Tīmatanga kōrero

Introduction

This response to the issues raised in Te Ara Paerangi Future Pathways green paper comes on behalf of *Rauika Māngai*, Māori leaders across the 11 National Science Challenges and Ngā Pae o te Māramatanga. Responses were developed through discussions within and across Challenges, and wānanga of kairangahau Māori across the science sector.

Rauika Māngai shares MBIE's vision of creating a research sector that works in Tiriti partnership. However, we also note that the consultation is framed within a Western epistemology, which may already be limiting outcomes for Māori. A Tiriti led consultation process would have greater autonomy and flexibility of how the feedback can be provided during this early stage. If engagement is inclusive and allows sufficient time, the next phase of consultation could partially address this to build on the momentum for bold cross sector reforms.

The Rauika Māngai is a self-assembled rōpū of Māori leaders established in 2018. We meet quarterly, with MBIE providing the physical or virtual space for our hui. At least once per year, the Rauika Māngai has a joint meeting with MBIE investment managers, MBIE's Chief Science Advisor, the Director Māori Research, Science and Innovation (RSI) at MBIE, and also the Directors from all the National Science Challenges.

Since we were established, Rauika Māngai has:

- hosted a wānanga for Māori researchers across the National Science Challenges in 2019 to discuss the Vision Mātauranga policy,
- Released the Vision Mātauranga Guide in 2020,
- Contributed to Te Pūtahitanga - A Tiriti led Science-Policy Approach for Aotearoa New Zealand (NZ), which was released in 2021, and is a key source document referenced in Te Ara Paerangi,
- Organised a webinar series in 2021 on the history and impacts of Wai 262, which will be released in a report in 2022.

Rauika Māngai has been influencing Aotearoa NZ's science sector by providing the context, priorities, and pragmatic solutions to move to Tiriti o Waitangi ("Tiriti") partnership.

Rauika Māngai's recommendations in this submission are framed by experiences and observations of what works for Māori, as kairangahau and leaders from across research fields and institutions.

The whakaaro and content in this submission needs to be reviewed by a Māori policy analyst to ensure that our language and worldview is understood.

Rauika Māngai **endorses the submission** from **Te Pūtahitanga** wānanga held on 16 December 2021 and 14 February 2022.

Rauika Māngai would like to engage and continue to share our whakaaro to inform development of the new science sector in the coming months.

Assoc Prof Louise Parr-Brownlie
Chair, Rauika Māngai
Kia eke Kairangi ki te Taikaumātuatanga

Dr Selai Letica
Deputy Chair, Rauika Māngai
Toitū te Whenua, Toiora te Wai

Prof Gail Gillion
E Tipu e Rea

Prof Helen Moewaka Barnes
E Tipu e Rea

Andrew Sporle
He Oranga Hauora

Arohaina Owen
Ko Ngā Kai Whai Painga

Prof Shaun Ogilvie
Ngā Koiora Tuku Iho

Naomi Aporo
Toitū te Whenua, Toiora te Wai

Dr Acushla (Dee) Sciascia
Kia Manawaroa – Ngā Ākina o te ao Tūroa

Kristie-Lee Thomas
Kia Manawaroa – Ngā Ākina o te ao Tūroa

Josh Te Kani
Kia Manawaroa – Ngā Ākina o te ao Tūroa

Dr Pauline Harris
Pūtaiao me te ao Hangarau

Linda Faulkner
Ko Ngā Moana Whakauka

Assoc Prof Sandy Morrison
Te Kōmata o te Tonga

Dr Rihi Te Nana
Ko Ngā Wā Kainga Hei Whakamāhorahora

Dr Shaun Awatere
Ngā Pae o te Māramatanga

Whakarāpopototanga

Summary of key points

Our overarching vision is that in 30 years **Māori are equal partners with the Crown** determining the priorities and outcomes in the RSI sector.

The existing bipartisan RSI system has not valued mātauranga Māori. Māori have not been equal partners, and Te Tiriti has not been applied as the foundational document in all systems and processes in Aotearoa. Instead, the RSI system has privileged Western methods and priorities. Māori have not had an equal seat at RSI decision making tables.

The current RSI sector does not work for Māori - it does not produce equitable outcomes for Māori, has not permitted Māori kairangahau to flourish as Māori, and has not enabled Māori communities to drive the research direction so they can have their questions answered.

However, more recently, there are some Tiriti partnership/responsive organisations within the National Science Challenges. Each Challenge has addressed this in a different way, which means there are several ways that a Tiriti-responsive system can be pursued.

A science sector working in Tiriti partnership will give Māori tino rangatiratanga. The 'system' will be designed to empower the diversity of Māori science and rangahau driving the research direction in all places – academia, wānanga, research institutes, whānau, hapū, iwi, pan-tribal, and Māori organisations. The reiterative critical reflection within te ao Māori will ensure ongoing review so research priorities evolve to meet current and future needs. Rather than regional hubs, we recommend developing structures that can evolve and are reflective of Māori systems - Māori set their priorities and then share strategically within the hapū/iwi, and then with other communities. The process is ongoing - there is no end point because the process enacts and develops the connections for regions, for kaupapa and for outcomes.

We envision a system with a Māori (science) entity that includes mātauranga, traditional knowledge and knowledge that Māori hold and generate now and in the future. The Māori entity will receive funding from MBIE and will work with autonomous Māori research groups. In addition, the parallel science system will be required to work in partnership with Māori and will conduct science focused on Māori and non-Māori science and other knowledge systems.

Implementation of Tiriti partnership within the new science system will need to be phased, with specific goals at 1, 2, 5 and 10 years.

