Submission on Te Ara Paerangi Future Pathways Green Paper 2021

March 2022

Introduction

This submission on *Te Ara Paerangi Future Pathways – Green Paper 2021* is from Auckland University of Technology. An accompanying submission, includes feedback gathered during a hui with *Ngā Kaimahi Māori o AUT.* This additional submission specifically and comprehensively addresses Section 2 'Te Tiriti, mātauranga Māori me ngā wawata o te Māori – Te Tiriti, mātauranga Māori and Māori aspirations' as well as reference to other related issues.

Summary of feedback

He waka eke noa / we're all in this together

AUT supports the Government's reflection on the current research funding model and its recognition of the associated downsides and costs. We are strongly in favour of a new, collaborative framework and would like to see a model that incentivises publicly funded research institutions to work together for the greater good of New Zealanders.

Creating a more joined-up research system requires collaboration and engagement, which will take time and resources to establish and maintain. Any future funding model should include consideration of this ongoing effort, and value the often-invisible work of building strong and productive relationships. Accomplishing the goals set out in the Green Paper will require an increase in the total research funding pool, rather than merely a reallocation of existing funds - so that collectively we can do more that is meaningful to, and for Aoteoroa New Zealand.

There are opportunities for greater coordination of the multiple government agencies with an interest in science, including but not limited to research and education, to work together maximise the return on investment.

Our priorities in responding to this paper are to see fair, transparent and adequate funding of Aotearoa New Zealand's research institutions, supported by an all-of-New Zealand approach to uplifting research capability and impact and developing our research infrastructure.

Overall recommendations

Recommendation 1: That the Priorities be research led and reflect the full range of Aotearoa New Zealand's research needs, allowing for niche research in the national interest, and the ability to respond to significant changes affecting our future.

Recommendation 2: That the Priorities be founded on giving effect to Te Tiriti and on principles of collaboration, impact, diversity, and expansion of wellbeing for all New Zealanders.

Recommendation 3: That, in light of Recommendation 2, Māori be sufficiently resourced to determine how best to give effect to Te Tiriti.

Recommendation 4: That a specialist, independent research council be appointed to provide oversight of the research system and set research priorities.

Recommendation 5: That, in establishing an independent research council, MBIE adopt a co-governance model such as that proposed in the New Zealand Health Strategy to enable and protect mātauranga Māori.

Recommendation 6: That the funding model needs to include a focus on the collective, rather than being completely competitive, allowing for capability building (including for Māori) and addressing issues such as researcher precarity and administrative costs.

Recommendation 7: That funding mechanisms reflect the importance of end-user engagement in generating research impact.

Recommendation 8: The funding models must recognise issues such as workforce development, data governance, capability building, and understanding research impact, as foundational issues requiring consistent, separate funding streams.

Structure of this submission

This submission focuses particularly on four of the focus areas identified in the paper:

1. *Ngā whakaarotau rangahau – Research priorities*
3. *Te tuku pūtea – Funding*
5. *Te hunga mahi rangahau – Research workforce*
6. *Te hanganga rangahau – Research infrastructure*

In addition to the submission from from *Ngā Kaimahi Māori o AUT,* we also broadly support the comprehensive feedback from Universities New Zealand (UNZ) regarding *Ngā hinonga – Institutions*. We have limited our specific comments in this section to a consideration of Question 13: How do we better support knowledge exchange and impact generation?

Detailed feedback

Section One: 1. Ngā whakaarotau rangahau - Research priorities

Question 1. Ngā kōwhiringa hoahoa Whakaarotau Matua: Priorities design

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

We note the paper does not ask whether Aotearoa New Zealand *should* have research Priorities, but rather how they should be operationalised. Presenting national research Priorities as a given raises concerns about the implications for research, and researchers, that sit outside of Priority areas. Arguably a small country such as Aotearoa New Zealand must support a breadth of research because it underpins the education, training, and skills for our future workforce – which by necessity is broad. As such, AUT supports a balance between the funding of: the breadth of science needed for societal functioning; Priority-led platforms of research; and support for blue-sky research as an engine for discovery.

There should also be a comprehensive risk assessment of the Priority setting approach to ensure that perverse outcomes which can come from overly tight prioritisation are avoided.

Recommendation 1: That the Priorities be research led and reflect the full range of Aotearoa New Zealand's research needs, allowing for niche research in the national interest, and the ability to respond to significant changes affecting our future.

