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WPMA's Submission to the Research, Science and Innovation – Te Ara Paerangi Future Pathways Green Paper 2021

The Wood Processors & Manufacturers Association (WPMA) wish to provide the following responses to questions and various assumptions raised within the Research, Science and Innovation – Te Ara Paerangi Future Pathways Green Paper 2021.

WPMA represents the perspectives and interests of its members, including sawmill operators, timber manufacturers, pulp and paper producers, and suppliers to the industry. Our members are companies that have made major investments in adding value to New Zealand's annual forest harvest, which contributes to a bio-circular economy and provides employment opportunities and economic growth across regional and metropolitan areas throughout New Zealand.

Introduction

WPMA supports the review of the research, science and innovation system. We believe the review provides an opportunity to deeply consider the research funding methods and structure of our research institutions, to ensure they are best placed in providing a modern, future-focused research system for New Zealand that is adaptable and innovative in serving the community and national interests.

WPMA's comments to questions raised in the Green Paper follow.

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

Establishing how national research Priorities will be determined is a key focus of the Green Paper. The proposed approach that the Government and Maori will set the scope of research Priorities appears to exclude industry and the wider public's input into determining impactful research areas that can increase and sustain New Zealand's economic performance into the future.

The apparently limited scope for how research Priorities will be determined, as suggested in the Green Paper, risks restricting the Government's ability to meet its wider aspirations to leverage future economic opportunities to support the country's recovery from COVID-19. This is particularly so in shaping an economy that is more productive, resilient and diverse as identified within the Cabinet Paper on Future Pathways for the Research, Science and Innovation System.

New Zealand's research capability needs to be open and innovative for the knowledge and direction arising from it to be of greatest benefit to the country.

The complex and interdependent challenges central to New Zealand's future, including the transformation of traditional sectors within the economy and to support the growth of knowledge intensive industries (e.g. advance manufacturing), requires research Priorities to be set in conjunction with industry and/or end users who are expected to take new technologies and innovations arising from research activities through to development and/or commercialisation.

Industry or, in the case of 'public interest', the end users of research outcomes are arguably better placed to assess the practicality and economic value of setting research Priorities. End users also have an important role in informing researchers where existing research programmes need be adapted or tilted to better reflect changing market conditions and community dynamics in real time, or where other potential opportunities have been discovered (covered further under Question 9).

Engagement with industry and/or end users will enable the Government to groundtruth and test new areas of research endeavour in helping guide the research Priorities. This groundtruthing will be difficult to achieve if research Priorities are determined in isolation of such feedback and direct input.

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

As mentioned, identifiable end users, including industry and investors, should be actively engaged in providing a broader perspective in setting research Priorities and in determining their immediate and enduring impact on the economy and wider community. The mechanics of how this process is instigated requires careful consideration if we are to create a modern future-focused research system for New Zealand.

The principles to guide national research Priority-setting processes should include some of these elements:

- Recognise the obvious and wider societal benefits of a robust and innovative economy through explicit involvement of industry experts (panels) and/or intended end users of the research outputs in establishing research Priorities;
- Focus on Priority areas of identifiable problems where New Zealand already has a comparatively unique interest or a relative strength and depth of research expertise;
- Identify a probable and clearly defined pathway from research outputs to market and/or the intended use of research from Priority areas;
- Make an assessment of how unique or innovative the research area is to determine whether research institutions should lead or possibly support existing research already occurring offshore; and
- Encourage the ability to contribute apolitically to far-sighted and occasionally controversial discussions in areas that may be inhibiting research development in achieving wider economic and societal aspirations, such as the role of genetic modification in improving biological systems, pest management, etc.

Question 3: How should the strategy for each national research Priority be set and how do we operationalise them?

We agree that the operation of research Priorities has to consider the needs and aspirations of relevant stakeholders without limiting the real value of research in being forward-looking and using the best research techniques and up-to-date knowledge available. We therefore question how the leadership and governance structure for research Priority areas will function effectively in practice, particularly with that of other research institutions that operate

their own leadership and governance structures focused on working for the best and sole interests of their own institutions (as would be reasonably expected by their government owners). Effective operationalisation of research Priorities requires a clear system of adjudication for potentially competing and (at times) mutually exclusive areas of research.

Based on insights from other countries identified within the Green Paper, it is noted that strong research leadership of work programmes is the most critical success factor in ensuring research Priorities are best supported. We suspect this strong leadership is more achievable where larger and fewer research institutions are present in those countries.

By spreading research Priorities' leaders (and governance structures) too thinly across the large number of research institutions that exist in New Zealand (often undertaking similar types of research), their impact and effectiveness will diminish and undermine the ability to achieve the broader objectives outlined in the Green Paper.

To be successful, aligning research Priorities directly with research institutions that have comparative strength and research capability is likely to achieve the types of objectives being sought by the Government. This would also provide greater accountability between the respective leadership and governance teams of research institutions and Priority groups, as well as clarity and confidence to intended industry and end users of the research outcomes.

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

We would be very supportive of a research system that is collaborative, adaptive and agile. However, the competitive nature of the existing research funding system severely limits the ability to achieve this goal.

Building greater collaborative arrangements with research institutions, industry and/or end users is critical if research outputs are to be picked up and applied in areas of intended use. Unfortunately, the transfer of research outcomes for publicly-funded research programmes can be poor as researchers are not normally funded to undertake extension-based activities, or more often than not they have moved on to apply for the next research grant (covered further under Question 13).

To design a more adaptive and agile research system, a higher tolerance for risk in the investment of research is necessary. This requires government-funded programmes to accept higher levels of risk in the way they invest in and sustain these research projects, particularly if targeted at new and leading-edge research fields of endeavour. However, this is often difficult to achieve within research institutions with scarce resources and capability. This difficulty has been referred to within the Green Paper (p. 57) where it notes that larger and more financially resilient institutions may have greater agility in responding to government priorities, industry demands and emerging opportunities .

To design collaborative, adaptive and agile research institutions in the future, a fundamental reset is required in the way publicly-funded research programmes operate. This would need to include some of these elements:

- Objectively focusing on research areas of particular or unique interest to New Zealand where we hold comparative strength and research expertise;
- Having longer-term investment horizons to provide research institutions with the confidence to develop and build research capability in target areas of national interest;
- Clearly articulated long-term (20-year) aspirations for New Zealand; and
- Learning from and adapting research findings occurring globally where the aspiration of peoples and economies are the similar.

Question 13b: What should be the role of research institutions in transferring knowledge into operational environments and technologies?

Many WPMA members often refer to the days when New Zealand Forest Service researchers and scientists were proactively engaged with the wood processing and manufacturing companies in scoping out potential research project activities and then extending research findings across the sector.

Following the research reforms in early 1990s, Crown Research Institutes (CRIs) competed for funding where the emphasis inevitably led to researchers being measured in their success in applying for and undertaking research activities, rather that exploring new research ideas with industry and then extending findings from that research to target groups.

This is not a new conundrum and was identified as part of a review of CRIs in 2010. This review highlighted that 'technology transfer is a core and measurable responsibility for all CRIs, so that the benefit of their ideas contributes to the wealth and well-being of New Zealand and not just the CRIs' balance sheets'. [1]

We strongly support that a portion of a researcher's time is directly funded to undertake a planned industry and/or end user engagement and technology transfer activities, to better optimise both the uptake of research opportunities and the value of Government's investment in such research.

Contact details

Should you wish to discuss any aspect of this submission further, please call me on 027 226 3331.

Yours sincerely,

Stephen Macaulay
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[1] How to enhance the value of New Zealand's investment in Crown Research Institutes