Key indicators within 10 years that Māori are in partnership with the Crown (MBIE) and throughout the RSI sector are:

- Māori are at least half of the members of Governance Boards, including MBIE's Science Board, university councils and CRI boards,
- Māori leaders and kaimahi are at all levels of the science sector, including in Director/co-Director and Manager positions,
- Establishment of a Māori (science) entity,
- Māori entities and research streams receive at least half of the research funding,
- Fundamental principles of the new science system are equitable research outcomes for Māori, free from bias and racism, research that does no harm to Māori and Māori receive an equitable share of the benefits,
- Mātauranga is valued and privileged,
- Racism is eliminated from science sector institutions,

- Māori postgraduates and staff are successful as Māori,
- Māori kairangahau numbers will double, and hold tenured positions within the system,
- Māori kairangahau will be promoted and paid the same as tāngata Tiriti[1] colleagues,
- Māori tauira transition to roles throughout all of the science sector,
- Māori communities are determining and progressing their science aspirations, and are adequately resourced,
- Infrastructure investment addresses Māori research needs,
- Expectations on reporting, monitoring and auditing of Tiriti partnership are significantly raised and accountability processes implemented to ensure that the whole sector responds i.e. at institutions, funding streams and project levels,
- Science sector Crown institutions, and related organisations, are monitored and audited for Tiriti compliance,
- Iwi and Māori entities are influencing research directions in all parts of the science sector,
- Research excellence and success for all researchers include measures that reward collective outcomes, leadership and responsibility that fundamentally shape research, science and Māori careers,
- Institutions have a demonstrable shift in culture i.e. Māori and tāngata Tiriti leaders are working in partnership,
- All researchers and workers in the science sector will understand Te Tiriti, and uphold the principles.

Rauika Māngai acknowledges Te Ara Paerangi's impact on the RSI system will take time to implement. We recognise that some of our recommendations will be delivered in 2-10 years.

[1] We use **tāngata Tiriti,** instead of Pākehā or tauiwi, in this document to represent non-Māori. This term emphasises the responsibilities that Māori and non-Māori have in effecting Te Tiriti partnership.

Theme: Research Priorities

1. Ngā kōwhiringa hoahoa whakaarotau matua

Priorities design What principles could be used to determine the scope and focus of national research Priorities?

National research priorities should be long-term issues/opportunities that are likely to remain priorities over an extended period: e.g. 30 years. This time horizon would also provide support to the recently commenced system of Long-term Insights Briefings required by the Public Service Act (2020). Given this longer time frame, these priorities should be reviewed and refreshed at regular intervals (5-6 years). This process would permit periodic shifts in strategic alignment to continue work at the forefront of the field as knowledge is consolidated.

Alongside this, some additional priorities may be needed for shorter periods of time to respond quickly to issues outside of the national research priority-setting and review system. A recent example is research on Covid, both medical and socioeconomic knowledge of managing a nationwide pandemic response.

National research priorities need to contribute positively to Aotearoa NZ's wellbeing. There also needs to be coherence across them i.e. not negatively impact other areas by exacerbating inequity, or by limiting climate change mitigations.

National research priorities need to be defined following broad, transparent and meaningful consultation. A place to start is the public consultation undertaken to establish National Science Challenges in 2012 and 2013.

Consultation with Māori to set equitable and Tiriti responsive research priorities is essential and should be done at leadership (Iwi Chairs Forum, Māori policy makers, Māori leaders in the science sector, kaumātua and tohunga) and community (marae) levels.

2. Ngā kōwhiringa hoahoa mō te tukanga tautuhi whakaarotau

Priority-setting process What principles should guide a national research Priority-setting process? How can the process best give effect to Te Tiriti?

A genuine process for identifying national research priorities will be needed, with no predetermination of outcomes – implicit or explicit - by the roles or remits of existing structures, areas of research strength within research institutions or currently available infrastructures. The process should start with a blank sheet.

Partnership means tino rangatiratanga for Māori. In this partnership Māori have agency. Māori and mātauranga are at the centre, the process is generative and will build on current momentum. Therefore, a national priority should be focused on Māori community, hapū and iwi agency. This priority will need to be appropriately resourced to succeed, including investment to grow capacity and capability, and in the required infrastructure.

Identifying national research priorities for Aotearoa NZ will have a significant impact on the research sector. Therefore, the process to select national research priorities needs detailed consideration. The science sector, policy and government, Aotearoa NZ businesses, communities and the wider public should contribute to priority setting. Consultation pathways with Māori, need to be developed – in spaces, times and ways (wānanga) that work. Therefore, the process to determine national research priorities will be more extensive and intensive than the process used to establish National Science Challenges, and informed by the lessons learned.

Ensuring appropriate partnership and meaningful consultation, as highlighted above, throughout the identificiation of national priorities will allow for a process that provides best effect to Te Tiriti.

3. Ngā kōwhiringa hoahoa whakahaere matua

Operationalising Priorities How should the strategy for each national research Priority be set and how do we operationalise them?

Research priorities will need to deliver equitable, Tiriti responsive, positive outcomes for Aotearoa NZ. Outcomes will need to deliver measurable benefits for Māori communities.

Each national research priority will need to have independent, expert governance. Governance should reflect true partnership with Māori. National Science Challenges have pursued this in different ways, thereby providing multiple guides for implementation. A key indicator is that half of the board members will be Māori. Governance boards should include diversity of thought and experience, such as Māori, Pacific, stakeholder, community and research.