Question 2. Ngā kōwhiringa hoahoa mō te tukanga tautuhi whakaarotau: Priority-setting process

2A. What principles should guide a national research Priority-setting process?

We suggest the following principles would be helpful in determining research Priorities:

- Priorities should be based on the national interest and encourage collaboration across institutions, and between the science sector, industries and communities.
- Priorities should recognise a broad definition of science that encompasses a diversity of disciplines (including social and economic research), indigenous methodologies, and the application of new knowledge.
- Priorities should be long-term and intergenerational, reflecting the significant challenges that we can influence now. Targeted investments now will build the required skills and knowledge to tackle issues such as climate change, sustainability, affordable housing, and well-paid work.
- Priorities should be concerned with how research is translated into economic, health and social impact.
- Priorities should enable effective resource allocation, transparency, accountability, and reduced complexity.
- Each Priority should have workforce development embedded in it, and there should be separately funded workforce development initiatives that underpin all the Priorities.

There may be areas of mismatch between Priorities and current skills and capabilities in Aotearoa New Zealand, particularly if the Priorities are based on national problems or opportunities rather than current areas of research strength. Thought is therefore required as to how this should be addressed, including consideration of the temporal and non-linear nature of the connection between skills and the need for them. Examples of questions to consider include:

- How might Aotearoa New Zealand access international funding, skills, and research opportunities that could directly contribute to Priority research and/or help to build domestic capability?
- What education and research do we need to invest in now, to be ready for the challenges we will face in the future?

2B. How can the process best give effect to Te Tiriti?

Detailed content from *Ngā Kaimahi Māori o AUT* is attached, but consultation across AUT identified the following priorities for our organisation:

- Māori desire for self-determination should be reflected in the process of scoping and identifying research Priorities, with Māori given the opportunity to answer how the Priority-setting process can best give effect to Te Tiriti.
- A key and obvious challenge is that giving effect to Te Tiriti through the Priority setting process is likely to place further demands on our limited number of Māori research colleagues.

Recommendation 2: The Priorities should be founded on giving effect to Te Tiriti and on principles of collaboration, impact, diversity, and expansion of wellbeing for all New Zealanders.

Recommendation 3: That, in light of Recommendation 2, Māori be sufficiently resourced to determine how best to give effect to Te Tiriti.

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

In setting the strategy for national research Priorities there are lessons to be learned from the National Science Challenges experience. While the Challenges have led to some excellent research, we think most would agree there are opportunities for improvement in processes including those directed at priority setting and allocation of funding.

AUT broadly supports UNZ's proposal of a specialist independent research council, as discussed in their submission. Aotearoa New Zealand's research funding landscape is already complex and new strategies should be operationalised through existing structures and mechanisms wherever possible. Ideally the number of funds and mechanisms would be reduced. International peer review of proposals should remain a key check for ensuring excellence and independence but should be done in partnership with Māori and Pacific expertise recognising the Aotearoa New Zealand context.

Recommendation 4: That a specialist, independent research council be appointed to provide oversight of the research system and set research priorities.

Section Two: Te Tiriti, mātauranga Māori me ngā wawata o te Māori - Te Tiriti, mātauranga Māori and Māori aspirations

In addition to a brief response here – specific and more detailed feedback is provided in the accompanying submission from *Ngā Kaimahi Māori o AUT*.

Question 4. Te huarahi e marohitia ana: Engagement

How would you like to be engaged?

As noted in our response to *Question 2b*, we are concerned that the worthy intentions flagged in Te Ara Paerangi to advance authentic and meaningful partnership under Te Tiriti o Waitangi will inevitably place even greater expectation, workload, and pressure on our limited number of Māori colleagues. This challenge must be properly addressed.

We also ask how the process could support self-determination, and what can we learn from the proposed co-governance model underpinning the health reforms https://www.futureofhealth.govt.nz/

Recommendation 5: That, in establishing an independent research council, MBIE adopt a co-governance model such as that proposed in the New Zealand Health Strategy to enable and protect mātauranga Māori.

Question 5. Te whakamana me te whakahaumaru i te mātauranga Māori: Mātauranga Māori

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

We need strong models of Māori leadership in our institutions but note that most of the framing in Te Ara Paerangi is about partnership rather than leadership.

