

# Te Anga Arotake o Te Pūtea Rangahau a Marsden

## Marsden Fund Performance Framework 2021–2024

Prepared by the Marsden Fund Council

Haratua May 2021

MARSDEN FUND  
TE PŪTEA RANGAHAU  
A MARSDEN

ROYAL  
SOCIETY  
TE APĀRANGI

# Whakataki **Introduction**

## Pūtake **Purpose**

This document describes how the Marsden Fund Council (the Council) will measure the performance of the Marsden Fund Te Pūtea Rangahau a Marsden (the Fund).

The objectives and strategic direction of the Fund are laid out in the Fund Terms of Reference and the [Investment Plan](#). Measuring performance is important to demonstrate that public money invested through the Fund is delivering the expected outcomes and benefits described in those documents. It also helps to detect and correct performance issues as they arise and to provide evidence for continuous improvement.

### **The Performance Framework contributes to:**

- **Accountability:** To assess and demonstrate to the Minister of Research, Science and Innovation and the public that the Fund is delivering against its objectives and the Investment Plan.
- **Monitoring and control:** To ensure that Fund processes are followed and help keep funded research on-track.
- **Continuous improvement:** To provide an evidence base for Council decisions about how the Fund is administered and managed.

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## He aha te take o te Anga Arotake? **Why is a Performance Framework needed?**

Measuring the performance of science funding is challenging for many reasons. The immediate results from research activity are often intangible. It may take years for the implications of research findings to be fully recognised and applied by the broader community. The pathway from research to eventual impacts for society may be long and convoluted. It is usually unclear to what extent long-term impacts can be attributed to different research funds and to other inputs or changes in society and technology.

Although these challenges cannot be fully overcome, a planned, systematic approach can improve performance measurement. This approach involves four steps:

1. Defining what the Fund should achieve  
(*this is set out in the Terms of Reference and Investment Plan*).
2. Describing how we think the Fund achieves its objectives  
(*see page 4*).
3. Defining an approach to measure the achievement of objectives and set targets where feasible and appropriate.
4. Consolidating processes for systematic, robust data collection.

In addition, the Council will establish 'one-off' actions to assess the effect of changes to Fund settings. These activities will normally draw on measures laid out in the main performance framework. The measurement approach for changes announced in the Marsden Fund Investment Plan 2021 – 2024 is described on pages 5–6.

## Te tikanga o tēnei tuhinga **What this document means**

### **Data collection**

Some data will be collected by Royal Society Te Apārangi through existing mechanisms, for example, the administrative data captured during application to the Fund, assessment, and contract management processes; and information and feedback provided by researchers and institutions at annual roadshows.

Information on research activity, its outcomes and potential or actual impacts will be collected from contracted researchers through self-reporting, site visits and surveys of completed contracts. There will be some additional reporting requirements on applicants and contracted researchers or institutions, but the Council and Royal Society Te Apārangi will work to minimise the burden of these.

Some new data collection activities will be introduced:

1. An 'international peer review panel' will review a sample of completed Marsden Fund contracts for excellence and actual or potential scholarly impact every five years and report on its findings to the Minister of Research, Science and Innovation and the Marsden Fund Council.
2. Royal Society Te Apārangi will follow-up on completed contracts two and ten years after their completion. This will help uncover how the Fund is contributing to outcomes and impacts in the long-term.
3. Royal Society Te Apārangi will periodically prepare case studies of historical Fund contracts to document and validate self-reports of their outputs, outcomes and impact.
4. Royal Society Te Apārangi will conduct a survey of applicants to the Fund to help assess applicant burden.
5. Royal Society Te Apārangi will use citation-tracking indexes (such as SCOPUS), the New Zealand Research Information System (NZRIS) and the ORCID platform to supplement and connect administrative funding data held by Royal Society Te Apārangi.

Te whakamahi raraunga whakahaere

### **Use of operational/administrative data**

Consistent with the purpose of the Performance Framework, data gathered through the Fund's operation will be used to: help assess the **performance of the Fund**; gather evidence for continuous improvement; and ensure that funded researchers are making their 'best endeavours' towards contract objectives. This use is distinct from evaluating the performance of individual researchers or research teams.

