

MBIE future pathways response

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## Section 1: submitter contact information

1. Name: Professor Bruce MacDonald

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3. Can MBIE publish your name and contact information with your submission?

Yes

4. Can MBIE contact you in relation to your submission?

Yes

## Section 2: Submitter information

\* 5. Are you submitting as an individual or on behalf of an organisation?

Individual

## Section 2: Submitter information - individual

6. Are you a researcher or scientist?

Yes

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## Section 3: Research Priorities

In this section, we ask for information to help us understand the principles and process through which we should determine the scope and focus of Research Priorities, as well as how we can deliver research most effectively in relation to the Priorities.

(See pages 24-27 of the Green Paper for context on these questions)

**15. Priorities design:** What principles could be used to determine the scope and focus of research Priorities?

I believe funded research should be mission-led, so that it has a purpose and potential to deliver long term impact to benefit NZ. This means we can all focus on addressing large scale challenges that face our country and our planet. Then the scope and focus of research priorities is about choosing and designing research missions. The best way to do this is a form of co-creation in what I will call a “mission creation workshop,” which should include and be driven by the people responsible for delivering the impact of the work, and should then include researchers. For economic impacts in NZ the people responsible to deliver the eventual research impact are largely the CEOs of companies that export goods and services, as they run the groups that deliver to the market. For other kinds of impacts these people are policy makers and policy implementors in government and other organisations, healthcare decision makers, and so on, i.e. people at the end of the pathway leading to impact, those running the operational execution of benefits to NZ. In NZ of course this should include Māori leaders in business, health, environment, etc. To provide useful direction to research missions all these people also need to be long term thinkers and thinking in a NZ Inc manner, ie beyond their own immediate company, timescale, and personal context, as research takes time to develop into real world, scaled impact and benefits, and so that the focus is more on the future groups that will deliver such impacts,

than current. So we need to bring these people together regularly (perhaps annually) and ask them what missions should NZ address in the long term, over 10-20 years perhaps. Once a number of broad topics are developed by co-creation with these people, then it is likely that further work is needed to explore the boundaries and details and to validate the worthiness of each idea, as well as making connections to other related missions and projects, at the same time gathering further stakeholders who can, along with members of the original group, give guidance as the mission develops.

Once a concrete enough description of the mission is developed, along with background information from the exploration work, then it is time to bring researchers together to brainstorm the design of a sustainable research programme, in a “mission design workshop”. This may be done in one workshop or multiple workshops, either way the researchers will need to engage strongly over a period of time in order to devise a suitable programme. Some of the stakeholder group, including some who will deliver the eventual benefits, should be included and should stay with the project throughout its lifetime and on to impact delivery, as an advisory group. Initially the funder (eg MBIE) can call for interested researchers to put their hands up, being clear that the mission design workshop is about bringing their skills to the table, not about funding their pet projects. Then some initial leaders can be shoulder-tapped for helping run the workshop. These may or may not be eventual project leaders; some guidance is needed from the funder to facilitate and draw out the project and project leaders. Then the researchers should write a proper project proposal, to show a suitable best NZ team, budget and work plan including engagement with people on the pathway to delivery of the benefits (which should include some of the stakeholder group). The project proposal can then be evaluated to ensure it is a solid programme that addresses the mission.

Once a contract is formed, after some evaluation and refining of the proposal details, the project should start. There should be regular reporting, and reflection against the original mission, and opportunities to redirect the project as circumstances change, and perhaps following future mission workshops.

I'm a deputy director for the national science challenge “Science for technological innovation” (SfTI) and have designed and followed the above process in forming our larger spearhead projects. We feel it has worked well, and also has helped develop researchers' capacity to engage with mission-led project formation, design, and execution.

We envisioned having regular mission creation workshops at a national level as a national discussion, perhaps annually. With each mission project reporting on their progress and the mission design process creating new missions. In SfTI we have not quite had the time scale to repeat this process as much as this. I believe it should be considered to pause or halt or redirect missions as time goes on, depending on progress and priorities developed.

These activities should be funded and such activity might be called “coordinating action”, bringing together the people and processes, resourced to ensure the details are explored well. The funder does not have to run everything; for example in Europe, groups of experts do run similar workshops to decide on priorities and directions, in coordinating actions.

The funder should oversee the process to ensure full engagement with the stakeholders, including Māori and Pacific people, from the very start, and that these stakeholders are really the long term NZ Inc thinkers, and that this engagement continues throughout each mission.

And that best teams are included, with diversity across all dimensions, including young researchers and stakeholders as well as those more experienced.

(See page 27 of the Green Paper for additional information related to this question)

### **Question Title**

**16. Priority-setting process:** What principles should guide a national research Priority-setting process, and how can the process best give effect to Te Tiriti?

Co-creation of mission-led projects, as above. Full engagement with Māori from the very start is important (including design of the details of the mission development process (ie mission creation and mission design)).

(See pages 28-29 of the Green Paper for additional information related to this question)

### **Question Title**

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

As missions and then work together to design the missions, see above. Also as mentioned, be prepared to update priorities as new missions each year.

(See pages 30-33 of the Green Paper for additional information related to this question)

[Prev](#) [Next](#)

Section 4: Te Tiriti, mātauranga Māori, and Māori aspirations

EXIT

## **Te Ara Paerangi - Future Pathways submission form**

### **Section 4: Te Tiriti, mātauranga Māori, and Māori aspirations**

In this section, we ask for information to help us understand how Māori want to engage throughout the reform process including beyond this consultation, how we can facilitate the application of mātauranga Māori throughout the research system, and views on regionally-based Māori knowledge hubs.