Governance expertise should be shared across national research priorities, so that a member may sit concurrently on multiple national research priority governance boards. This is pragmatic given the currently limited pool of expertise in Aotearoa NZ in some areas. It also supports cohesion and communication across priorities.

Hosting of national research priorities needs to be re-imagined and not default to existing CRIs and universities. Independent research organisations and wānanga may be ideal hosts if sufficient time is allowed to develop the required infrastructure.

The National Science Challenge model of 'collaborating parties' has been useful to limit actual or perceived 'institutional grab' of resources. For example, appointment of influential roles (governance chairs and members) may require consensus or majority agreement by collaborating parties. Using this model for future research priorities would ensure that other research institutions have some influence over the strategic direction.

National research priorities would conduct mission-led research. Mission-led research provides for the **democratisation of science and innovation** with some power and decision making going to communities. Communities are drivers and actors in science and research. The best outcomes for Aotearoa NZ will occur when communities determine the research agenda.

National priority research funding will need to be allocated for extended periods to ensure there is time to deliver truly transformational change. An initial minimum funding period is likely 10 years, with an expectation of a further significant period of funding. Regular comprehensive reviews (every five years) are appropriate to inform decisions to stop, reduce, or increase funding depending on progress and national and international developments.

Funding within a national research priority will likely be allocated through commissioned or tightly defined contestable processes. It may be advantageous for a proportion of funding to be set aside for open contest to attract new research directions, new approaches, and new inter-disciplinary and inter-institutional research teams.

New research funding processes must recognise the significant costs to communities as they participate, drive and determine the mission-led research process. Mission-focused research is dependent on these communities and they will need to be resourced for all parts of the research process, including the costs during the scoping and planning phase that occurs prior to funding being available. Unlike universities and CRIs, research has not been the primary role of these communities, therefore, they do not have the ability to cross-subsidise research activity from other income streams. Recognition of community capacity must also be included in the process as often whānau, marae, hapū and iwi have limited resourcing to ensure ongoing commitment and energy in these spaces.

Many National Science Challenges have shown the success of mission-led research, and also how the science sector can be Tiriti responsive. There are several models of how mission-led research with Māori can be done successfully.

The collaboration and networking across diverse groups (not just research teams), which is required in priority-focussed research incurs costs and time, and needs to be recognised and appropriately resourced.

A national research priority will have a clearly distinguishable focus, to differentiate it from much of the existing work that will be ongoing in an area. The scope of national research priorities will need to be broad to be inclusive and avoid siloing expertise. Although we expect that priority setting will occur at the next stage of consultation, we highlight considering public need *and* funding gaps within the current system when research priorities are set.

It is important that the balance of research funding to be allocated through national research priorities versus investigator-led proposals funded elsewhere in the sector is carefully considered and made clear. It is likely that many (possibly the majority) researchers working on national research priorities may also work outside them and pursuing investigator-led research funding.

Theme: TeTiriti, mātauranga Māori and Māori aspirations

Recommendations in this section are articulated at 2 levels:

1. overarching changes that will need to be embedded in the RSI sector for the Crown to work in Tiriti partnership, and
2. answers to the questions listed in Te Ara Paerangi consultation document.

Tiriti partnership in the science sector

This section details key steps that will be needed to envision and implement the new science sector. Content is purposely kept at an oversight level in anticipation of details being added during the next stage of the consultation process.

The old science sector does not work for Māori. **Success** will require starting with a clean slate, and engaging in kōrero with an open mind. **Failure** would be implementing minor changes (Band-Aid approach) to the current system.

Successful implementation will require appropriate Māori and tāngata Tiriti leaders who can influence the mechanisms and resources (money and time) to establish a RSI sector in Tiriti partnership. Leaders will have to be fearless to overcome the resistance and barriers that will be presented. Leading in true partnership is a critical skill; one that many leaders believe they have but struggle to demonstrate.

Clear guidance for processes to establish meaningful working relationships have been provided by Te Arawhiti, the Office for Māori Crown Relations. Part 1, subpart 3 of the Public Service Act (2020) recognises the role of public service under Te Tiriti. Implementation of Te Tiriti partner relationships and restructuring can be evidenced in other sectors, such as establishing Te Pūkenga within Tertiary Education, and the Māori Health Authority within the health system.

Tiriti partnership means equitable resourcing and opportunity for outcomes. We share the details and processes that will ensure the government delivers on te ao Māori priorities articulated in its Manifesto 2020. Pathways for Te Tiriti-led RSI systems have been presented for decades, for example, at Te Oru Rangahau Research and Development Conference held at Massey University 1998 led by Tā Prof Mason Durie in the 1990s, and more recently by National Science Challenges.

Many National Science Challenges learnt that changes in research priorities, requirements and funding allocations require skilled messaging to bring everyone on the journey. When the new system is announced, communications will need to be crafted to mitigate adverse kōrero (risk) in the public and science sector. These communications could include tāngata Tiriti sharing how their research has benefitted from embracing te ao Māori and working with Māori communities.

Te Tiriti led system will require a staged plan with 1, 2, 5 and 10-year milestones. This is consistent with te ao Māori i.e. intergenerational (long-term) outcomes. Resourcing (time and money) this transition will be critical. The journey of ngā Whare Wānanga (Raukawa, Aotearoa, Awanuiārangi) entering, growing and cementing their programmes within the tertiary education sector provides critical insights.

Tiriti partnership within the science sector will need new sections to be written in Parliamentary Acts for leaders to use as levers for implementation. An example of this includes establishing the Māori Health Committee within the HRC Act (1990). Subsequently the committee has increased the expectation of health research to deliver equitable outcomes for Māori.

