

# Future Pathways Green Paper

Response and comments

## High level ambitions and aims:

Our research system needs to build novel and transformative options

Collaborative, multifaceted and interdisciplinary approaches

research system that is connected, adaptable and resilient

collaborative, adaptive and agile research institutions

## Designing Research priorities

Q1: What principles could be used to determine the scope and focus of research Priorities?

Response:

I suggest that higher level of prioritisation criteria are to be defined. Those need to act as guiding principles for the evaluation and decision making process. Criteria should apply to the uniqueness of New Zealand's context as a country, nation, and peoples. In alignment with good business practice I see criteria such as:

- 1) Is this issue / opportunity unique to NZ (e.g. Te Tiriti is uniquely NZ)
- 2) Is this area addressing critical issues within NZ (e.g. Māori inequities)
- 3) Is the output of research in this field providing competitive advantage for NZ in the international context (e.g. marine farming?)
- 4) Is the output of research providing future benefits to NZ (e.g. pest eradication techniques)
- 5) Is this field of research essential to maintain current competitiveness / retain core industries? (e.g. fibres, nitrogen leeching ...)

These criteria are to be defined in a way that they survive political preferences and changing governments.

Lastly priorities need to be reassessed regularly on national level.

Q2A: What principles should guide a national research Priority-setting process?

Refer Q1

Q2B: How can this process best give effect to Te Tiriti?

Principle 1 above would automatically highlight Te Tiriti relevant aspects

## Funding & Institutions

Q8: 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?

Q9: How do we design collaborative, adaptive and agile research institutions that will serve our current and future needs?

Response: I don't have a particular view or input to these specific questions. However, I believe it would be worth looking at this issue through a slightly different lens. I believe New Zealand, a country with 5 million people, has a disproportionately high number of research organisations and universities as compared to other countries. This brings with it a range of issues, from lack of synergies between research organisations such as shared admin and IT infrastructure, to overlapping research fields and competition for the same funds by similar institutions. (This is specifically named in the paper). I suggest that an essential component in answering the questions raised is in consolidating research and research organisations. E.g. It could make sense to have research organisations linked to the different ministerial domains e.g. Research in Primary Industries, or Health, or Transport, or Education. Then within these domains key competencies can be assigned to different institutions. It could focus each organisation on becoming centres of excellence in their respective areas, rather than trying to compete for the same pool of resources again and again. Within such a setup base funding can be provided by government and then to well performing institutions. Collaborations would not be limited by competing for funding as outlined in the paper.

Academic institutions perform research, often in all of their subject areas offered, yet many Universities offer similar subjects. E.g. It may be possible to research Economics at Massey, Auckland, Canterbury and Otago. This is fine for education, but does it serve us to have multiple institutions to be engage in e.g. civil engineering research? What it would require are ways to e.g. engage in PhD studies in Power electronics when studying engineering at a different University.

In short much of the outline given in section 4 also suggest these considerations.

### Better Impact Delivery & Funding

Q13: How do we better support knowledge exchange and impact generation? What should be the role of research institutions in transferring knowledge to operational environments and technologies?

Response: The reason I am linking this paragraph also to funding is that most funding applications I have seen want a clear specification and outline of the output and the impact of that output provided as part of the application. While understandable from a funder's perspective, this has an inherent issue. Projects are not all the same, or even able to define the impact in a similar manner. In my experience there are at least three different project types: Foundational research, where the output has no other use than being new knowledge (identification of a new antibiotic substance); secondly projects where such foundational knowledge is translated into an application (developing a potential treatment using such compound); thirdly project where the application is commercialised or implemented (a new medication for the market). Each of those projects has unique challenges and specificity of the outcome. I suggest that irrespective of the knowledge dissemination pathway, classifying projects in such a way makes it easier and more specific what outputs may be created, what risk are involved, and what impact one may finally see. This in turn impacts on funding applications and their evaluation.

### Research Workforce

QUESTION 14: How should we include workforce considerations in the design of research Priorities?

Response: Having worked in the industry sector for most of my life, the main issue I see with e.g. post doc or other early career researchers, is a distinct lack of exposure to real work life contextual knowledge. What I mean by that are: - discrepancy between rigor of academic research and pragmatism in the commercial world; - lack of understanding of business related topics such as basic accounting, marketing, project management; - team work and leadership. I believe that overcoming this culture shock in some ways would help emerging researchers make the transition from academia to working in the workforce as well as helping to create more competent research organisations. To make it happen one may want to consider creating a 'transitioning' paper that is offered or even compulsory for PhD students.

### General comment

Much of the Green Paper, reminds me of the start of my engineering career in the 80ties in Germany. The increasing competitive pressure originating primarily from Asia forced organisations to rethink how to go about product development, which is not dissimilar to research.

The requirement to move from secrecy to collaboration, from high quality to speed, from fixed predefined outcomes, to agility required companies to completely rethink how to do business and how to specify and manage projects. This change is in my eyes reflected in this green paper for the NZ research landscape. It will require core-competencies to be defined, IP agreements replaced with collaboration frameworks, pre-defined projects to be replaced with continued agile working methods, funding will need to change from big funding amounts to continued resourcing of highly capable interconnected teams spanning organisations. Management has to learn and more importantly adjust policies, procedures and practices in the organisation to enable such working style. This will result in management delegating budget responsibility downstream and control to be replaced by trust. I see this green paper as the starting point for such a journey in NZ.

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