(See pages 36-37 of the Green Paper for context on these questions)

### **Question Title**

**18. Engagement:** How should we engage with Māori and Treaty Partners?

Include Māori in the team that manages the mission-led project development as above, and ensure Māori stakeholders are included from the start of the mission creation process, and Māori researchers are included in the mission design process. Probably need to have regular reporting from the project team on Māori engagement, and monitoring with the potential to intervene and improve if needed.

(See page 38 of the Green Paper for additional information related to this question)

### **Question Title**

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

This is an important step and probably more education of researchers, plus monitoring and reporting of this protection. Also adopt clear and strong IP clauses in research contracts that express this protection clearly.

(See pages 38-39 of the Green Paper for additional information related to this question)

## Question Title

**20. Regionally based Māori knowledge hubs:** What are your thoughts on regionally based Māori knowledge hubs?

Good idea. I suggest they be connected with large projects and work together.

(See page 39 of the Green Paper for additional information related to this question)

[Prev](#) [Next](#)

Section 5: Funding

**Te Ara Paerangi - Future Pathways submission form**

EXIT



## Section 5: Funding

In this section, we ask for information to help us define “core functions” and how they should be funded as well as your views on a base grant funding model.

(See pages 42-43 of the Green Paper for context on these questions)

### **Question Title**

**21. Core Functions:** How should we decide what constitutes a core function, and how do we fund them?

Put all the current and suggested core functions in a background document for the first mission creation workshop as described above and see what comes out. Add new possibilities as a background to future annual workshops so as to evolve NZ’s funded core functions. Be prepared to stop/reduce funding as each mission creation workshop evolves these priorities.

(See pages 44-46 of the Green Paper for additional information related to this question)

### **Question Title**

**22. Establishing a base grant and base grant design:** Do you think a base grant funding model will improve stability and resilience for research organisations?

No. funding should be focused on key priorities (ie missions). This should be discussed and redirected as needed. Continuity is needed for the researcher community to ensure we have the national capability, and this should be achieved by the mission-led processes without having to give base grants on a long term basis.

(See pages 46-49 of the Green Paper for additional information related to this question)

### **Question Title**

**23. Establishing a base grant and base grant design:** How should we go about designing and implementing such a funding model?

Don't

(See pages 46-49 of the Green Paper for additional information related to this question)

## Section 6: Institutions

EXIT

# Te Ara Paerangi - Future Pathways submission form

## Section 6: Institutions

In this section, we ask for information to help us understand how institutional forms can serve current and future needs, how institutions can support workforce development, and how we can improve coordination of capital works.

(See pages 52-56 of the Green Paper for context on these questions)

### Question Title

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

By using the mission-led process discussed above.

(See pages 57-58 of the Green Paper for additional information related to this question)

### **Question Title**

**25. Role of institutions in workforce development:** How can institutions be designed to better support capability, skill and workforce development?

We need to ensure there is more support for researchers in developing projects, and writing proposals, for example for the missions mentioned above. We need to ensure institutions fund this well; perhaps by having conditions on how existing project overheads are used to help with that.

(See page 58 of the Green Paper for additional information related to this question)

### **Question Title**

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

This can be decided on if a mission requires it, but we still need to evaluate carefully to be clear there is value in the long term and that it is not just someone's pet white elephant.

(See pages 58-59 of the Green Paper for additional information related to this question)

## **Question Title**

**27. Institution design and Te Tiriti:** How do we design Tiriti-enabled institutions?

By requiring Māori governance at the top level and tasking governance with ensuring Tiriti related actions and full engagement with Māori.

(See page 59 of the Green Paper for additional information related to this question)

## **Question Title**

**28. 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?

Well they can't do it on their own; you need the full engagement with CEOs and decision makers as mentioned above about stakeholders. So research organisations must do that engagement and support the transfer out of knowledge.

(See pages 60-63 of the Green Paper for additional information related to this question)

[Prev](#) [Next](#)

Section 7: Research workforce

EXIT

## Te Ara Paerangi - Future Pathways submission form

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

By having conditions on best NZ teams such as diversity across ethnicity, gender, age, range of expertise.

(See pages 69-70 of the Green Paper for additional information related to this question)

### **Question Title**

**30. Base grant and workforce:** What impact would a base grant have on the research workforce?

It may make it hard for research teams to get the resources needed that are funded as indirect costs, such as office space, admin/project management support. Since institutions may be reluctant to provide these well, in order to save costs.

(See pages 70-71 of the Green Paper for additional information related to this question)

### **Question Title**

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

Fund the outcomes, ie fund when outcome is achieved.

(See page 72 of the Green Paper for additional information related to this question)

Section 8: Research infrastructure

EXIT

## Te Ara Paerangi - Future Pathways submission form

### Section 8: Research infrastructure

In this section, we want information to help us understand how we can improve the efficacy of investment in research infrastructure.

(See pages 74-76 of the Green Paper for context on these questions)

#### Question Title

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

This is tricky, perhaps should be addressed by a dedicated mission creation workshop, and in this case include selected researchers.



(See pages 77-78 of the Green Paper for additional information related to this question)

[Prev](#) [Done](#)