Implementing Tiriti partnership needs to start with changes in governance and management. Tiriti based membership of publicly funded research institutes should be written into the Education Act (1989) and Crown Research Institutes Act (1992, which refers to the Crown Entities Act, 2004). It is also possible that changes are needed to the Health Research Council Act (1990) and Royal Society of New Zealand Act (1997). If this doesn't happen, the mechanism for change

will only occur via ministerial appointments, which brings significant risk for failure as governments and ministers change.

A progressive stance on governance could include selecting Māori co-chairs and members from Māori leaders across sectors e.g. Iwi Chairs Forum, NZ Māori Council, Te Kāhui Amokura, Rauika Māngai and Te Ara Pūtaiao, Iwi/Māori businesses, and others. The Regional Skill Leadership Groups and Workforce Development Councils within the Review of Vocational Education (RoVE) have adopted this approach. The Workforce Development Councils' model is contained in their legislated Orders in Council.

It is critical that MBIE, and other major publicly funded organisations, enact Tiriti partnership with Māori leaders having an equal voice in setting priorities and processes. Māori leaders need to be supported to be successful as Māori and not siloed across large organisations.

The plan to build Māori capacity and capability needs to include upskilling Māori leaders in te reo and te ao Māori, and also investing in broader skill development to expedite leadership growth. This process to build capacity and capability was identified by Ngā Pae o te Māramatanga in 2016 as a critical step to grow Māori researchers, and was highly successful to support 700 Māori scholars to obtain PhDs over a 10-year period.

Parallel work needs to be undertaken with Māori communities to build trust. The RSI sector needs to serve communities. Māori science is, and always was, invested in communities (i.e. wānanga, academies, whānau, hapū, iwi) with a paepae for robust discussion, which contrasts with the power and control structures exercised by the Crown. For Māori communities to engage, rangatiratanga sits at whānau, hapū, iwi and not with the Crown. If communities don't engage in the future, it is the RSI sector that has failed in the partnership.

Māori scientists are tohunga, as well as scientists throughout the RSI sector funded by the Crown. Māori scientists generate mātauranga regardless of where they work. Therefore, tohunga need to be involved in designing the future RSI system for Māori. Nevertheless, the process should be driven by whānau, hapū and iwi.

4. Te huarahi e marohitia ana

Engagement How would you like to be engaged?

Māori need to have an equal opportunity to set national research priorities in the new system. To achieve this, consultation will need to be done differently than with other groups in the sector, with greater consultation throughout the regions. Consultation should be undertaken with diverse Māori groups: leaders in the Iwi Chairs Forum, CEOs in Māori businesses, Māori leaders in the science sector, tohunga, and kaumātua; rangatahi; community groups; whānau, hapū and iwi. This is the right thing to do. It also ensures post-settlement iwi governance entities can represent their constituents' interests.

The decision makers in the current science system have the opportunity to be the world leaders in recognising and honouring the constitutional rights of Indigenous peoples.

The preferred process, if Covid restrictions allow, is by kanohi ki te kanohi wānanga. Some will be for only Māori, others may have Māori only time and discussion, followed by all interested groups.

We reiterate, whānau, hapū and iwi have rangatiratanga in developing the new RSI system in Aotearoa NZ. A series of RSI hui taumata will be needed. Before hui taumata occur, regional hui may be needed. All hui should be resourced by the Crown.

5. Te whakamana me te whakahaumaru i te mātauranga

Mātauranga Māori What are your thoughts on how to enable and protect mātauranga Māori in the research system?

Mātauranga is the Māori knowledge system and includes traditional knowledge and also knowledge that Māori hold and generate as Maori, now and in the future. Maori science and rangahau are some of the processes used in generating mātauranga.

Mātauranga is a valid knowledge system and needs to be privileged within the RSI sector.

Māori leadership should be visible in science sector organisations at all levels, including governance and management. This Māori governance and management needs to be in Māori-led parts of the sector (e.g. Māori (science) entity) and within the rest of the system (e.g. Western approaches). This is critical to set the values and context of Aotearoa NZ's research sector. National Science Challenges have demonstrated this produces the best, most inclusive processes and outcomes for all New Zealanders.

Key organisational changes are needed within MBIE for it to deliver on Tiriti partnership and privilege mātauranga. Strutural and procedural elements need to be critically evaluated. Processes going forward may include:

1. Changing the membership of the MBIE Science Board so that at least half are Māori,
2. At least one Māori Science Advisor at MBIE to ensure that mātauranga and te ao Māori are included in all recommendations to the Minister and Ministry, and to inform policy changes,
3. Creating and implementing a Māori Science funding policy,
4. A significant increase in the number of Māori staff with lived experience in the science sector, and tāngata Tiriti allies, throughout all of the Ministry.

Aotearoa NZ should clearly define the purpose and main beneficiary of publicly funded research i.e. Aotearoa NZ public, with Māori gaining equitable benefit from all research.

Māori must determine and secure mātauranga IP for whānau, hapū, and iwi. This would suggest that an entity and associated mechanisms need to be established or contracted to centralise skills to ensure that this happens.

Māori must maintain sovereignty over all Māori data. Te Mana Raraunga has developed governance, management and best practice processes to request access to Māori data. These principles need to be applied to all data sets in the science system.

We encourage tāngata Tiriti to understand mātauranga Māori and support mātauranga research. However, it is inappropriate for non-Māori who have been funded through Vision Mātauranga to describe themselves as mātauranga experts. Such funds should be focused on research by Māori, for Māori.

