

From: no-reply@mbie.govt.nz
To: [Research, Science and Innovation Strategy Secretariat](#)
Subject: Draft Research, Science and Innovation Strategy submission
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Attachments: [Online-submission-form-uploadsdraft-research-science-and-innovation-strategy-submissionssubmission-form-research-science-and-innovation-strategy_HRC-Nov-2019.docx](#)

Submission on Draft Research, Science and Innovation Strategy received:

Are you making your submission as an individual, or on behalf of an organisation?

Organisation

Name

Name of organisation or institutional affiliation

Health Research Council of New Zealand

Role within organisation

Email address (in case we would like to follow up with you further about your submission)

tpcock@hrc.govt.nz

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)

Government

If you selected other, please specify here:

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

28

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

submission-form-research-science-and-innovation-strategy_HRC-Nov-2019.docx -

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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 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.

Firstly, congratulations on producing a draft strategy that is clear, thoughtful, and engaging. In particular, we are pleased to note the underlying premise that research and innovation should be harnessed to advance the wellbeing of all New Zealanders, now and into the future.

As the lead agency for investment in health research in Aotearoa/New Zealand, our answers to the following questions are often specific to how the strategy will contribute to and influence health research and health researchers.

Question 2: Where else do you see the RSI system making a major contribution?

- Advancing Māori
- Achieving equity
- Growing healthy people, whānau and communities
- Delivering better public services, including health care delivery and mental health
- Better meeting the challenges of our changing world – our changing demographics, climate change, future threats and the growing burden of chronic disease
- Promoting diversity and inclusion
- Developing and supporting people, who are a key success factor in our RSI system
- Upholding and broadening what counts as excellence in our system
- Facilitating the 'pathway to impact' and actively supporting the translation and uptake of research and innovation
- Strengthening innovation
- Ensuring the full value and benefit of research and innovation is captured for New Zealand and New Zealanders
- Ensuring government strategy and policy is evidence-informed, responsive and responsible

Question 3: What else could the RS&I system be doing to accelerate the progress towards the government's priorities?

- Prioritise why and how research should be done in New Zealand
- Unite research stakeholders in driving towards these outcomes
- Establish genuine partnership with Māori
- Engage and empower communities in research

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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.

Question 4: Do you agree that the RS&I strategy should be focused on innovation at the “frontier” (creating new knowledge) rather than behind the frontier (using existing knowledge to improve the way we do things)?

No. While the research enterprise should largely be focused on generating new knowledge, there is absolute benefit in adapting proven international knowledge so that it works effectively in our local context. While we have a number of research strengths in New Zealand, we are unlikely to be at the forefront of generating all of our health, social, economic and environmental knowledge needs and solutions. Being able to adapt, adopt, evaluate and benefit from the global frontier is what will help us make the most progress against the government’s priorities.

- Health equity
- Data sovereignty

Question 6: In which areas does New Zealand have a unique opportunity to become a world leader? Why?

New Zealand is already a world leader in a number of areas of health research – primarily those where we have been able to build and establish critical mass and have provided sustained investment over significant periods of time, such as, many areas of biomedical science, Māori and Pacific health research, cohort studies, cancer drug development, perinatal health, brain health, bone health, to name a few.

Due to our unique population, our location, our population level data, the quality of our research and researchers, our international standing and reputation, our sound ethical and regulatory processes, and our size as a country, we have a number of unique opportunities

to become world-leading in many areas, including: equity; linked data; data sovereignty; social determinants of health; infectious disease; pandemic preparedness; 'one health'; clinical trials; codesign; community-led research; health technologies etc.

Question 7: What do you consider to be the unique opportunities or advantages available to the RSI system in New Zealand?

New Zealand has an opportunity to have the most data-informed policies and public services in the world. NHI numbers are a unique identifier assigned to all New Zealanders accessing health and disability support services. NHI numbers can be linked to IDI data which provides the opportunity to explore population demographics, health, wellbeing, and social and economic equity in a way that is unique internationally.

Due to our isolation, our unique population and geography, and our urban and rural settings, New Zealand also has a unique opportunity to develop innovative services and models of service delivery.