We consider there are potential benefits of incorporating an intergenerational approach to Priorities. This concept is aligned with mātauranga Māori approaches, and we believe it could lift and distinguish a science system in Aotearoa New Zealand across multiple areas that western science may not yet have even considered.

Section Three: Te tuku pūtea – Funding

Fundamental to achieving the goals set out in the Green Paper is the need to increase the total funding pool, rather than simply reallocating existing funds, so that collectively we can do more. We appreciate this has been Government's intention[1], but the reality is yet to eventuate. We understand of course the immediate financial pressures associated with Covid, but the pandemic has also shown that our science, and our scientists, are crucial for our future. We would hope, as we emerge from the fiscal pressures of Covid, that Government revisits their intention to lift science and research funding to be more in line with our close neighbours and key partners.

AUT largely supports the comprehensive feedback from UNZ on this matter. We argue that research would benefit from a more collective approach to funding and managing research infrastructure, and that we must avoid anything that further enforces competitiveness or adds cost or precarity.

Question 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?

We support the notion of establishing core functions for the New Zealand science sector and appreciate the reflection provided in the document on what these may be and how they might be decided. The three criteria proposed appear sensible and could be applied to support both breadth (for national benefit across all areas of education and employment) and depth (specialist focus where Aoteoroa has a need or where Aoteoroa can lead or be a key partner in for global benefit). The examples provided are good examples but as noted, they are just examples. It seems vital that the identification of core functions should provide both stability and allow for change as new areas are identified or hold promise for benefit to NZ. Some of those we consulted with specifically proposed that 'science workforce development' be a core function of the reform of the science sector because it is impacted on by all parts of the education sector (from primary through to tertiary) and impacts on many areas of work and society (far beyond those of just scientific or research institutions).

Embedded in this question are two additional questions a) who decides what is a core function b) how is it paid for. It would be excellent if the 'who decides' question created opportunities for greater development of citizen science and engagement of the general population and in particular, involvement of Māori and our future leaders (young people). With regard to how it is paid for – we applaud the notion that the resourcing should underpin viability as with other core functions of government funding. We consider this could only happen in any real sense if the governments expressed intentions to lift investment in science were to occur.

Question 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?

AUT is broadly supportive of base grants for universities to cover research ***overheads***. The current model has created precarity for researchers who are dependent on soft money and has made it difficult for researchers to pursue a sustained programme of research. Consequently, critical research questions are often set aside for those that are more likely to attract funding.

[1] https://www.beehive.govt.nz/release/rd-rising-greater-acceleration-needed

Base funding would arguably provide more stability in the sector, greater transparency of the full cost of research and go some way to addressing career precarity. In some ways – it is reflecting the same need to provide viability as that reflected in the section on core functions. A base grant provides viability (which includes stability and sustainability) of a core function of the tertiary sector - to do research and provide research informed teaching.

Base funding would also seem to potentially be a better model for funding capability building. A competitive model tends to fund existing expertise but does not necessarily incentivise capability building – and clearly our science system needs to do both. Notably - in 2020, AUT produced 8% of the NZ university sector's quality-assured outputs (per Dimensions), but received 4.4% of MBIE's NZ university funding. This demonstrates that under the current funding model, other universities are receiving on average nearly twice as much MBIE funding per research output, compared with AUT.

We welcome MBIE's consideration of an approach that would reduce the administrative load created by a competitive model alone. Huge costs are incurred in submitting research proposals, the large majority of which are unsuccessful, and even successful grants carry large and unfunded administrative set-up costs. Whilst competitive funding is an important component of any science funding system, we welcome consideration of a more balanced approach that would arguably be facilitated by inclusion of a base grant.

Questions such as the funding formula, how often the base grant would be reviewed and how it could be spent, would need to be thought through carefully to promote the stability of science organisations. It would also be critical for the base funding allocation process to be transparent, fair (and perceived to be fair), responsive to change, and not used to reinforce the status quo. We note that a potential downside to base funding could be reduced transparency of what is funded within institutions and these and other risks would need to be considered.

While we broadly support base grants for research overheads, we cannot comment on the potential use of base grants to cover research salaries without first understanding how it would impact on current university funding mechanisms (Student Achievement Component and Performance Based Research Funding).

Recommendation 6: That the funding model needs to include a focus on the collective, rather than being completely competitive, allowing for capability building (including for Māori) and addressing issues such as researcher precarity and administrative costs.