Māori should receive appropriate remuneration for the unique skills, experience, and services they provide within the science system. This extends beyond Māori researchers being expected to also provide "cultural advice", to include recognition of commitments from businesses and communities. The cultural double time by Māori researchers needs to be acknowledged and valued within the science sector and academia in promotion and recruitment processes. Capacity growth of Māori researchers requires secure research positions to replace the abundant fragmentation of Māori FTE across research institutions.

Māori roles and leadership in the research sector are often deflated or devalued; te ao Māori and mātauranga Māori need to be privileged to counteract biases. Māori researchers are global leaders within the international Indigenous research sector.

We note the approach being taken by Aotearoa NZ's health sector, with the creation of the Māori Health Authority and Health NZ . It would appear that a parallel structure should be considered

for our science system. Another consideration is how will knowledge from these 2 systems be woven together, and who will have the expertise and resourcing to do this?

A critical element in enabling and protecting mātauranga Māori in the research system is growing Māori research capacity and capability. This will require dedicated and long-term support of research training and careers, with appropriate protection of developing careers.

Mātauranga Māori and kaupapa Māori research methods require deep, trusted and enduring relationships with communities. These relationships need to be supported beyond the lifespan of research projects. The new system needs to build in support mechanisms to allow relationships to flourish when funding is scarce.

Consideration of research proposal assessment processes is important. Is there bias against valuing mātauranga Māori when using "experts" who primarily value, or only understand, Western approaches?

For the new science sector to deliver Tiriti partnership, the Vision Mātauranga policy will need to be replaced with a policy that meets current and future Māori aspirations and needs. The new policy will need to align with the new structure.

- This will involve more critical evaluation of delivering on Te Tiriti, including equitable outcomes for Māori across decision making and resource allocation systems and processes.
- Reporting, monitoring and auditing of outcomes for Māori need to be significantly upgraded in most parts of the sector. If Māori capacity building, engaging with Māori communities, unskilling the team in tikanga and reo during a project, or a specific outcome change or service delivery recommendation has been promised, these need to be monitored.

6. Te whakapakari hononga ki te mātauranga Māori ā-rohe

Regionally based Māori knowledge hubs What are your thoughts on regionally based Māori knowledge hubs?

We support an innovative structure in which rangatirotanga is held within whānau, hapū and iwi. A paepae approach allows robust discussion to occur with all parties as equal participants in the new science sector.

Māori communities, tohunga, researchers, leaders, and kaumātua will need to be consulted on the structures that work best for them. Any structure will require communities (whānau, hapū, iwi) at the centre of the system, with research and governance serving their needs and aspirations.

In our vision, a national Māori (science) entity would interact with the Crown and whānau, hapū, and iwi. The Māori entity would receive funding directly from the Crown and would then distribute funding to the communities doing the research. The Māori entity's role is to facilate research conducted by whānau, hapū and iwi.

The Māori entity could house expertise that will be needed across Māori research programmes e.g. to protect mātauranga IP and data sovereignty. The Māori entity could also be a conduit to connect across research that is being done across Aotearoa NZ.

The Māori entity would also be a conduit so that whānau, hapū and iwi can effectively and efficiently access the vast knowledge about Māori held by the Crown. This is important to prioritise areas of research. An additional benefit is that it would provide Māori the opportunity to provide Indigenous interpretation of the data that would benefit mahi done in Ministries.

Alongside the Māori entity, it is critical that whānau, hapū and iwi have rangatiratanga of their research i.e. strategic decision making and operational research roles. This structure is right. This structure provides whānau a "bottom-up" approach in driving the mātauranga that is gathered.

Whānau, hapū and iwi are at different stages of being prepared to develop their RSI kaupapa. Some iwi/hapū already have overarching research kaupapa that they are implementing (e.g. Taranaki Mounga) and have been finding funding partners. Other iwi/hapū will need time to develop their research kaupapa. Therefore, the Māori entity will need to develop relationships with iwi/hapū to support them to develop and/or drive their own kaupapa, management and governance structures. Flexibility in approach and design, and a whakamana (empower) approach will be critical over the next 10 years.

For the Māori entity to provide assurances to the Crown, a governance board will be needed. Governors would need to come from diverse Māori communities across Aotearoa NZ. Strategically, the Māori entity would bring together Māori political decision makers, policy analysts, tohunga and scholars within and across kaupapa.

Our approach is visionary. The precise structure will need to develop over the next 5-10 years. However, there are examples of independent or parallel Māori entities in other sectors to learn from:

1. the new Māori Health Authority and Health New Zealand; and
2. Te Whare o te Reo Mauriora, where Te Taura Whiri i te Reo Māori and Te Mātāwai are two standalone entities; one focussed on Crown objectives and obligations to actively protect te reo Māori and the other facilitating whānau, hapū, iwi Māori driven objectives and outcomes.

If the regional hubs design is developed by MBIE, it will still need to ensure that rangatiratanga sits with whānau, hapū, and iwi. Regional hubs may be an interim step towards the vision outlined above. Some questions we have are will regional hubs be based on waka or traditional federation, mimic Māori land court districts, follow the Māori Health Authority? What is the ideal number of hubs? How will urban Māori be represented? Importantly, Māori need to decide this after consultation in wānanga.

Since whānau, hapū and iwi have rangatiratanga within the new system, they will decide which organisations and people they will partner with. For many communities, the focus for the first 5-10 years will be developing their kaupapa and growing capacity of kairangahau in their community.

Māori communities set their priorities and then share strategically within the hapū/iwi, and then with other communities. Therefore, people wanting to work with and for Māori through the new system (e.g. hubs) will need to have realistic expectations in the first 10 years. Furthermore, there is no expectation that whānau, hapu and iwi will work with bad partners.