Our size as a country, the relative ease of communication and travel, and the comparatively small number of people engaged in research and innovation, also provides us with a unique opportunity to successfully drive inter-and-multidisciplinary research. A number of our emerging challenges and opportunities will require an 'all of science' approach.

New Zealand is uniquely placed to connect our various science enterprises, such as primary industries, environment and health, to innovate, make cross-disciplinary advances and capture spillover benefits.

Our location and the unique nature of our relationships with other Pacific nations means we are uniquely placed to connect, partner and collaborate with those in the Pacific, to share skills and prepare for the environmental, climate, health, social and migration changes that will impact us.

Clinical trials is an area of research that represents a unique opportunity and where there is potential for comparative advantage globally. We have a distinct and diverse population group, many of whom are willing to participate in clinical trials to access new treatments not currently available in New Zealand; we have a well respected health system and a highly qualified clinical and allied health workforce; we have robust and expedient ethics and approval processes; we have well established clinical research networks in key health disciplines; we have the capacity to conduct trials quickly and cost-effectively; and are internationally recognised for our research integrity.

Health is one of the highest performing and innovative research sectors in New Zealand, however, investment in health research currently accounts for only 12 percent of all of New Zealand's research and development expenditure. New Zealand can derive far greater benefit and advantage from this high performing sector simply by investing more in health research, researchers and health research infrastructure.

Question 8: What RSI challenges are unique to New Zealand, that New Zealand is the only country likely to address?

The following outlines some of the unique challenges and opportunities that New Zealand is the only country likely to address:

Partnership with Māori

New Zealand is the only country likely to address the unique opportunities and obligations

embedded in Te Tiriti o Waitangi, to undertake research, science and innovation in genuine partnership with Māori.

Unique population and health needs

We have a unique population (Māori, Pacific) with changing demographics, and health issues that are particularly prevalent or challenging (e.g. an ageing population with high prevalence of chronic conditions and co-morbidities, significant mental issues especially for New Zealand's youth etc.).

Equity

New Zealand faces a number of challenges with respect to equity. Serious inequities in outcomes persist between different ethnicities, genders, generations, disabled people and socioeconomic groups.

Prevention

New Zealand is the only country that can configure effective evidence-based prevention and intervention strategies for our diverse population. Given that over 1/3 of health loss is preventable, this is an essential area of research that needs to be undertaken in our context.

Understanding what works

Similarly, New Zealand needs to invest in and undertake research to understand what works in our context. For health, evaluation of practice, services and innovations, what is and isn't working, what is efficient and cost-effective, what needs to be translated, spread and taken up is critical to improving health care delivery and health outcomes. Evaluation is an essential research tool in ensuring an evidence-informed health system.

Engaging New Zealand stakeholders and end-users in RSI

Engaging New Zealand stakeholders and end-users in RSI is both a challenge and an opportunity. The value, applicability and acceptability of research outcomes, processes, services and products is becoming increasingly determined by those with the knowledge or innovation need. Self-determination, co-design or co-production, and community or industry-led initiatives are an essential part of New Zealand's RSI effort and can only be supported and incentivised in our context.

Meeting New Zealand's needs in a changing world

We are the only country who will focus on preparing for future threats and meeting future need, such as, the impact of climate change here and in the Pacific; the increased likelihood of vector and water borne diseases, or the re-emergence of infectious diseases associated with increases in climate related migration; the potential, and the unpredictable emergence of communicable diseases in New Zealand, due to new or changing organisms, for example.

RSI system

Only New Zealand can develop a strong and enduring research, science and innovation system, that is well connected, has the skills and infrastructure required to tackle current and future challenges and opportunities, and captures the value of the public's investment. Only we will invest in:

- the people, capacity and capability New Zealand needs to achieve the government's goals for RSI
- the infrastructure we need to undertake research and connect research and innovation to tangible outcomes
- ensuring the quality and accessibility of our data and research findings

- ensuring the value of the public's investment in RSI is captured for New Zealand and New Zealanders

Question 9: What are the challenges of innovating in the public sector? How do they differ from those in the private sector?

