

# APPENDIX

## Terms of Reference

### Review of the Performance-based Research Fund (PBRF) 2019

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The purpose of the Performance-Based Research Fund (PBRF) is to ensure that excellent research in the tertiary education sector is encouraged and rewarded.

The PBRF is regularly reviewed and the aim of the 2019 review is to examine ways government can continue to support research excellence by improving the effectiveness and efficiency of the PBRF settings and to ensure the benefits of this research are shared across New Zealand. Any changes to PBRF would be take into account the nature of the existing research culture within the tertiary education setting, and the government's priorities for New Zealand's research and innovation system and tertiary education system.

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#### Context

The PBRF was established in 2002 and supports excellence in investigator-led research within the tertiary education sector, and in turn, supports quality research-led teaching. The PBRF has supported the development of a stronger research culture across tertiary education organisations over the last 16 years. Given the growing maturity of the research functions across many parts of the tertiary education sector, a focus of this periodic review will be the way that research excellence is evaluated and measured via the PBRF.

The PBRF will allocate \$316 million in government funding to tertiary education organisations in 2018/19, based on the level and quality of their research activities. The PBRF is accessed primarily by universities, although institutes of technology and polytechnics (ITPs), wānanga and private training establishments (PTEs) also participate.

Allocation of research funding across organisations is determined from a mix of measures that evaluate the quality of research, including a six-yearly peer assessment process that evaluates each researcher's past performance, the number of postgraduate degrees completed and the level of external research income organisations earn.

#### Previous Reviews of PBRF

The PBRF has been reviewed periodically every 4-5 years since it was established in 2002 (with three previous reviews — 2004, 2008 and 2012/13). The last review found the PBRF had supported a significant increase in the research performance and productivity of tertiary education organisations. Fundamental changes to PBRF were not warranted, but some refinements were made to reduce compliance costs, better support new and emerging researchers, increase collaboration with end-users, improve reporting information and clarify the overarching objectives. The overall impact of those changes of PBRF on the quality of researchers will be known by mid-2019, when this review will begin.

## Revisiting the objectives of the PBRF

The objectives of the PBRF were originally agreed in 2002 and the primary purpose of the PBRF has remained unchanged – namely, rewarding and encouraging high-quality tertiary education research and research-led teaching and learning (at degree level and above).

The PBRF objectives were modified in 2014 after the last PBRF review in 2012/13, to reflect the role of PBRF in supporting government’s wider priorities in science, research and innovation.

The primary objectives of the PBRF are to:

- increase the quality of basic and applied research at New Zealand's degree-granting tertiary education organisations (TEOs)
- support world-leading teaching and learning at degree and postgraduate levels
- assist New Zealand's TEOs to maintain and lift their competitive rankings relative to their international peers
- provide robust public information to stakeholders about research performance within and across TEOs.

In doing so, the PBRF will also:

- support the development of postgraduate student researchers and new and emerging researchers
- support research activities that provide economic, social, cultural, and environmental benefits to New Zealand, including the advancement of Mātauranga Māori
- support technology and knowledge transfer to New Zealand businesses, iwi and communities.

This review provides another opportunity to consider the current objectives and the primary purpose of PBRF. It provides an opportunity to ensure that the PBRF objectives align with any changes in direction or priorities within the wider science and research system or the tertiary education system. For example, the update of the *Tertiary Education Strategy* or the development of principles to underpin New Zealand’s research practice with a *National Research Charter for Aotearoa New Zealand*.

The Review will consider whether the current objectives need to be further modified to ensure the PBRF meets current and future challenges and priorities in the research system and in the research-led teaching environment.

## **Improving research collaboration and engagement with end-users**

The individual researcher has been the 'unit of assessment' for measuring the quality of research excellence within the PBRF since it began. This year 8,281 researchers have submitted an evidence portfolio for peer review assessment, as part of the 2018 Quality Evaluation process.

While the amount of information that has to be submitted within a portfolio had been reduced for 2018 to lessen compliance costs, the process of individual evaluation can still be burdensome, imposing costs on the individual researcher, their organisation and the government.