Section Four: Ngā hinonga – Institutions

Questions 9 – 12

We note and largely support the comprehensive feedback from UNZ on questions 9 to 12 of the Green Paper, and offer these additional comments:

AUT supports the idea of co-locating Crown Research Institutes (CRIs) and universities and providing cross-appointments. However, geographical proximity may, in and of itself, have limited impact. While the opportunity to share infrastructure is extremely valuable; arguably, further significant steps would be required to ensure that institutional structures encourage the sharing of knowledge, ideas, and expertise. There needs to be support for collaboration and connection, alongside recognition that the institutions will have different goals and, indeed, at times, different legislative requirements. It is vital that any co-location be accompanied by clearly articulated shared goals and

structures, and that the different outcomes important to CRIs and universities are respected and supported.

Question 13. Ngā pāpātanga pai ake – te whakawhiti mōhiohio me ngā pāpātanga rangahau: Knowledge exchange

A. How do we better support knowledge exchange and impact generation?

B. What should be the role of research institutions in transferring knowledge into operational environments and technologies?

The Green Paper does not seem to reflect the notion that understanding how to create impact is a science in its own right. The impact of research is complex, multifactorial, and clearly non-linear. It may even be that this should be a Priority for research investment, with a focus on gaining a better understanding of how to optimise uptake of our research by potential next and end users, and in particular how it can influence government policy.

Breaking down the old mindset of research being valued simply for the academic publications it produces (and proxies for quality such as journal rankings and citations) is an important part of better supporting knowledge exchange and impact generation. AUT is ranked #1 in global research impact in Australasia, according to Times Higher Education. If investment for research included funding based on impact rather than simply on journal outputs, it would mean contributions from universities like AUT which are arguably desired by the system, would be better resourced, and more widely delivered.

People respond to the signals sent by reward systems, and in research that includes systems such as academic promotion, PBRF scores, and external research funding. If processes and criteria like these explicitly incorporate, and prioritise, knowledge exchange and impact then researchers will respond to these signals. Likewise, if the system rewards research that has outcomes that result in manifest change to practice, policy, understanding or thinking (or all of these) then this will support impact generation. And if funding criteria explicitly prioritise partnership with Māori in the design, creation, and implementation of knowledge exchange then this will incentivise knowledge exchange.

Funding calls can prioritise impact generation in a variety of ways:

- The first question in any funding application should ask whether the research is needed, and the second should ask where, how, and over what timeframe impact will be delivered. Our view is that even blue skies research can have a line of sight to potential impact, albeit the system must recognise that the potential may not be realised as anticipated.
- Delivering impact has a cost, and as such needs to be specifically funded and not expected as an add-on supported through other mechanisms. Equipping researchers with resources to create impact from their research is vital. *KiwiNet* and *Return On Science* have been very successful at doing this, but their remit and funding (or alternate dedicated resources) arguably needs to encompass a wider realm of impact and return on investment beyond that which is commercial.
- End user engagement should form a greater component of funding criteria. Research needs to respond to "end-user pull" and incorporating end users into research is perhaps the strongest way to ensure research achieves greater impact. Such engagement has multiple benefits: it influences the direction of the research; end-users develop expertise that helps them to understand and implement the science; and it can help shift community understanding of, and buy-into, research.

- Expected outputs need to be reconsidered and producing a journal publication should not be enough. We should value outputs beyond academia and targeted at people who may put research findings into practice, such as publications in trade magazine, training workshops, professional development resources, media, and MOOCs.

Better supporting knowledge transfer and impact generation means better supporting the community linkages that are crucial to research being welcomed, actively participated in, and ultimately used. Our own experience (including through a recent initiative investing in community collaborations to increase the meaningfulness and impact of our health and wellbeing research) suggests that the following should be borne in mind when building collaborative relationships:

- Engagement is a skill that should be valued and actively developed amongst researchers.
- Authenticity is essential to for engagement to be welcomed. Based on a history where contact by researchers is often seen as too late or not reciprocal, some communities justifiably question the authenticity of engagement.
- Participation in science, done well, has impacts irrespective of the outcome of the research.
- The science system must not be seen to add further burden to communities suffering the strain of Covid, including Māori, Pacific peoples, disabled people, and the health system.