Traditionally, RSI has not been considered the primary contributor to policy or service development. There are challenges regarding research and innovation capacity and capability; lack of resources to invest in RSI activity and the infrastructure to support it, including data quality, data sharing and unresolved issues regarding data sovereignty; the increasing complexity and cost of delivering public services; the absence of any mandate to participate in research and drive innovation; a lack of support for staff to engage in RSI activity; absence of networks and infrastructure to support the translation, spread and uptake of knowledge and innovation; and regulatory barriers, rules regarding procurement and different views about who is responsible for funding RSI activity in the public sector.

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.

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HRC would agree there is value in better connecting parts of the research community and there are considerable opportunities to better incentivise greater inter and multidisciplinary approaches in research and innovation. We particularly agree that enhancing connections between researchers and the potential users of the knowledge they create is an area that requires strengthening and should be an area of strategic focus.

Generally speaking, health researchers are well connected, both nationally and internationally with 68 percent of HRC contracts involving an international collaborator. However, we can do more and there is value in doing more to actively foster this. Some of the barriers to greater connection are inherent in the way the RSI system is configured and the competition it drives. Addressing this will necessitate finding ways to continue to value, identify and support excellence while providing greater opportunities for researchers to collaborate across disciplines, institutions, organisations, companies, and countries. We also need to enhance New Zealand's access to global infrastructure, populations and communities, industry, and larger markets for our innovations.

Positioning New Zealand in a global context and supporting international relationships, networks and collaborations is vital for the credibility of our science system, but also for the opportunities this provides for health, social, environmental and economic advancement. New Zealand's researchers need to be able to link in to global expert networks as many transboundary problems that have potential to affect New Zealand can only be addressed with international cooperation. Clinical trial networks are a good example of where this is working well (i.e. ANZCA Clinical Trials Network¹). These organisations develop new clinical trials, allow multi-centre co-ordination, share knowledge and practices, as well as improve patient access and support innovations in trial design and outcomes.

Domestically, key challenges and opportunities for better connectivity from a health research perspective include:

- working in partnership with Māori;
- engaging and empowering people, whānau and communities to be involved in research and innovation and the design and delivery of health care;
- connecting systems and governance arrangements that share boundaries or overlap with health (for example, the justice and social systems), and
- strengthening opportunities for the health sector to engage with and undertake research and innovation.

The infrastructure and incentive structures underpinning the health research system need to be addressed as research intensity is low by international standards, clinical networks are patchy, and collaboration across DHBs, universities, patients and industry is not well established. There is significant potential to make research an integral part of health sector business, which will help drive quality improvement, innovation, and ultimately better health outcomes for New Zealanders.

We also need to support researchers to partner with Māori so that our health solutions and services reflect Māori cultural values and are based on te Ao Māori.

¹ List of publications, pilot studies and grants coming from the ANZCA Clinical Trial Network available at: <http://www.anzca.edu.au/research/anzca-clinical-trials-network/publications>

Stronger connections are also needed between the ultimate users of research and innovation. We need new opportunities for researchers to engage end-users and communities in research and for end-users and communities to lead research.

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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.

HRC supports excellence continuing to be a key guiding principle for all RSI undertaken in New Zealand and agrees with the broader, more inclusive description of excellence outlined in the strategy.

In addition to the characteristics making up excellence identified in the strategy – people, global outlook, and partnership, we would recommend incorporating the following additional characteristics: excellent research is also *ethical, well performed and well reported*. These characteristics are becoming ever more important in a global context where increasing levels of unethical and fraudulent research is being identified.

There is also considerable focus internationally at present on what can be done to enhance the value of research and reduce waste, which has relevance for how we think about excellence. This international body of work estimates that up to 85 percent of research investment is wasted because it asks the wrong questions, is badly designed, not published or poorly reported. The financial loss for life sciences in 2010 alone has been estimated to be US\$240,000,000,000. The REWARD Alliance is an international consortium of researchers and funders who are collectively working on ways to improve the value of research (<http://rewardalliance.net/>). This consortium has also accumulated considerable evidence in support of replication of some research. This work is worth exploring further with regards to the assertion made in the strategy on page 26, “concentrating on excellence will mean that New Zealand is not duplicating what is being done elsewhere”.

