#52

COMPLETE

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Page 2: Section 1: submitter contact information

Q1

Name

Confidentiality - 9(2)(ba)(i)

Q2

Email address

Privacy - 9(2)(a)

Q3 **No**

Can MBIE publish your name and contact information with your submission?Confidentiality notice: Responding “no” to this question does not guarantee that we will not release the name and contact information your provided, if any, as we may be required to do so by law. It does mean that we will contact you if we are considering releasing submitter contact information that you have asked that we keep in confidence, and we will take your request for confidentiality into account when making a decision on whether to release it.

Q4 **Yes**

Can MBIE contact you in relation to your submission?

Page 3: Section 2: Submitter information

Q5 **Individual**

Are you submitting as an individual or on behalf of an organisation?

Page 4: Section 2: Submitter information - individual

Q6 **Yes**

Are you a researcher or scientist?

Q7

Age

Privacy - 9(2)(a)

Q8

Gender

Q9

In which region do you primarily work?

Q10

Ethnicity

Page 5: Section 2: Submitter information - individual

Q11

What is your iwi affiliation?

Respondent skipped this question

Page 6: Section 2: Submitter information - individual

Q12

If you wish, please specify to which Pacific ethnicity you identify

Respondent skipped this question

Page 7: Section 2: Submitter information - individual

Q13

What type of organisation do you work for?

Crown Research Institute or Callaghan Innovation

Q14

Is it a Māori-led organisation?

No

Q15

Which disciplines are most relevant to your work?

Agricultural, veterinary and food sciences,

Biological sciences

Q16

What best describes the use of Mātauranga Māori (Māori knowledge) in your work?

It does not contain Mātauranga Māori

Page 8: Section 2: Submitter information - organisation

Q17 **Respondent skipped this question**

Organisation name

Q18 **Respondent skipped this question**

Organisation type

Q19 **Respondent skipped this question**

Is it a Māori-led organisation?

Q20 **Respondent skipped this question**

Where is the headquarters of the organisation?

Q21 **Respondent skipped this question**

What best describes the use of Mātauranga Māori (Māori knowledge) in your organisation?

Page 9: Section 3: Research Priorities

Q22

Priorities design: What principles could be used to determine the scope and focus of research Priorities?(See page 27 of the Green Paper for additional information related to this question)

FOCUSING RESEARCH ACTIVITIES AND CONCENTRATING RESOURCES TOWARDS ACHIEVING NATIONAL GOALS.

National goals tend to still rely on a particular area of science (e.g. a goal focusing on education is unlikely to involve the biological sciences), rather than be able to utilise a whole-of-system approach. Trying to focus resources typically results in researchers outside the areas of expertise required reshaping how their capability is defined so that the activities it proposes will fit the priority. Effectively trying to jam a square peg into a round hole. Research organisations with strong industry links have developed good processes for prioritising investment, but when it comes to scrutinising and investing in areas of research new to the organisation, then the degrees of freedom permitted (e.g. 12 months' [$5M] of workshops to decide what will be done) indicates a significant inefficiency in the process. Admittedly this often occurs because the level of upfront investment required for programme development has to be balanced against a bidding system that has been compared to rolling dice. The returns on investment are greater if minimum time is spent in writing a piece of 'future focused' fiction, than in undertaking an in-depth review of the state of the art and developing a well-structured workplan and impact strategy.

The National Science Challenges are good examples of where the cut-off for seeking opinions was valued over designing a strategy. Yes, some are beginning to deliver tangible outputs (e.g. He Waka Eke Noa), but it is arguable that the same result could not have been achieved in a shorter timeframe. Admittedly it is a balance of ensuring that those who move slower have an opportunity to provide input as equally as those with access to more power (e.g. able to access more resources and faster), but again, the initial strategy for this process was not defined, and more importantly communicated, early enough. Transdisciplinary research may be the new buzzword, but it's more often achieved by two or three people talking over afternoon nibbles at a conference, then by bodging it together from a year's-worth of focus groups. Those leaps in finding ways to understand connectivity come more through serendipity than design, but that is probably more because most scientists, as opposed to innovators, are not taught how to actively find the best ideas.

