From:	no-reply@mbie.govt.nz
To:	Research, Science and Innovation Strategy Secretariat
Subject:	Draft Research, Science and Innovation Strategy submission
Date:	Sunday, 10 November 2019 3:04:14 p.m.
Attachments:	Online-submission-form-uploadsdraft-research-science-and-innovation-strategy-submissionssubmission-form-research-science-and-innovation-strategy_MCE-alumni_Robin-Bensley.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
Robin Bensley

Name of organisation or institutional affiliation
Master of Commercialisation and Entrepreneurship (University of Auckland) alumni

Role within organisation

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

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

If you selected other, please specify here:

Gender
Male

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.
No confidential information has been provided.

Please upload your submission document here
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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.

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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.

RB The current funding models for Innovation (particularly through Callaghan) provides strong benefit for developing and developed companies where benefits like R&D tax credits can help reduce cost and incentivise investment into new skills, technologies and creating new knowledge. However, if we are going to need to build a vibrant startup and innovation community by growing seed fund options (government and VC) to open up more people moving from full time employment into venture development. Without local funding then the pressure for new ventures as they think global will be to follow the funding overseas.

Innovation needs a growing skills base of Engineers, Software, data, and business capable people, so schemes to attract and retain NZ expertise for not just key sectors but the wider business ecosystem (finance, infrastructure , component suppliers etc) will be key {e.g investing directly into renewables may only work if incentives for transport, raw material, land and sea access policy supports early stage trials and testing while revenue is low}.

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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.

RB

Q4 if we are not innovating at the frontier we will not develop the absorptive capacity at the country level to take on new skills early enough to compete on the world stage. It is very hard to be a fast follower if you cannot take on and leverage new technologies. Being open to try new technologies does mean taking on an acceptance of some failure but this is with the understanding that developing a skills base who can adapt and try new technologies is as important than any single innovation in and of itself.

Q5 -7

New Zealand has obvious strengths in Medical technologies, engineering hazards resilience, and ag/horticulture but increasingly in collaboration at the research program level. CoRE and Science Challenges are changing the culture of how science is done which creates the opportunity for agile science, whereby multi-disciplinary teams work on solving grand challenges. Ongoing fostering of multidisciplinary science particularly across disciplines (such as has been achieved at the Auckland Bioengineering Institute) will be valuable.

NZ business is competitive but having the NZ brand is a unifying opportunity to generate research and business around increasing the net worth of the NZ brand. Ideas such as "clean green NZ" gain value commercially when science, policy and business come together to improve water quality, deliver sustainable farming practices (including improved animal welfare).

New Zealand is almost unique in the world having the potential in the near term to remove all carbon based energy production (creating an economy based on 100% renewable energy. This is not only good from a marketing perspective but brings an independence from price

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and supply issues for carbon based energy sources.

Q8

Scale is always a problem for NZ, how to get ideas solved, tested, manufactured and able to deliver value not just locally but globally will require better support to help businesses translate technology into businesses fast enough to be competitive.

Q9 data will be key for many innovation options and having both good data assets skills and support will be key. Government policy around open government, data commons, IDI, NRIS etc means data structure and quality is much better than in the private sector and investment in broader tool, support and implementation could help.

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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.

RB: Connectivity is key; NZ is small both in terms of its research sector and the size of average business (being largely SME based) , which means the route to science translation into business is more like going to require group effort through collaboration and partnerships across the innovation ecosystem (ie at research and business end) than in some economies in the world.

If part of the goal of the RSI strategy is to build national absorptive capacity for new technologies, we should also be agnostic where new technologies come from (i.e. it is the skills and knowledge of how to translate science into business use that ultimately builds societal impact). Looking at science collaboration opportunities beyond our borders (where local implementation is possible) increases the potential for the goal of local skills and knowledge flow-on benefits.

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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.

RB Diversity in Innovation, STEM and business leadership needs to be ingrained into early school expectations. Build skills in how to start a business, translate technology into business, general leadership skills, and entrepreneurial risk taking, can be taught from primary school.