While the research enterprise should largely be focussed on generating new knowledge, there is absolute benefit in adapting proven international knowledge so that it works effectively in our local context. We have a number of research strengths in New Zealand, however, we are unlikely to be at the forefront of generating all of our health, social, economic and environmental knowledge needs and solutions. Being able to adapt, adopt, evaluate and benefit from the global frontier is what will help us make the most progress against the government’s priorities.

Similarly, for some areas of research, for example, Māori health research, excellence in a local context will have far greater meaning than excellence in a global context. In stating that “Research, science and innovation are global endeavours, and knowledge, techniques, standards and products will only be excellent when consistently seen in a global context”, we

need to be mindful that Mātauranga Māori is specific to New Zealand, and while there is opportunity for New Zealand to demonstrate global leadership in indigenous health generally, the focus for Mātauranga Māori must remain centered within Aotearoa – including the consideration of excellence. To hold it against an international benchmark is problematic, as te Ao Māori is unique to New Zealand. This also contradicts other statements in the document which talk about focusing on New Zealand’s unique research landscape.

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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.

In order to guide an impactful science, research and innovation system, there needs to be a shift away from the narrow focus on measurement and assessment of impact to concentrating more broadly on supporting, encouraging, facilitating and resourcing the activities that lead to impact. Researchers will react negatively to an impact agenda solely driven by assessment, as this focuses attention on the monitoring and reporting tasks that represent an increase in administrative burden on them, at the expense of focusing on the value of the actual activities they're expected to report on – impact becomes a defined as a 'tick-box' exercise. The measurement/assessment angle is not the best way to motivate action or drive the behaviour we'd like to encourage to ensure that research is translated/mobilised (such as building capacity and capability for engaging end-users/industry in research and resourcing needs for undertaking community/industry engagement). We need to incentivise and invest in knowledge translation, mobilisation and diffusion as part of research. A limited focus on the assessment or measurement of impact divorced from the wider mission of creating a diverse, thriving, and impactful science and innovation system leads to a failure of the research sector to critically understand *how research can lead to change and what individuals and institutions can do to help that*. Efforts to drive impact should not be aimed at tallying up impact metrics for assessment, but at creating the conditions where social, health, economic, and environmental impacts can manifest.

Re-focusing on building research impact literacy offers an excellent starting point and includes elements of measurement and assessment ([Bayley & Phipps 2019](#), open access). Impact literacy encompasses (1) the identification, assessment, providing evidence of and articulation of impact endpoints (the "what"); (2) the practices that create impact (the "how"); and (3) the successful integration of these by researchers/innovators/scientists (the "who is doing what"). While it is important to be able to show evidence of the impact of science investment (hence the focus on measurement), there is opportunity here to grow impact literacy and shape how impact is embedded in institutional processes by including alongside this a discussion on *how* Govt, funders and institutions can **support** researchers to maximise the potential impact of their research by aligning efforts and resources, and building capacity, capability and enabling co-production. It is especially important given the RS&I strategy proposes "connections" as a third guiding principle of the science system alongside excellence and impact. This presents a prime opportunity to discuss how government, funders and institutions can support a more connected science and innovation system – as building connections, relationships, and networks is a key principle of the pathway to impact.

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.

HRC supports connections and the need to better facilitate and support these as part of the RSI strategy's guiding policy, with the proviso that expectations around connections for researchers focus on those connections that will meaningfully advance the science and its associated benefits, as opposed to creating additional layers of compliance. We also support the aim of creating a well-connected system - one that has fewer barriers, is easier to navigate, more fluid, dynamic and responsive. This is essential to creating a high performing, strong functioning RSI system that generates value for the public's investment.

While HRC would also support the contention that to achieve impact from excellence, the system needs strong connections between the various players to encourage collaboration and engagement, what is missing is any consideration of dissemination, translation and the systems, processes and infrastructure needed to facilitate research and innovation uptake, diffusion and spread.

Also, while the strategy refers to the importance of connection with and between research and researchers with end-users, this quickly narrows to a focus on connecting researchers with the commercialisation system and internationally. Research involving end-users is much more likely to change and influence the way things are done and partnerships with community is one way of ensuring the public and societal value of research is realised.

On page 20 the strategy outlines the intention to concentrate effort and investment in areas where there are stronger connections as this will also help to maximise the impact from that research or innovation. While that is undoubtedly the case, improving the performance and contribution of the science system as a whole also warrants focus. Indeed improving areas where there are weaker connections may be where we can achieve our greatest gains as it may well be the current lack of connection that is limiting the potential and value.