Q23

Priority-setting process: What principles should guide a national research Priority-setting process, and how can the process best give effect to Te Tiriti?(See pages 28-29 of the Green Paper for additional information related to this question)

Respondent skipped this question

Q24

Operationalising Priorities: How should the strategy for each national research Priority be set and how do we operationalise them?(See pages 30-33 of the Green Paper for additional information related to this question)

Respondent skipped this question

Page 10: Section 4: Te Tiriti, mātauranga Māori, and Māori aspirations

Q25

Engagement: How should we engage with Māori and Treaty Partners?(See page 38 of the Green Paper for additional information related to this question)

Respondent skipped this question

Q26

Mātauranga Māori: What are your thoughts on how to enable and protect mātauranga Māori in the research system?(See pages 38-39 of the Green Paper for additional information related to this question)

Respondent skipped this question

Q27

Regionally based Māori knowledge hubs: What are your thoughts on regionally based Māori knowledge hubs? (See page 39 of the Green Paper for additional information related to this question)

Respondent skipped this question

Page 11: Section 5: Funding

Q28

Core Functions: How should we decide what constitutes a core function, and how do we fund them?(See pages 44-46 of the Green Paper for additional information related to this question)

Respondent skipped this question

Q29

Establishing a base grant and base grant design: Do you think a base grant funding model will improve stability and resilience for research organisations?(See pages 46-49 of the Green Paper for additional information related to this question)

No

Q30

Establishing a base grant and base grant design: How should we go about designing and implementing such a funding model?(See pages 46-49 of the Green Paper for additional information related to this question)

GIVE EFFECT TO NATIONAL PRIORITIES AND REDUCE UNPRODUCTIVE COMPETITION.

Clearly articulate the priority, and the drivers behind the decision to decide why it is a priority, paired with the information as to the drivers behind setting a lower priority on related areas. Once the priority has been set, establish an entity that will manage the delivery of answers and solutions to the problem, understanding that answers and solutions may be delivered by different teams. The right personalities populating the entity will be critical, aiming for individuals who will have a mission-led focus, rather than see developing strategy as an opportunity to increase their personal scientific standing. Incentives for efficient operations could include:

- Minimum upfront establishment payments, with increasing investment on delivery.
- Hard stage gates.
- To avoid competition, assurances that no other government funding will be provided to similar areas while entity is operating effectively.
- Strong independent operational and scientific reviews.

Protocols are already in place to allow scientists linked to an entity to work from within a home institute, resulting in the scientist perhaps working on programmes relevant to the home institute, as well as one or more entities. This modifies the costs and cross-organisational management systems, but retains and better supports the cross-organisational research operations.

Confidentiality - 9(2)(ba)(i)

[redacted]

ESTABLISHING A BASE GRANT AND BASE GRANT DESIGN.

There have been calls for Base Funding, yet money cannot be blindly paid out to support a scientist's salary, oversight and accountability are still required. It may work well for the driven scientist, who has a clear understanding of global best-practice in their area of research, and with the humility that they are not THE best in their area. However, how does Base Funding deal with the scientists that like to play in their little corner of the sandpit and/or undertake high-cost poorly designed projects and/or repeatedly fail to deliver. I seem to recall that Competitive Funding was partly designed to make the latter unsustainable. Base Funding relies on the parent organisation having the functionality in place to measure performance and the protocols to deal with both exceptionally good and exceptionally poor performance, but most importantly, the will to use those functions and protocols!

Page 12: Section 6: Institutions

Q31

Institution design: How do we design collaborative, adaptive and agile research institutions that will serve current and future needs?(See pages 57-58 of the Green Paper for additional information related to this question)

GIVING EFFECT TO NATIONAL PRIORITIES, ENCOURAGING GREATER CONNECTIVITY, AND BE ADAPTABLE IN A FAST-CHANGING WORLD

If transdisciplinary science is supposed to lead to better outcomes, then why not use the same thinking in designing and shaping public research institutes in NZ?? But this is where the concept of transdisciplinary design has its major weakness - the development of a strategy that tries to align with the desires of the lowest denominator (and it doesn't even have to be common), rather than utilising a synergy of experts from the same sphere but with different experiences, varied skills, and most importantly, broad experience.
Being adaptable in a fast-changing world has a couple of fishhooks associated with it. One, just because the world is perceived as fast-changing doesn't mean that the big changes are really occurring all that fast. So, two, there is no need to change research priorities every other year to fit with the most talked about topic of the day. Long-term 5-10 year research programmes should be the norm, so long as their outputs are designed to deliver pre-determined targeted impacts. Depending on the programme, the delivery of impact would be built into the latter stages of the plan. Programmes should operate in a series of milestone-driven stages and steps to deliver impact, with few aiming for impact in 5 years, the most within 10 years, and another few in about 20 years - think of a bell curve.