Collaboration is a fundamental component of high-quality science, research and innovation, and collaboration is explicitly supported and encouraged by other government funding of research activity (for example, the National Science Challenges and the Centres of Research Excellence [CoRES]).

Many in the sector see the individual researcher as the best way of establishing the quality of research across organisations. However, focussing on a group unit of assessment may be a way of encouraging effective collaboration amongst researchers and with end-users. A group approach to research assessment could also support greater mentoring of new and emerging researchers and ensure that New Zealand sustains and grows its research workforce (particularly given the highly skilled but aging research workforce).

Collaboration, particularly with end-users of research, could also be enhanced the ability of organisations or 'groups' to provide improved information on the pathway to impact of their research activity. The group or organisational lens could be a more appropriate unit for PBRF to assess impact, rather than an individual researcher. The individual researcher has limited capacity to directly link his/her research work to impacts on economic, social and environmental outcomes, whereas a group or organisation can be more easily measured in how they have supported their researchers' efforts in collaboration, outreach activities, dissemination and engagement (which ultimately create an impact for the research).

Group-based assessment could also prove to be more complicated for tertiary education organisations and government in terms of determining the membership, measurement and definitions for a group (for example, grouped by department, around research themes, by disciplines or interdisciplinary groups).

The Review will examine the merits of moving from individual-based assessment to a group-based assessment, in terms of boosting collaboration, supporting workforce development and sustainability, reducing compliance costs and measuring impact of research.

If individual is to be retained as the unit of assessment, the Review will identify options within the PBRF settings to improve collaboration and impact assessment via other PBRF settings.

## **Boosting the impact of tertiary education research**

Across the world, governments are working to ensure public investment in research demonstrates an 'impact' in terms of improvements in societal wellbeing, economic development and environmental outcomes. New Zealand's *National Statement of Science Investment 2015-2025* has impact as one of two pillars of the science system.

Tertiary education organisations also have an explicit legislative role as critic and conscience of society (s.162 (4)(a)(v) Education Act 1989), which also underpins the organisations and research staff engaging in impactful conversations with New Zealand communities, based on their research knowledge and expertise.

It is important that the benefits of research undertaken in the tertiary sector are shared across New Zealand society. There are concerns that the current Research Contribution measure in the Quality Evaluation may not adequately capture the value of applied research, patents, mātauranga Māori research and other research which benefits local community, industry or environment.

Measuring impact from research activity is not without complexity, but many other government research investments already target impact specifically. Any change to PBRF to better assess impact will need to strike a balance in terms of compliance costs and rewarding impactful research activity. The review will draw on the changes to assessing impact internationally through metrics, case studies and impact statements, including in the United Kingdom, Canada and Australia.

The Review will examine options for improving the assessment and rewards for research that has a tangible impact for communities, the environment, businesses or government sectors. The Review will provide advice on the costs and benefits of introducing further measures to assess impact into the PBRF.

## **Assessing excellent research with lower transaction costs**

Currently the excellence in research undertaken by tertiary education organisations determined by three components – primarily the quality evaluation assessment process every six years, the yearly postgraduate research degree completions and the amount of external research income generated annually.

The PBRF quality evaluation assessment process is thorough and robust in measuring each researcher's performance in terms of research outputs (journal articles, conference presentations, creative work exhibition or performance, etc) and research contribution (eg supervision of research student and factors that reflect a researcher's contribution to student-related activity, impact of research for a community or business, networking and collaboration, peer or industry recognition or prizes, etc)

The review provides an opportunity to consider how the PBRF settings could be adjusted to measure excellent research at a lower transaction cost (either for staff, management or government). This will include consideration of:

- Reducing the frequency of the quality evaluation by moving from six-yearly cycle to eight or ten-yearly assessment cycle, and whether variable assessment cycles should be introduced depending on the seniority of researchers
- Introducing simpler metrics to assess research quality. For example, using new information research reporting data such as the *National Research Information System* (an information hub about New Zealand's research activities), which has the potential to reduce compliance costs via streamlined research reporting. Other options that could be considered are use of new data systems that monitor dissemination activities, use of H-indices or bibliometrics to provide more frequent excellence measures for particular research disciplines.
- Introducing self-assessment processes for some research areas or some tertiary education organisations that have a strong research culture embedded.