HRC strongly encourages MBIE to consider developing policies to guide and enable data sharing and open access in our context, at the earliest opportunity. The significance of this for our RSI system links to opportunities and recommendations made in this submission in response to questions 5, 6, 7, 8, 9 and 15.

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.

HRC is delighted to see a strong focus on people as vital to achieving the goals of the RSI strategy and the acknowledgement that New Zealand has few policies directly focused at developing, attracting and retaining excellent researchers, or nurturing their careers once in our system. We also welcome the focus and emphasis on increasing the diversity of our research workforce.

Where this part of the strategy could be strengthened is to ensure a more appropriate balance between growing, developing and sustaining our own talent, versus attracting talent from overseas. While both are important, the former represents the engine room that drives our research, science and innovation enterprise and needs to be the primary consideration or priority. In addition, the plans outlined focus on how to support our best thinkers and develop leadership opportunities, however, thought also needs to be given to how we better attract and retain students in research and innovation, the flexibility and sustainability of existing career paths in research, and succession planning.

There are also a number of areas where we will actively need to target career development opportunities because we don't currently have the capacity and capability we need, and we won't be able to import this knowledge or these people at the scale required. In health research, there are currently critical skills shortages in health economics, health services research, implementation science, behavioural science, data science, bioinformatics and evaluation.

Increasing the diversity of our research workforce will require a dedicated and tailored approach that is co-designed or developed in partnership with those individuals and communities we are trying to engage – this includes but is not limited to Māori, Pacific peoples, disabled people, women, migrants, rural inhabitants, disadvantaged communities and the SOGIESC community.

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.

As this strategy is designed to enable the whole of the research, science and innovation system in New Zealand, the primary focus on developing a global best-practice research commercialisation system and improving international connections is problematic.

There is much that is required nationally, and the strategy is key to orienting research, science and innovation to address current and emerging need, as well as commercial opportunity. In light of this, this section of the strategy needs to incorporate and reflect an equal balance between what we need to do to better to connect research and innovation with commercial potential, as well as what we need to do to better to connect research and innovation with 'real world' potential.

HRC agrees that new investment is definitely needed and warranted to connect our research teams and networks to global leaders and to enable our leading research organisations to be at the global research frontier.

Further explanation is required regarding the rationale for pursuing "deep integration with neighbouring research and innovation systems, in particular, Australia and Singapore"?

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.

PROACTIVELY RELEASED

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.

HRC welcomes the focus in the RSI strategy on innovating for public good, however, research will need to play a strong part - along with innovation - in finding solutions to our health, wellbeing, social and environmental challenges and opportunities.

HRC is supportive of the plan to establish innovation missions in the area of health delivery and the intention to establish a new, flexible and accessible mechanism to ensure public-sector organisations have access to research and resources to enable them to **undertake research *and* innovate** successfully.

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.

Assuming there are not limitless funds to support innovation missions and the new public sector research mechanism, development of a transparent process informed by evidence need and opportunity will need to be established to identify what and how best to support these opportunities.

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.

Our primary comments for this section of the strategy relate to the need to understand the basis for the choices that you are making. Why these areas and not others?

The strategy indicates that the focus areas were determined by *‘From Knowledge Wave to the Digital Age’*, which is a strategy designed to boost industry innovation and therefore necessarily focuses on only a narrow part of the RSI sector. Shouldn’t such a significant decision for our country as to where to best target our RSI investment be decided on the basis of a comprehensive prioritisation exercise and inclusive consultation process?

A key observation from our perspective is a lack of alignment between the government’s aspirations, goals and priorities as set out in the first part of the strategy, and the areas that receive emphasis or focus in the latter part of the strategy.

For example, the strategy highlights the need for more effective public services; research of relevance to government; being inclusive; improving wellbeing; access to world-class education and healthcare; making the most of opportunities that are unique to us and investigating areas where NZ is the only country likely to do so. However, the focus areas identified – aerospace, renewable energy, health technologies – are not the areas that would best meet your own decision making criteria: *‘where New Zealand faces a unique challenge or has a specific need.’*

Our reading of the strategy suggests this critical need emphasis has not fully flowed through to the Actions or areas identified to scale-up. The second part of the strategy has a much stronger focus on innovation in the context commercialisation and less focus or emphasis

on the opportunity for science to find innovative solutions to some of our biggest challenges – such as equity, climate change, and our growing health burden.

