

FUTURE PATHWAYS CONSULTATION PERSONAL SUBMISSION

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I currently Chair three organisations referred to in this submission (Wool Industry Research Ltd, Bioresource Processing Alliance, and NZ Synchrotron Group Ltd). However this is strictly a personal submission and does not necessarily reflect the views of those organisations.

KEY QUESTION 1: What principles could be used to determine the scope and focus of research Priorities?

- Setting broad priorities such as the national science challenges is not a good idea and leads to rather arbitrary self-indulgent targets for our science effort.
- If seeking economic outcomes, focus on what New Zealand already does very well with scale, such as food and fibre, rather than trying to get in to areas that other countries are dominating (e.g. computer manufacturing) and that we can't realistically compete in.
- Understand that our currently successful industries have both competitive and comparative advantages and that they almost without exception rely on sophisticated knowhow and technology which is seldom recognised as such. They need to constantly refresh their underlying intellectual property and seek new products.
- These larger industries respond well to public funding leverage for applied research where this can be provided by research institutions that are responsive to industry needs. There is a public benefit (which is the justification for application of public funds) from them doing this as well as a captured private benefit.
- Differentiate between blue skies basic research which is often just published in American Journals and applied research which is aimed at new secret proprietary technologies for NZ industry. Prioritize the latter.

KEY QUESTION 2: What principles should guide a national research Priority-setting process?

- Firstly decide on how the available public funding resource should be prioritised across say economic outcomes (growth of GDP say), environmental outcomes (climate change etc), and social outcomes (te Tiriti and social cohesion etc)
- Let the priorities for economically oriented research emerge from researcher engagement with industry rather than have bureaucrats set them in Wellington. The latter tend to be so general that they are obvious and add little value
- Limit the amount of crown funded researcher initiated basic research to the cultural imperative to participate in global science but do not rely on this for economic outcomes.

KEY QUESTION 3: How should the strategy for each research Priority be set and how do we operationalise and implement them?

- Let each research organisation set their own Priorities. They are close enough to their market to understand what research is of important to end-users. This can quickly be operationalised within these organisations using the processes that are already in place.

- You could also (in addition to the above) separately make calls for proposals periodically in areas the Government thinks are of value/required.
- Work with industry to help articulate research priorities they would find useful. This could be done via existing relationships researchers have with industry or via key connectors who are familiar with industry needs. Examples that are currently working well include the wool industry transformation work being funded by WIRL (Wool Industry Research Ltd), the Bioresource Processing Alliance focussed on secondary streams in our major biological industries, and Seafood Innovations Ltd.
- In terms of operationalising and implementing Priorities, do this in the simplest way possible to limit the bureaucracy and cost. Do not set up new overlaying governance structures. There are already good working examples of how research is conducted and administrated (such as the Bioresource Processing Alliance, subcontracting associated with Endeavour proposals, and uncontested funding structures.)

KEY QUESTION 8: 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?

- A base grant funding model will certainly improve stability and is sorely needed. There needs to be much greater engagement with the research institutions both in terms of setting the priorities and guaranteeing public funding so that the leadership of the Institutions is not presented with sudden unmanageable shifts.
- Of course, flexibility is needed over time and changes to institutional public funding of say to a maximum of 10% per annum should enable government to move priorities around.
- Get rid of the system of allocating public research funding at an individual project level. This has led to enormous overbidding with researchers spending far too much of their time in transaction costs.

KEY QUESTION 9: How do we design collaborative, adaptive and agile research institutions that will serve our current and future needs?

- Having a multiplicity of Institutions each with their own bottom line helps.
- Competition between the organisations can be productive and creates better value for industry who engage with them.
- The BPA funding model should be studied closely. This empowers researchers to engage with industry because they already have funding (via the BPA) that they can leverage in their interactions with industry. Unlike Callaghan Innovation grant funding in which companies receive the funding and either undertake the R&D themselves or outsource the R&D, BPA funding puts the power in the hands of the researchers to target and support companies. The researchers have to have industry co-funding to get the Crown funding (via BPA) so the researchers are incentivized to go and learn what the companies needs are. By virtue of working on real needs of companies, the chances of successful commercialisation are much improved.
- It is this researcher engagement which has led to the extraordinary high commercial success of the BPA outputs.

KEY QUESTION 10: How can institutions be designed or incentivised to better support capability, skills and workforce development?

- Introduce a base grant model so that the Institutions can take a longer term view of their capability and staff needs.

KEY QUESTION 11: How should we make decisions on large property and capital investments under a more coordinated approach?

- The NZ Synchrotron Group is a good example of how to access large capital items. The model relies on it being better to be in “the club” rather than going it alone. This is achieved by having Crown co-funding in partnership.

KEY QUESTION 13: 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?

- Most of the publicly funded research in NZ has little chance of changing the economy as it is too focussed on a science culture involving publication rather than applied research on the needs of our major current industries which need constant refreshment.
- MBIE should not buy into the argument that industry should pay for 100% of the cost of applied research. There are massive public benefits from NZ having strong internationally competitive companies and industries.
- Currently MBIE is relying on the tax credits to encourage industry to do its own research. But industry under-investment is inevitable and there is a better way of encouraging researchers to engage with industry and achieve the magic of invention which occurs when a researcher connects what they know from science with an industry problem or opportunity.

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

- In a more stable funding environment the workforce can be adjusted as needed with little fear that valuable individuals will be lost due to the arbitrariness of the fund allocation system.

KEY QUESTION 15: What impact would a base grant have on the research workforce?

- It would enable key researchers to focus on external goals rather than an endless round of grant applications (most of which fail)

KEY QUESTION 17: How do we support sustainable, efficient and enabling investment in research infrastructure?

- Institutions should fund their own CAPEX and be fully funded so as to allow this. For very large investments consider the NZ Synchrotron model.