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 3:51:57 p.m.
Attachments: Online-submission-form-uploadsdraft-research-science-and-innovation-strategy-submissionsFOEDSWUOAsubmission-form-research-science-and-innovation-strategy-2.docx

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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
Aaron Wilson

Name of organisation or institutional affiliation
Faculty of Education and Social Work, University of Auckland

Role within organisation
Associate Dean Research

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

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)?
254 FTE (which includes professional as well as academic staff)

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
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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.

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.

THE NEED FOR EDUCATION AND SOCIAL SECTOR SCIENCES AND INTERVENTIONS IN NEW ZEALAND'S RESEARCH, SCIENCE AND INNOVATION STRATEGY

Thank you for the opportunity to provide feedback about the draft research, science and innovation strategy. This response from the Faculty of Education and Social Work at the University of Auckland is focused on the place of the education sciences and social sector sciences in the draft strategy.

We use the terms education sciences and social sector sciences to encompass the range of rigorous and systematic approaches to inquiry employed by researchers and scholars in these fields. Importantly in terms of MBIE goals, the education and social sector sciences include (but are not limited to) inquiry to investigate and test current practices and to design, investigate and test modified, new or additional ways of delivering education and social services.

Increasing Successful Research, Science, and Innovation

[Response to Questions 2 and 3]

Symptomatic of a more general undervaluing, social sector and education sciences and services are almost invisible in the draft document. The term 'education' for example is mentioned only four times in the document and three of these mentions relate to research and development in higher education. There is no mention of schools or teachers in the document and the only two mentions of students are in the context of research conducted by students in tertiary organisations. Health in contrast is mentioned 38 times. Likewise, the Ministries of Health, Transport, Inland Revenue and Primary Industries are cited as examples of key stakeholders in the public space but no mention at all is made of the Ministries of Education or Social Development.

Enhancing the wellbeing and educational excellence of New Zealand's children and young people are high priorities for both public and private sectors of New Zealand. However, the current level of government investment in education and social sector science and innovation is not aligned with these priorities. Social sector disbursements from the MBIE Endeavour Fund, for example, amount to less than 10% of available monies. Despite being the third largest area of government spending at over $14 billion per year (comparable to health), the only consistent sources of contestable government funding for education research in the compulsory and tertiary sectors are, respectively, the Teaching and Learning Research Initiative (TLRI) worth about $1.4M per year and Ako Aotearoa which provides matched funding worth about $320k per annum (estimated on basis of co-funding rules). Moreover, the TLRI is extremely narrow in the scope of education research that it funds. Research scientists in education and the social sector can of course access other funding in the social sciences, but often the need to understand and design with professional partners for educational and social change does not fit funding categories neatly.

As well as contestable funding sources available for education and social sector researchers being highly constrained, large scale changes to the education system and government-funded interventions are often un- or under-researched. There are too many examples of major programmes and changes in the education and social sector landscapes that have lacked research investment commensurate with their importance and cost to list but notable examples include the lack of research into the impact of the introduction (and subsequent removal) of National Standards, or the Positive Behaviour for Learning (PB4L) programme which has been introduced into a large number of NZ schools.

The social sector intervention and implementation research needed to inform and sustain the innovations in social sector services entailed in realising the government's wellbeing agenda is similarly under-resourced, particularly when compared with funding for health research; Health Research Council (HRC) funding alone is worth about $117M per year.

As well as limited investment, there is currently no oversight board or similar structure in the system that works like the Health Research Council (HRC) to provide national strategic direction about research and innovation in either the education or social services sector. Such bodies could administer funds in relation to national education and social sector research policies, foster the recruitment, education, training, and retention of those engaged in education and social sector research in New Zealand, undertake consultation to establish research priorities and promote and disseminate the results of education and social sector research. Establishing such bodies may be warranted given that strong social and education science is vital to the design, evaluation and theory building of effective social and educational innovations.

The social sector and education sciences can also make important contributions to achieving improvements in the other key areas identified by MBIE as priorities.

Supporting Economic Growth and Prosperity

[Questions 2, 3, 9]

The draft document sets out ambitious goals of "supporting economic growth and the prosperity and wellbeing of New Zealanders" and creating a "productive, sustainable and inclusive future that works for all New Zealanders." A strong education system, in tandem with strong social supports for New Zealand families, is absolutely key to achieving these goals. Growth and prosperity depends on New Zealand having a highly skilled labour force. The labour force only becomes highly skilled when all students have access to high levels of education and where there are effective social supports to help all New Zealanders realize their potential. NZ Treasury quotes estimates by Hanushek and Wößman (2009)[1] that if overall student achievement was lifted by 25 PISA points (putting New Zealand with the top performers in the OECD), GDP would be expected to be higher than it otherwise would be by 3-15% by 2070. Higher educational levels are associated with increased social indicators such as civic engagement, reduced criminal activity, and family well-being. Level of qualification gained at secondary is related to post school employment and earnings in New Zealand[2]. Cohort data show that after 7 years, students with UE have a 14% higher employment rate relative to those with Level 2, and those with no qualification have a rate 30% below those with Level 2. By seven years out from school the average monthly earnings for those with UE is 28% higher than those with Level 2.

As well as direct benefits from investing in education and the education sciences for the national economy, there are of course numerous personal and social outcomes from having more effective education and social sector systems and which are vital for "creating a "productive, sustainable and inclusive future that works for all New Zealanders."