Regardless of the RSI system that is developed, Māori remain the owners of mātauranga.

If the regional hubs design occurs, it is also important to consider how inter-regional engagement will happen to amplify outcomes for national Māori benefit, and so that silos aren't created.

Substantial infrastructural support has been provided to research organisations of the Western model to date. Significant Māori *infrastructural development* will be needed to deliver outcomes e.g. reduce inequities.

Theme: Funding

7. Ngā kōwhiringa matua mō ngā taumahi matua

Core functions How should we decide what constitutes a core function and how do we fund them?

These should be identified by an independent national group, with representatives from across the science sector, including Māori independent research organisations. Representation of groups such as emerging researchers and community representatives (e.g. health service, business) is also important.

8. Ngā kōwhiringa hoahoa mō tētahi tauira tuku pūtea hou

Establishing a base grant and base grant design Do you think a base grant funding model will improve stability and resilience for research organisations, and how should we go about designing and implementing such a funding model?

Funding allocations need to be consistent with Tiriti partnership. This would mean that at least half of funding envelope would support mātauranga Māori and Māori research. This is possible – it has already been achieved by some National Science Challenges.

The funding structure needs to deliver for Māori, whakamana (empower) Māori wellbeing, and be sustainable for intergenerational outcomes.

Mātauranga Māori research would be assessed through a stream that is separate to projects with Western approaches. Mātauranga proposals could be assessed through the Māori (science) entity.

An important component of any model must be robust and transparent monitoring, reporting and auditing on how base funding has been used; research organisations must be accountable.

Allocations for Māori researchers, Māori research, and Māori infrastructure will need to be reported separately. Clear definitions of what can be included will need to be provided. Reporting will need to carefully consider how it will accurately report the quantum of Māori researchers when they often have small FTEs on multiple grants, often administered across multiple institutions. If this is not managed accurately, an individual researcher could appear to be a full-time researcher in multiple departments and institutions i.e. over-inflation of Māori researchers. Furthermore, given the precarity of Māori researchers, staffing should be reported separately for those who are tenured compared to on soft money.

Performance metrics should be considered. Attributes that could be measured include collaboration/networking, connection with communities/stakeholders/end-users, workforce diversity, career development etc.

Most research institutions are dominated by Western epistomology. Yet, allocations of base funding will need to give effect to te Tiriti and Māori aspirations. How can base funding address historic inequities and whakamana mātauranga Māori and Māori researchers?

Which research organisations will be eligible to receive base funding? The system needs to support independent Māori research organisations and wānanga. The system will need to be scalable – works for small and large organisations, such as universities and CRIs.

The funding model will need to be protected from political changes. However, it should be reviewed at 5 and 10 years to determine if base funding is driving and supporting desired outcomes.

Theme: Institutions

9. Te āhua, whakaruruhau me te hanganga o te whakahaere

Institution design How do we design collaborative, adaptive and agile research institutions that will serve current and future needs?

Collaborative research institutions require strong, enduring relationships for them to also deliver adaptive and agile research programmes. Whanaungatanga is a foundation principle in te ao Māori, and Māori leaders will add value to this endeavour. A move by the science sector to Tiriti partnership will organically strengthen the right kinds of relationships for collaborative, adaptive and agile relationships.

It will be essential to have the right leaders in key positions for longer periods of time for whanaungatanga to occur. When enduring relationships are critical for outcomes, adequate time will need to be built into the system to allow key personnel to train and guide new relationships to develop.

National Science Challenges have developed leaders with these essential skills. When National Science Challenges end in 2024, these leaders need to be galvanised and strategically positioned within the new science sector.

Processes need to be fit for purpose, and streamlined to facilitate research and outcomes. Research institutes need to be welcoming to everyone – the "ivory tower" of academia and science needs to be dismantled for science to maximise outcomes.

10. Te whakawhanaketanga me te tautiaki pai ake o te hunga mahi me te raukaha

Role of institutions in workforce development How can institutions be designed to better support capability, skills and workforce development?

PhD graduates are essential in a knowledge economy. Training needs to incorporate a broader range of skills to fill the gaps between science, delivery, knowledge exchange, and policy.

Institutions play a vital role in ensuring the research workforce has the requisite skills, and adopts approaches that break down silos, encourage multi-disciplinary teams, and foster strong collaborations and enduring relationships with communities. The current drivers for research career success often do not align to these skills, instead promoting competition and individual success. A Tiriti partnership model would measure and reward a broader range of skills and not just publications and grants received.

We recommend that training on Te Tiriti and cultural competency should be a required part of employment for *all* staff in organisations that receive public money across *all* science and research disciplines.

11. Te ruruku pakari ake me te arotautanga o ngā haupū rawa me ngā rawa nunui

Better coordinated property and capital investment How should we make decisions on large property and capital investments under a more coordinated approach?

12. Te tautoko i ngā wawata o te Māori

Institution design and Te Tiriti How do we design Tiriti-enabled institutions?

Leadership (governance and management) at institutions needs to align to the cultural changes articulated in Te Ara Paerangi; cultural competencies are essential.

Tiriti partnership institutions can be modelled from some National Science Challenges and Te Pūkenga.

Fundamental principles of the new science system are equitable research outcomes for Māori, free from bias and racism, research that does no harm to Māori and Māori receive an equal share of the benefits.

Institutional racism in RSI has been forefront in the media in the last two years. The Parata Gardiner report (September 2020) needs to guide development of new RSI institutions, and be considered when determining the metrics and drivers of excellence and success within the new science sector.