In MBIÉ’s leadership role for the science system, you have a real opportunity to orient researchers to find innovative solutions to our biggest societal, environmental, health and economic challenges, the outcomes of which would certainly be at the global frontier. We would encourage you to further consider how some of the significant needs and opportunities identified in the first part of the strategy become areas of action and focus in the second part of the strategy.

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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.

HRC welcomes the signalled intention to extend the Vision Mātauranga policy.

More specific feedback on the appropriateness of your suggested approach, areas of focus and how connections between Māori and the RSI are best enabled and strengthened, are being provided in a submission by the HRC's Māori Health Committee.

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.

HRC is encouraged to see that Endeavour, Marsden, HRC and the Strategic Science Investment Fund are positioned as the foundation, and the signalled intention to increase these funds on an enduring and sustainable basis.

Infrastructure was recently identified as the most pressing area in need of investment for the health research sector on the basis of two national consultations – (1) the NZ Health Research Strategy (NZHRS) and (2) the health research prioritisation consultation process. The External Advisory Group (EAG) overseeing implementation of the NZHRS also identified infrastructure as a key success factor and priority for investment. Below are examples of some of the areas identified as critical to establishing a thriving health research sector:

- Digital infrastructure - data platforms for storage, management, interoperability and analytics; and the regulatory mechanisms, ethical frameworks and workforce capacity to enable functionality and uptake.
- Data curation – to enhance data quality, interoperability and the standardisation of different datasets, which will improve the delivery of health services and improve health and wellbeing outcomes.
- Primary care infrastructure – to allow integration of technological innovation alongside the ability to provide pastoral care, health promotion and prevention, particularly in communities with poor access.
- Public health infrastructure - to provide a high-level research and advocacy function that is evidence-informed and independent, for the safety, health and well-being of all New Zealanders.
- Distributed networks and partnerships - to enable the sharing of resources, both internationally and nationally, and reduce the duplication of efforts.
- Physical resources and institutional infrastructure - from dedicated 'clearinghouses' for translation, to biobanks, tissue directories, clinical registries and databases etc.
- Clinical trial infrastructure – establishing clinical trials networks to share resources, co-ordinate contracting and regulatory processes, and enable innovations in trial design; and a regulatory environment that balances innovation and patient safety

and improves the environment for large multi-centred trials and international sponsors. Centralised and co-ordinated infrastructure in the clinical trials environment would enable a national 'one door' approach where human resources, legal, and ethical aspects, are brought together.

A strong focus on and investment in infrastructure is what will enable New Zealand to further our standing in health research internationally and develop niches of comparative advantage. Investing in infrastructure also creates centralised and coordinated approaches, which in turn incentivises connection and collaboration across the research community in New Zealand – something that was strongly advocated for throughout consultation for the New Zealand Health Research Strategy.

Translation of research and innovation into tangible outputs is essential for capturing the full value of research and innovation. Therefore, support for translation needs to be considered an integral part of the 'building firm foundations' part of the RSI strategy. New Zealand needs to incentivise and invest in knowledge translation and diffusion as part of research. New Zealanders identified that a nationally coordinated approach is needed for translation of research and innovation findings into policy, practice, processes and products. Sector-wide leadership is needed to support timely, active dissemination and uptake of proven new knowledge and effective solutions.

There are numerous examples of dedicated translation centres that have been successful in communicating research findings to find the 'next-user'. These diverge highly by design, and can include cause-specific centres such as Biomedical Research Centres or disease-specific Translational Research Collaborations in the UK, expertise-specific centres such as the Melbourne Clinical and Translational Science Platform (which enables clinical researchers to access expertise in biostatistics, health economics and informatics), as well as more broad institutions such as the European Infrastructure for Translational Medicine.

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.

PROACTIVELY RELEASED

General

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

Please type your submission below.