Recommendation 7: That funding mechanisms reflect the importance of end-user engagement in generating research impact, and that there is a specific science concerning impact, how to generate it and how to evaluate it.

Section Five: Te hunga mahi rangahau - Research workforce

The science and research system is made up of people with lives, obligations, and aspirations. Recognising that it is a system of people is particularly relevant to conversations around building Māori capability. Our research workforce must be robust, locally relevant, and internationally competitive.

Question 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?

As noted above, it is key to changes in the science system that the research workforce is recognised as being made up of real people with career aspirations, financial obligations, and families. We would like to see a model that recognises the holistic needs of our researchers (including career, financial, and family obligations) rather than treating the workforce more simply as resources or inputs. As such, workforce development funding must be uncoupled from other funding rounds to address precarity fairly across the sector. We consider dedicated funding for early career academics, not necessarily tied to a priority area, is vital.

As well as providing security in the research workforce generally, investment should be directed to building specific capabilities that support research, such as Māori advancement; having a one-size-fits-all approach would exacerbate inequity.

Other areas that need targeted investment include data governance, and as highlighted above *(see question 13)*, the science of research impact if that is truly to be a goal of the science system.

If Aotearoa New Zealand is to build the international reach of our research, we could also consider building shared national expertise around large international funder opportunities, processes, and ethical and audit requirements.

Recommendation 8: The funding models must recognise issues such as workforce development, data governance, capability building, and understanding research impact, as foundational issues requiring consistent, separate funding streams.

Question 15. Ngā pūtea me te hunga mahi rangahau: Base grant and workforce

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

See above – question 8.

Depending on the amount available, base funding could assist universities to provide career pathways for researchers. Processes around allocation of base funding would need to be transparent, independent, and focused on increasing capability across the sector rather than entrenching the status quo.

Question 16. Ngā tikanga tuku pūtea hou: Better designed funding mechanisms

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

We are particularly interested in how the funding framework can support development of our local talent. The current funding system encourages international PhD enrolments by subsidising their fees. While these international connections undoubtedly bring benefits to Aotearoa New Zealand, we are not convinced that the current funding settings are encouraging universities to grow enough of our own talent. Domestically-focused initiatives such as making doctorates fees-free for New Zealand citizens and/or creating a pool of post-doctoral fellowships for citizens, may not only respond to this issue, but help to address inequities for Māori, Pacific, and women researchers.

Section Six: Te hanganga rangahau - Research infrastructure

Question 17. Ngā kōwhiringa hoahoa matua mō te tuku pūtea ki te hanganga rangahau: Funding research infrastructure

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

AUT agrees that research in Aotearoa New Zealand would benefit from a more collective approach to funding and managing research infrastructure, and that duplication of resources is an inefficient use of public money.

We suggest looking at models such as NeSI and REANNZ to understand what works and, indeed, what doesn't. The key question in determining the extent of Government's role in managing an investment should be its scale: the larger the investment, the more appropriate it would be to have Government oversight or ownership.

One factor that needs to be considered is how to address the risk that the benefits of infrastructure investment would accrue unfairly to host institutions, not by intent but simply through ease of access.

We support the idea of an open register of equipment and facilities that can be shared between institutions and other users (and are aware such an approach is being investigated by UNZ). There are a number of systems solutions that would support this. However, questions about the cost of administering such a system, including management, insurance, and depreciation (and where they would fall), and access to resources (both geographical and in the interests of diversity) would need to be considered.

As discussed under *Question 14*, research organisations could benefit from shared systems solutions for managing activities that support research and research funding, such as PBRF, ethics processes, data management, and research funding, and such systems could form part of a national approach.

Conclusion

AUT appreciates the opportunity to engage on the questions posed and hopes that our contribution supports next steps in a positive way. We believe that the following principles are important going forward:

- Comprehensive risk evaluation should be applied to all potential changes to ensure that positive outcomes outweigh any negative consequences and that unintended consequences are minimal.
- The system should balance and support both targeted priorities and diversity / breadth.
- The human aspect should be top of mind in any changes that impact the research workforce.
- Decision makers on the future of the New Zealand science system should represent a breadth of perspectives.
- The views of Māori, and mātauranga Māori should be central to the next steps (please see the dedicated feedback from *Ngā Kaimahi Māori o AUT*).
- That Government's welcome intention to increase and accelerate investment in science be reinitiated.