Q32

Role of institutions in workforce development: How can institutions be designed to better support capability, skill and workforce development?(See page 58 of the Green Paper for additional information related to this question)

Respondent skipped this question

Q33

Better coordinated property and capital investment: How should we make decisions on large property and capital investments under a more coordinated approach?(See pages 58-59 of the Green Paper for additional information related to this question)

Respondent skipped this question

Q34

Institution design and Te Tiriti: How do we design Tiriti-enabled institutions? (See page 59 of the Green Paper for additional information related to this question)

Respondent skipped this question

Q35

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

Respondent skipped this question

Page 13: Section 7: Research workforce

Q36

Respondent skipped this question

Workforce and research Priorities: How should we include workforce considerations in the design of national research Priorities?(See pages 69-70 of the Green Paper for additional information related to this question)

Q37

Base grant and workforce: What impact would a base grant have on the research workforce?(See pages 70-71 of the Green Paper for additional information related to this question)

CAREER PATHWAYS

In science, career development is only possible through stability. A post-doc working in a series of two-year programmes, where new base knowledge has to be acquired first, does not have the opportunity to build in-depth knowledge of a specific area or "component science". In other words, they never become an expert, which puts them at a disadvantage in today's funding environment where, for the larger programmes, expertise is an essential requirement to winning a bid.
However, the current funding model, focused on providing low-level knowledge of a component's effect in a system, supports the use of a shallow understanding rather than making use of the intuitive leaps in understanding and foresight that comes from deep and broad understanding. Future programmes should focus on building early-career in-depth knowledge rather than having these scientists be part of large complex high-level programmes. While it may be elitist complex programmes are probably the space for the truly globally-recognised expert.

Q38

Better designed funding mechanisms: How do we design new funding mechanisms that strongly focus on workforce outcomes? (See page 72 of the Green Paper for additional information related to this question)

SUMMARY

The CRIs have not been a failure, but the operating paradigm has changed to where national priorities have been developed that span multiple scientific disciplines and areas of research. Competitive Funding was designed to increase the proportion of driven scientists, undertaking focused research, and delivering results that could be applied to the benefit of NZ. However, there still exists those scientists who believe that 100% of their time should be allocated to finding stuff rather than building solutions. Yes, a balance is needed, but the balance needs to be in favour of genuine benefit for NZ society.

So the first problem would be ability to increase the ease at which ideas and researchers can flow between institutes. This is a process problem and requires well-structured mechanisms put in place that have the ability to flex without having to be totally rebuilt every six months. Centralised virtual hubs for common services (e.g. Finance, HR, Legal, IP and Business Development, Customer Relations) would be part of the new way of working. In a collaborative programme how a person in one organisation is paid by another no longer becomes an issue, neither is which organisation owns the IP. Over the past two years the pandemic has forced people to learn how to interact virtually, but having an enduring relationship between individuals providing support and individuals seeking support is still a critical factor in developing mutually beneficial outcomes. So a well thought-out input interface (Science) that captures a good breadth of data, with a backroom system that has the flexibility to change to deliver the information that the user (Support) requires to measure, evaluate, and make decisions; without frequently impacting on the experience of the person having to input the information, should be the vision.

The second problem is finding the balance between:

- A driven scientist undertaking focused research, and delivering results that could be applied to the benefit of NZ;
- A driven scientist undertaking focused fundamental research and delivering results;
- A driven scientist undertaking research that they think is important.

Here the solution lies in high-quality leadership. We have examples where organisational scientific leadership by an individual has resulted in the construction of a path that only heads in one scientific direction and only leads to one destination. And we have examples of weak leadership where senior members of the team are able to inflate their importance, and appropriate promotion and resources from the organisation, then develop programmes without review. In a science organisation, at the higher levels of leadership the skills required are less scientific and more organisational, with the high level understanding of the visions of government and sectors. Having an excellent level of knowledge of good scientific practice becomes more important towards leading science teams. Although the leader of a science team may not even need expertise in the team's field, just an understanding of critical thinking, good project design, and a broad understanding of the relevant sectors' long-term goals. Identifying suitable people for these roles is relatively easy, but they have to be supported in the initial phases of redeveloping NZ's research organisations because I can imagine that many will be called upon to make many hard decisions.

Page 14: Section 8: Research infrastructure

Q39

Funding research infrastructure: How do we support sustainable, efficient and enabling investment in research infrastructure?(See pages 77-78 of the Green Paper for additional information related to this question)

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