We need much more investment in the education sciences if we are to resolve longstanding issues in the current system and to more effectively prepare young people to thrive in a future and changing world.

Developing World-class Talent and Improving Diversity in RSI

[Questions 12, 19, 30, 31]

The draft document notes the importance of developing world class talent and improving the diversity of people in research, science and innovation in NZ. Our current system needs to be transformed to address existing issues such as the persistent and longstanding issue of inequitable educational outcomes for Māori and Pasifika students and students from low socio-economic communities. Efforts to increase the proportion of Māori researchers in the system must begin in New Zealand schools. We also need strong research and innovation in the education

[1] https://treasury.govt.nz/sites/default/files/2012-03/sanz-evidence-mar12.pdf
[2] (https://www.educationcounts.govt.nz/publications/80898/post-school-labour-market-outcomes-of-school-based-ncea).

sciences if we are to get better at developing the knowledge, literacies, resilience, agency, wellbeing, creativity and criticality our young people will need to thrive in a future world. In short, we need much more investment in the education sciences if we are to transform the schooling system in the ways needed to achieve the MBIE goals.

Enhancing Connectivity

[Question 10]

The importance of knowledge transfer is highlighted in the draft document. This is another major contribution that increased investment would allow the education sciences to make, and is a contribution that extends well beyond formal schooling; the education sciences are where knowledge about knowledge transfer is created. Knowledge transfer is a much more complex process than the one implied in the documents. It is not simply the case of designing a dissemination plan or implementing yet another programme in schools. Programmes can, and often do, have unintended effects. Some drug reduction programmes in schools, for example, have had the unintended consequence of increasing drug taking behaviour. Education about climate change intended to reduce people's carbon footprint may have an opposite effect if people end up feeling overwhelmed with a negative outlook. This is a particular risk given that international comparisons show that compared to other OECD nations, NZ 15 years olds have lower than average awareness of environmental issues and are pessimistic about the environmental future.

Investing in the social and education sciences is also vital if we are to learn and get better at transferring knowledge from researchers and innovators to practitioners, policy-makers and the public.

[Response to Questions 1 and 10]

Given current social pressures and inequities, achieving New Zealand's goals in relation to a just transition to a green economy will necessarily entail skilful, culturally-responsive social and community-level interventions in tandem with technological and infrastructure developments. Knowledge and skills in developing community adaptiveness and resilience, understanding differential vulnerabilities, creating and sustaining partnerships with marginalised groups, and ensuring broad-based participation reside in the social sciences. We therefore strongly encourage investments that support and incentivise collaborations aimed bringing social science and education expertise into partnership with the technical and natural sciences in addressing climate change and related issues such a disasters. Here also New Zealand, as a small, relatively nimble and densely connected society, has the potential for world-leading, frontier innovation in broadly transdisciplinary, community- and iwi-partnered climate change and sustainability science.

Towards an Extended Vision Mātauranga

There are particular features of New Zealand which demand we be producers and not just consumers of knowledge from the education sciences. Most important of these features is the Treaty and the importance of Mātauranga Māori. Our system also has unique features such as self-managing schools and a particular profile of strength and need, particularly in regard to our generally high quality but low equity in international comparisons. More generally, teaching and learning are always situated and strong local education science is needed to understand the adaptations needed to make approaches from overseas work in New Zealand schools for diverse New Zealand learners.

[Response to Questions 5 & 6]

In the social sector, New Zealand has a unique opportunity to strengthen and amplify its potential for world-leading innovation in developing, implementing, and sustaining bicultural services and systems responsive to and in full partnership with Māori. Investments in this domain are essential to reducing current inequities and disparities. At the same time, they have the potential to make important contributions internationally. The foundations for leadership by New Zealand as a global innovation hub in the development and testing of indigenous and decolonial service models (for example in child protection services) have been in place since the 1980s, but intentional investments in social and education sector innovation and research are needed to fully realise this opportunity.

Conclusion

In conclusion, Aotearoa New Zealand needs adequately funded and strategically managed education and social sector science ecosystems that underpin the development of education and social sector systems that are capable of "delivering for all New Zealanders[3]". Such ecosystems need to:

- be responsive to, but not driven by, government strategy
- be sustainable, with a commitment to long term research support
- support world-class research and researchers that addresses the problems that beset the NZ education and social sector systems
- support the development of young researchers, Māori and Pacific researchers

Without this focus on education and social sector sciences, NZ will not be able to become a "global innovation hub, a world-class generator of new ideas for a productive, sustainable and inclusive future."

[3] https://conversation.education.govt.nz/assets/Uploads/Discussion-Document-Shaping-a-Stronger-Education-System-with-NZers2.pdf

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.

The situated nature of learning, unique characteristics of the policy landscape (e.g. self-managing schools), the Treaty and a specific profile (high quality but low equity; a system that has underserved Maori and Pasifika) all mean that NZ must be a producer not just a consumer of educational research.

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.

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.

A necessary but not sufficient condition for achieving diversity in the research workforce is a high quality education system that works for all communities. Currently our system is very effective for many groups but has not worked as well for Maori and Pasifika communities. The Maori and Pasifika researchers of the future will overwhelmingly come out of NZ schools so we need strong education science to transform the current system.

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.

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.

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.

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.

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.

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.

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.

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.