All institutions will need to have research reporting processes to MBIE so that delivery of Tiriti partnership outcomes can be monitored. In many science institutions, large shifts will be needed. These insititutions would best deliver Tiriti partnership if they are required to submit 10-year overall and annual strategy plans on how this will be achieved. MBIE will need a team of Māori researchers and policy analysts that evaluate the plans and reports to determine if institutions will reach required standards within 5-10 years. If institutions do not reach stated outcomes, how will MBIE feed that back to institutions, will institutions need to resubmit plans and what will happen if outcomes continue to fall below expectations? Will base funding be reduced? Funding aligned to metrics and standards is an important driver of behaviours and outcomes.

13. Ngā pāpātanga pai ake – te whakawhiti mōhiohio me ngā pāpātanga rangahau

Knowledge exchange How do we better support knowledge exchange and impact generation? What should be the role of research institutions in transferring knowledge into operational environments and technologies?

Priority-driven research and the desire for impact depends on researchers and research hosts to move communication plans from knowledge transfer to engaging in knowledge exchange. The bi-directional kōrero between knowledge creators and users, including Māori communities, requires a different set of skills. Training in these skills will need to become part of research training in the future.

Effective knowledge exchange critically depends upon early and meaningful engagement with relevant stakeholders and communities. Knowledge exchange and impact will be augmented when the fundamental principles of kaupapa Māori research are applied i.e. stakeholders and communities identify the research questions and are involved in all steps through to dissemination and impact has been achieved via changes in policy or service delivery.

Knowledge exchange requires designated funding support, which is not currently factored into most existing funding models. Dedicated (separate) funds could be available from funders or funding could be incorporated into projects.

Theme: Research workforce

We begin with a few points not directly asked through the questions.

There needs to be robust discussion about PhD training in Aotearoa NZ.

- What is the role of PhD students within the science system. Are they in a training position, or are they part of the workforce? This distinction is important, as it implies different expectations of the student and commitments from the host (e.g. stipend vs salary; employer vs. host responsibilities). This has important implications for financial support for maternity/paternity leave, and also financial support from ACC if there is a work accident. An important factor to consider as decisions are made in a Tiriti partnership system is the impact on Māori postgraduate students, who are often older and are supporting whānau while they are conducting postgraduate research.
- The broader ramifications, and the societal and personal costs and benefits, of the current PhD training model need to be explored.
- Opportunities for research skills training opportunities should reflect the needs of the wider science sector, and not only prepare tauira to become future academics. Tiriti partnership will require a significant increase in Māori postgraduate tauira in the next 20 years. How will institutions support this process when there are currently so few Māori academics in tenured positions?
- Postgraduate research training should include a wider range of research skills; knowledge translation and exchange and cultural skills (including cultural competency and safety).

The research workforce is unregulated. There is no agency that has overall responsibility for strategy and policy around research workforce training and development, and little information on skills and competencies, measurement of which must become part of any effort to move away from the current precarity towards sustainable careers. If the science sector is committing to the development of the Māori research workforce, there will need to be meaningful monitoring metrics, beyond counting graduate student completions.

14. Ngā whakaarotau me te hunga mahi rangahau

Workforce and research Priorities How should we include workforce considerations in the design of national research Priorities?

National research priorities should inform strategic investment in research skills training programmes and opportunities – including scholarships, postdoctoral support and career development awards. This approach will require careful consideration of the current profile of the research workforce (including skills, career stage etc), 'gap' areas for specific technical support and development, and commitment to supporting life-long learning and skills development.

Māori scholars should be valued in all fields. Too often we see able scholars leave institutions altogether or shift their field of interest to areas where they feel valued, such as Māori studies departments. Equally we would like to see institutions recognise, in appointment and promotion processes, the "cultural duties" often taken on by Māori scholars (e.g. support for Māori students, provision of advice on tikanga, reo, teaching tāngata Tiriti to develop relationships with Māori communities etc).

Rangatahi need to be included when national research priorities are being chosen to design a new science sector and meet *future* needs. This will also ensure that young Māori kairangahau learn about, and have an ongoing interest in, the design and implementation of the science system.

15. Ngā pūtea me te hunga mahi rangahau

Base grant and workforce What impact would a base grant have on the research workforce?

There are significant risks for workforce, depending on how the base funding model is applied: both in terms of drivers (or criteria applied by the funder), and how the base grant is allocated through an institutional resource allocation model. One potential risk is that base grants cross-subsidise other areas and outcomes. Such risks may be managed by:

- Signalling that support is to be exclusively used for specific designated purposes, including for workforce development, and diversity of identity, thought, skill and knowledge needed in the future science sector must be an expectation;
- Monitoring, transparent reporting and auditing of host institution-level use of base funding and the outputs and outcomes.

Māori postgraduate scholars are often reclaiming their whakapapa while they are learning to become scientists. These scholars need to be supported to learn te reo and tikanga to fulfill their aspirations as Māori scientists, and for their wellbeing. An additional long-term outcome is that they will more effectively contribute to Tiriti science sector partnership.

Skilled Māori researchers are embedded in Māori communities. They are often named as "contractors" on research grants that are administered by publicly funded institutions e.g. universities and CRIs. How would a base grant allocation support the development of this critical cohort of Māori researchers? Community researchers have skills from lived experience – not based on theories in formal education settings. These kairangahau need ongoing support. Their skills also need to be valued appropriately.

Capacity building of Māori scholars needs to start at high school. Given this, we recommend that capability base funding support the Pūhoro STEMM Academy, a Māori led organisation with an exemplary record to grow future Māori scientists.