The Review will identify options for modifying current PBRF settings to reduce transaction costs for research staff, tertiary organisations and government, including changes to the unit of assessment, changes in the time period(s) for quality evaluation, use of new metrics to assess research quality, use of self-assessment and the funding proportions allocated across the current three measures (quality evaluation, research degree completions and external research income).

### **Recognising and rewarding all types of research activity**

There is ongoing concern that the PBRF is not adequately recognising and rewarding the full spectrum of research activity undertaken with tertiary education organisations, from basic through to professional and applied research, mātauranga Māori research and new fields of research drawing on Pacific and other cultural perspectives.

PBRF assessment processes (including the appointment and training of panel members for the six-yearly quality evaluation) and guidelines have been continually improved to ensure equitable assessment of all types of research. However, concerns continue to be voiced within the sector that PBRF discriminates against applied research in favour of fundamental research. There is limited evidence that such discrimination occurs and analysis of some quality scores from the last quality evaluation do not point to any explicit bias.

The nature of the PBRF settings may not adequately recognise the excellence of some specific types of research undertaken across the tertiary education sector. Alternatively, PBRF settings may recognise excellent research across a wide range of activity, but this excellence is not rewarded because the tertiary organisations undertaking the research do not have the capability or capacity to effectively engage in the PBRF process (for example,

where insufficient organisational resources or knowledge are available to support the submission of high-quality evidence portfolios).

Wānanga have previously raised concerns about funding for mātauranga Māori research by PBRF, which resulted in the establishment of a separate *Wānanga Research Aspirations* project. This project will consider a bespoke approach to support for mātauranga Māori research. However, for wānanga that continue to participate in PBRF, the review will consider what further support could be provided to them, and for Māori research undertaken in other tertiary organisations.

The Review will consider how the PBRF can better support the research activity of all types of research, including basic, applied, creative, mātauranga Māori research, and Pacific or other cultural research perspectives. This will include consideration of whether any specific support is required to enable some organisations to effectively participate in the PBRF, or whether a separate funding mechanism may be required to support particular types of research activity or help organisations build their research capacity and capability.

### **Sustainable and diverse workforce with investigator-led research capability**

The tertiary education sector plays a key role in developing New Zealand's research workforce, and this is reflected in the specific funding within the PBRF for annual research degree completions. The way people engage in work will continue to evolve and the PBRF will need to ensure that it does not disadvantage any researchers (for example, the changing nature of work may increase numbers of staff working part-time, flexible working arrangements, working across multiple workplaces or contracting arrangements).

There are concerns that the nature of the PBRF quality evaluation process may disadvantage those working less than fulltime due to family and parental responsibilities, who cannot provide as wide a research contribution or research outputs. The review will consider whether further consideration needs to be given to provide better recognition for staff working less than fulltime (for example, the instances in which tertiary education organisations are determining and verifying parttime employment due to childcare as an extraordinary circumstance).

There has been concern that tertiary organisations' response to the PBRF settings have led to a less diverse and sustainable workforce. Changes were made following the 2012/13 review to better support the sustainability of the workforce with the introduction of a financial weighting for evidence portfolios submitted by new and emerging researchers. There is also extra weighing provided by PBRF for research degree completions by Māori and Pacific students or for a thesis submitted in te reo Māori.

Senior researchers have a key role in supporting the development of new and emerging researchers, and concerns have been raised that the nature of PBRF rankings can have a deleterious impact on organisations' approaches to mentoring and developing the next generation of researchers. For example, moving to a group as unit of assessment for quality evaluation may enable greater mentoring and collaboration within a discipline or department.

The Review will examine the effectiveness of the PBRF on the development of highly-skilled and diverse research workforce for New Zealand in the context of the changing nature of work and workplaces. This will include consideration of whether any adjustments to PBRF settings are required to support a sustainable mix of gender, ethnicity and ages across the tertiary research workforce.

The Review will also consider whether the PBRF creates any incentives or disincentives within tertiary education organisations given the changing nature of work and the continued evolution of new types of working arrangements, ways of working and workforce development.