STEM subjects can be a challenge in that transition from education into the workforce where ewell paying roles (perhaps outside of Engineering and Data Science) are not always obvious or available. More work is needed to make STEM not only attractive for education but more importantly that jobs will be there afterwards. A STEM graduate employment program could go a long way to attract employers to increase STEM in their hiring mix. If employment looks more attractive it reduce barriers for Diversity improvement.

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Guiding Policy – Impact

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

Please type your submission below.

RB Science Impact from research is traditionally measured through citation rates, and case studies. Building clearer planning on downstream pathways for uptake by business and or wider society at funding application time could improve policy, funding and the business sector to understand the downstream investments needed to leverage a benefit (If we invest in this research today what will also need investment before there is an impact on society?).

Economic modelling of impact is rare and more systemic ROI and impact measure could be useful if this could be made easier or at least be put in place for more thematic funding and science investment.

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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.

RB Today there is are good Tech transfer activities happening between Kiwinet, Uniservices and science institute commercialisation teams. These groups support Research institute based spin out and existing business R&D investment but their seems to be a gap for startups that develop independently and are looking to source technology more broadly. While we want our science done in NZ to translate into societal impact we also need more people working in startup's to build culture and talent in this space and to improve the volume of science translation that can be achieved.

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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.

RB Researchers need the right infrastructure, support teams and better opportunities to translate their skills from academia into business.

1. Better business skills development in STEM students
2. Better incentives for STEM educated students to move into business
3. Better career support for technicians, data analysts, research software engineers who are typically poorly supported at the institutional level but pivotal to science outcomes.
4. Wider investment into cutting edge Compute and Data science infra-structure that can benefit not just academia but the commercial world (ie academia and business need the same tools to break down execution barriers)

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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.

RB Academia and business need the same language, same skills, same tools and same definition of impact and outcomes. Short term funding cycles becomes the focus for academic effort (limiting science translation into business) made worse as business sector see academia as being expensive (due to overheads) reducing engagement / collaboration time creating a transactional and less systemic connection.

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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.

RB Startups are always cash strapped so access to early stage funding (grants and access to local investment) that does not necessitate the move overseas is important if NZ is going to get long term benefit.

The translation of science into business is expensive but the rewards of new industry and a diversified economy are also high. We need more seed fund opportunities to move from idea to test and business initiation, once a business is viable there is alway routes to funds but getting more people started is key to increasing rate of science translation.

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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.

RB Ultimately all science translation from the lab into business is for public good in that it increases high skills jobs, creates a diversified more sustainable economy, increases net export opportunities in high value goods and services.

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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.

RB Scale up that helps NZ reputation and ability to market its goods and services internationally is vital for a small geographically remote economy. However, beyond Clean and Green having NZ known as a technologically advanced economy that is able to bring novel and exciting technologies to the world stage is a vital part of what we need to achieve to be successful in the long term. We need to be "Clean Green and an Invention Machine" if we are going to move beyond a primary industry tourism based economy.

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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.

RB Include

Agritech (like Med-tech Agritech brings engineering and biology which is a good fit for NZ)

Sustainable protein production has to be part of our view for how the World of 10 billion in 2050 can feed itself. As a world leader in Protein production today we will be disrupted (and left behind) if we don't consider lab and new farming practice options (aquiculture, insects, seaweed etc).

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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.

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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.

RB CRI's are competitive by design and this creates a dynamic science translation environment which is good in pockets of science but is a disincentive to collaboration and partnership.

Infrastructure and services that enables better collaboration, sharing of tools, techniques (for research and data analysis), sharing of open data sets for the mutual benefit of academia and business. Business R&D in NZ is very low so better skills and methods being accessible will improve business outcomes.

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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.

RB. Areas investment that improve national absorptive capacity and skills acquisition of business for science and technology will improve science impact and outcomes. While we can consider specific themes to focus on, if we don't improve the ability to ingest and use new technology then great solutions will stay locked up in the lab and never translate into benefit to NZ.

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General

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

Please type your submission below.

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