16. Ngā tikanga tuku pūtea hou

Better designed funding mechanisms How do we design new funding mechanisms that strongly focus on workforce outcomes?

The current system of "full cost research funding" disguises the true costs of research. Grant proposals often include unrealistically low full-time equivalent (FTE) commitments, and even "time only" commitments where the researcher is doing work at 0 FTE. In Tiriti partnership, no Māori researcher would be named in a time-only role, and all FTE allocations would accurately reflect time commitments. We advocate that there should be no place for "time-only" contributions in any funding contract. However, that means that budget caps, if instituted, should be more reflective of actual research costs.

Capacity growth of Māori researchers requires secure research positions to replace the abundant fragmentation of Māori FTE across research institutions. Postgraduate students need to see Māori scholars throughout institutions and at all career stages. Importantly, the RSI system needs to resource these tauira to flourish as Māori, to have Māori mentors (tuakana-teina relationships) to navigate the system, know that their skills are unique, needed and valued within the system. They need to know that secure jobs will be there for them.

In contrast, research on Māori science career trajectories in the last 3 years paints a grim picture. Publications by McAllister and colleagues (e.g. 2020, DOI: 10.20507/MAIJournal.2020.9.3.8) detail the barriers to Māori in the RSI system. When Māori researchers stay, they are paid and promoted less, indicating that these unique skills are not understood or valued.

The RSI system also needs greater flexibility; shared employment arrangements with iwi/hapū and universities/CRIs, funding for community led projects, flexible working arrangement to allow for parenting and carer role responsibilities.

Māori tauira often have leadership experience beyond their RSI career stage. When these skills are demonstrated in their roles, they should be acknowledged in promotions processes and remuneration. However, these Māori scholars need to be protected from having senior leadership roles thrust upon them too early in their career. Māori scholars need to be successful as researchers first so they can secure funding and permanent positions to have rangatiratanga over their careers.

In many areas of research, a move to co-design and co-work with communities will mean involvement of community members as kairangahau. This will add great value to the research, will provide a legacy for the community beyond any individual research project, and should be appropriately recognised through any funding process.

Within the new science sector, the Māori entity would have funding to support research, including Māori workforce development. This would support postgraduate tauira and community kairangahau capacity building that is also aligned to iwi driven research priorities.

Realistic recognition of time commitment should address the practice of senior "names" being included in funding proposals. This may help with success of the grant proposal, but does it actually reflect the commitment of the senior scientist over the ensuing contract? Furthermore, it redirects funding away from supporting researchers earlier in their career. Contract variations, where the FTE funding from that senior scientist is redistributed should be an exception, not routine.

Funding mechanisms should recognise the importance of postdoctoral scientists. In the current university model, it can be difficult to include postdoctoral positions on grants because of the cost multiplier of the overhead model, the influence of research proposal budget caps, and including colleagues employed on short term contracts. A revised model should recognise the importance of postdoctoral scientists, as future science leaders, and also specifically recognise the critical importance of their skills development.

Future independent science leaders can obtain funding to address questions in their burgeoning career focus, with a mentor guiding career and leadership development. However, many postdoctoral positions are funded when a principal leader (PI) receives project funding. Here, the postdoctoral fellow is conducting research that the PI is leading, rather than allowing for the development of a personal niche area of expertise. Both approaches to funding postdoctoral positions are valid. However, is the relative proportion of currently available funding appropriate to foster the requisite development of future science leaders?

To enable diverse skill development, some scholarships or fellowships could allow secondments/placements (e.g. of researchers to a policy agency) to fill gaps within the broader definition of the science sector.

Aotearoa NZ currently provides limited support for individual career transition i.e. the shift from working for a team leader, to heading independent research. Rutherford Discovery Fellowships and HRC's Sir Charles Hercus Fellowships contribute, but are restricted in number and career stage. More early- to mid-career development awards are needed. Overseas examples include the K99 awards (NIH, USA), Canada Research Chairs, and NHMRC (Australia) Investigator Grants. Some Fellowships also require the host institution to hire the recipient as permanent faculty half way through their tenure. This would be an excellent mechanism to increase Māori faculty in research institutions. Increased support provided directly into career grants is worth considering as an alternative, or complement, to expecting institutions to direct base grants to sustaining the research workforce.

Theme: Research infrastructure

17. Funding research infrastructure How do we support sustainable, efficient and enabling investment in research infrastructure?

This question may assume that research infrastructure is physical, as it typically is for many parts of the science sector. For social sciences and for some types of wellbeing and health research, people could be considered infrastructure.

Investment in large research infrastructure (i.e. of national importance), should be aligned with the needs of the identified national research priorities. Some level of redundancy, and distribution across the country, is necessary to ensure business continuity, and to support distributed investment at regional levels, including to Māori communities.

Establishing and sustaining infrastructures should consider the risks of damage and disruption. Our recent history (e.g. pandemic and earthquake) highlights the risks of "centralised" infrastructure. If an infrastructure has to be hosted by an institution, can that hosting be distributed? By definition, these infrastructures are of great national significance, and if they have a physical location, consideration of hosting location should account for risks of disaster, rather than just default to the "usual" location of the hosting institution.

Ask Māori what infrastructure will be needed to best respond to priorities, and which types of infrastructure (datasets, collections) may have cultural safety implications and require more careful consideration. All infrastructure involving data and physical items should recognise the importance of Māori sovereignty and build in appropriate access, monitoring and reporting, auditing and accountability processes.

For the past century, the majority of investment in science infrastructure has supported Western approaches. In Tiriti partnership, balance will need to be restored in the coming decade. Consequently, significant investment will be needed in infrastructure that supports rangahau Māori.