HRC would like to take this opportunity to briefly highlight and summarise our key feedback on the RSI strategy:

- HRC endorses the underlying premise that research and innovation should be harnessed to advance the wellbeing of all New Zealanders, now and into the future.
- We are pleased to see that the strategy focuses on: the breadth of activity in the RSI system, not just scientific output; optimising essential components of the system - people, institutions, infrastructure, and regulatory systems; the role of connections in enhancing impact; the importance of recognising, increasing and incentivising diversity in our system; and the broad definition of excellence and innovation.
- The inclusion of Mātauranga and te ao Māori in the strategy is welcome. We recommend further thought is given to what Te Tiriti o Waitangi, and in particular, the principles of partnership, participation and protection mean in respect of the RSI strategy.
- The term 'people' is used throughout the strategy to indicate that people are a key component of the RSI system. Further consideration could be given to ensuring that RSI is not only conveyed from an individualistic standpoint, so that the end-users and communities we want to actively engage in research and innovation can recognise themselves and their communities as both key participants and stakeholders in the strategy.
- While we like the aspiration for NZ research and researchers to be working at the global frontier, this should in no way limit or compromise the importance we place upon and the investment we make in research and innovation addressing those challenges and opportunities unique to NZ, where we are the only country likely, or able to address them. Our concern is that the strategic choice to focus on 'new to the world' will do just this.
- There is a lack of alignment and balance between the government's aspirations, goals and priorities as set out in the first part of the strategy, and the areas that receive emphasis or focus in the latter part of the strategy. The focus areas identified – aerospace, renewable energy, health technologies – are not the areas that would best meet your own decision making criteria: *'where New Zealand faces a unique challenge or has a specific need.'*
- The strategy has moved too strongly away from a focus on research, to a focus on innovation. As this RSI strategy is designed to enable the whole of the research, science and innovation system in New Zealand, the primary focus on developing a global best-practice research commercialisation system and improving international connections is problematic.
- We recommend changing the order of the vision statement so that it reads *"By 2027, New Zealand will be a world-class generator of new ideas for an inclusive, sustainable, and productive future, and a global hub for innovation."* We need to generate the ideas first, in order to become a global hub for innovation.
- The 'innovating for public good' part of the strategy appears less well developed and would benefit from some deeper and more critical thought about how the RSI

system can really deliver on what's important to New Zealand and New Zealanders.

- In order to guide an impactful research, science and innovation system, there needs to be a shift away from the narrow focus on measurement and assessment of impact to concentrating more broadly on supporting, encouraging, facilitating and resourcing the activities that lead to impact. We need to incentivise and invest in knowledge translation, mobilisation and diffusion as part of research. The strategy presents an important opportunity to grow impact literacy and shape how impact is embedded in institutional processes by including a discussion on *how* government, funders and institutions can support researchers to maximise the potential impact of their research by aligning efforts and resources; building capacity, capability; and enabling co-production.
- The problem of translation or 'transaction' is acknowledged in the strategy, however, this is both a key barrier and enabler for science in an international context and could receive greater focus in the strategy as an area requiring attention, particularly as it is key to capturing the value and benefit of research for New Zealand. Support for and investment in translation and the infrastructure required to support it needs to be considered an integral part of the 'impact' 'building firm foundations' and 'connections' part of the strategy.
- HRC is delighted to see a strong focus on people as vital to achieving the goals of the RSI strategy and the acknowledgement that New Zealand has few policies directly focused at developing, attracting and retaining excellent researchers, or nurturing their careers once in our system. We also welcome the focus and emphasis on increasing the diversity of our research workforce. Where this part of the strategy could be strengthened is to ensure a more appropriate balance between growing, developing and sustaining our own talent, versus attracting talent from overseas. There are also a number of areas where we will actively need to target career development opportunities because we don't currently have the capacity and capability we need, and we won't be able to import this knowledge or these people at the scale required. We recommend this need receives strategic focus in the strategy and is factored into the 'what we plan to do' section.
- HRC strongly encourages MBIE to consider developing policies to guide and enable data sharing and open access in our context, at the earliest opportunity.

Thank you for the opportunity to comment on the strategy. It is evident that a great deal of thought and consideration has gone into how the strategy is both positioned within and communicated to the research, science and innovation sector.