and how funding agencies make their decisions. It is equally important that these ECR groups connect nationally and possibly meet once per year for a workshop or symposium. A strong network makes it possible to communicate with similar groups in other countries and exchange experiences.

Funding opportunities for ECRs should also facilitate young researchers to expand their horizons past their initial work environment and pursue opportunities that establish networks in which ECRs can build their careers upon. This can be focused on both promoting interactions between ECRs within New Zealand as well as encouraging ECRs to travel abroad. One example of this could be promoting New Zealand based ECRs to be involved in international organisations (such as SETAC) that are focused on improving collaboration between researchers and the development of their ECR members. In addition to this, researchers are becoming more and more involved in addressing issues of public concern, and funding opportunities should reflect this.

Some specific ideas on possible initiatives are as follows:

1. Travel
    - Implement schemes that promote international travel for ECRs based in New Zealand
        - Allows ECRs opportunities for international collaboration
        - Promotes New Zealand science on a global stage
        - Provides access to current ideas in pertinent research worldwide
    - Establish funding schemes similar to Fullbright and Marie Curie Fellowships
        - Allows for ECRs to acquire skills not readily available in New Zealand

        - Facilitates ECRs' ability to establish international links
2. Interaction/Networking
    - Develop or support opportunities that promote interaction between New Zealand based ECRs; these ECR networking opportunities would preferably be interdisciplinary
    - Develop or support opportunities for ECRs to interact with external entities including public, industry and regulatory bodies
    - Encourage ECRs to be involved in international organisations for their respective fields
3. Professional Development Opportunities
    - Conduct development workshops for ECRs in key areas (e.g., leadership, science communication, science ethics in the modern age, community engagement)
    - These workshops might also be conducted as a networking opportunity for ECRs (see above)

Question 20

From the perspectives of overseas students and researchers working at Cawthron, we see 1) the identification of suitable positions and 2) challenges acquiring work visas as two barriers to attracting talented researchers to New Zealand. First, New Zealand is already highly attractive to many researchers; the challenge is to find job opportunities that match an applicants' unique skills and experience. For example, there is no central homepage that bundles ECR opportunities; instead, each university/institute or sometimes wider groups like the NZ Marine Science Society advertises opportunities individually. A centralized system that would show up first when potential applicants google search 'NZ postdoc' would improve that. There are many overseas examples of successful platforms that could be used as a model (e.g., eurosciencejobs.com). Second, many of our overseas students and researchers have found the university administration, hiring and visa process very straightforward and clear. Specifically, the new 'Post study visa' is immensely helpful in keeping students in the country and giving them time to find appropriate jobs after their degree. However, there are many examples of researchers that have experienced the opposite, struggling with receiving their visa or experiencing long delays during administration processes. The creation of an online portal could be a possibility to help overseas researchers with such administrative questions.

Question 21

As discussed in our response to Question 19, career stability for ECRs could be improved by filling the deficits in the ECR-specific funding mechanisms (particularly the lack of funding for independent research straight out of PhD) and including mechanisms in the general science funds to better promote the value of post-doctoral researchers being included larger research programmes. Providing clearer communication (e.g. via MBIE/fund websites) on the possibility of taking a leave of absence (e.g. for maternity/paternity leave) and extending funding contracts would promote a sense of job security among ECRs.

Question 22

We agree with the general initiatives proposed in the Draft Science Investment to nurture emerging scientific talent in New Zealand; however, there is a lack of information on the specific initiatives that might be put in place. We see this lack of specific initiatives as an opportunity for the MBIE working group to co-design these initiatives with ECRs. This might be through ECR representation on working groups, through in-person consultation with ECR groups around the country, via skype, or providing feedback on plans prior to instigation. Cawthron's ECR group would happily host an MBIE working group to discuss the specific initiatives to nurture and support the ECR community.

As discussed above, we feel that there are gaps in the funding opportunities for ECRs in New Zealand and these could be filled as a part of the proposed general initiative to "Implement a large scale initiative to grow, support, attract, and retain the best talent in our research and innovation systems". Undertaking consultation with ECRs on the specific initiatives to be implemented might form a part of the proposed initiative to "consider how these initiatives can nurture the careers of our most promising researchers, and balance sufficient stability to enable those careers to grow against enabling the dynamism that allows emerging talent to break through and flourish." As discussed above, initiatives that "investigate proactive investments in leadership development in our research community" would be of great benefit to the ECR community and might take the form of national networking events that include professional development workshops.

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.

We have chosen to not respond to Q23-26.

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.

We have chosen to not respond to Q27-29.

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.

We have chosen to not respond to Q30-31.

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.

We have chosen to not respond to Q32-33.

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 have chosen to not respond to this section.

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 have chosen to not respond to Q34-37.

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.

We have chosen to not respond to Q38-41.

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.

We have chosen to not respond to Q42.

General

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

Please type your submission below.

This submission was prepared by a group of early career researchers based at Cawthron Institute. The thoughts and suggestions presented here do not necessarily reflect the opinions of Cawthron Institute as an organisation. We thank MBIE for the opportunity to contribute to the development of New Zealand's Research, Science and Innovation Strategy.