Aggregate data, analysis, and conclusions about the performance of the Fund will be prepared by the Council and reported to MBIE and to the Minister of Research, Science and Innovation. This information may be broken down for different parts of the Fund, such as by assessment panel, research field, award type or institution. The sharing of data will follow existing commitments to anonymization and confidentiality as described in the Fund's research contracts.

Tuku pūrongo

### **Reporting**

Performance and related data will be reported in the following report series:

- Report on research quality and potential for scholarly impact by international peer review panel to **Minister of Research, Science and Innovation** (five yearly).
- Report by the Society's Director — Research Funding on conduct and outcomes of the Marsden Fund Round to **the Council, Minister and published publicly** (annually).
- Aggregate report on contract monitoring outcomes and administrative costs **provided to the Council and MBIE** (annually).
- Post-investment round reporting to **the Council and information reported in the public domain** on what research was funded, for example, the Marsden Fund Update (annually).
- Investment Plan updates will report on the monitoring of outcomes of recent changes to fund setting (annually).
- Reports on long-term impacts of Marsden research and research careers will be **reported in the public domain** (ad hoc).

# Te huarahi e whai hua ai te pūtea

## The path from funding to impact

Figure 1 shows how investment in research through the Fund is expected to lead to outcomes and impacts. The table to the right shows the approach to measurement for each step. Table 1 (see next page) sets out the measurement approach in more detail.

FIGURE 1 | How excellent research leads to scholarly impact



# Te arotake i ngā mahi

## How performance will be measured

TABLE 1 | Key activities and outcomes to measure and report.

This list is intended to provide a manageable number of measures which are strong tests of performance (either alone or taken together).

Key outcomes (accountability)	Measurement approach	Specific targets	Outputs	Frequency
<ol style="list-style-type: none"> <li>The research performed is <b>excellent</b></li> <li>The Fund has high <b>scholarly impact</b></li> </ol>	<ul style="list-style-type: none"> <li>Periodic review by ‘<b>international peer review panel</b>’ of a sample of completed Marsden Fund contracts for excellence and actual or potential scholarly impact</li> <li>Assess bibliometric impact of <b>research outputs</b> identified through self-reporting; follow-up meetings<sup>2</sup> to two-years after completion; annual survey of contracts ten-years after completion; and NRIS<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>A high proportion of Marsden funded publications appear in the top-10% of cited publications for their discipline</li> </ul>	<ul style="list-style-type: none"> <li>Report by international peer review panel to <b>Minister of Research, Science and Innovation</b></li> <li>Report on research outputs to <b>MBIE</b>, including or allowing calculation of agreed bibliometric measures</li> <li>Include research output details in data report to MBIE</li> </ul>	<ul style="list-style-type: none"> <li>International peer review five yearly</li> <li>Annual report</li> </ul>
<ol style="list-style-type: none"> <li>Marsden Fund awards contribute to the development of advanced skills, including those of post-doctoral and early career researchers</li> <li>The <b>skills and knowledge</b> of Marsden researchers<sup>4</sup> are usefully applied in the research, business and government sectors</li> </ol>	<ul style="list-style-type: none"> <li>Number of Doctorate and Master’s qualifications supported on Marsden Fund awards</li> <li>Number of post-doctoral and early career researchers supported</li> <li>[Periodic] Measurement of fraction of Marsden researchers who have subsequently moved into ‘research-leader’ roles</li> <li>[Periodic] Measurement of career trajectory of Marsden researchers and their involvement in more applied research</li> </ul>	<ul style="list-style-type: none"> <li>Majority of contracted projects report involvement of an early-career researcher or post-graduate student</li> </ul>	<ul style="list-style-type: none"> <li>Report to Council and MBIE includes synthesis of information</li> </ul>	<ul style="list-style-type: none"> <li>Annually for qualifications</li> <li>Periodic in-depth studies</li> </ul>
<ol style="list-style-type: none"> <li>The NZ research community strengthens its <b>national and international connections</b></li> </ol>	<ul style="list-style-type: none"> <li>Researcher reports of international funding, resources, collaboration and knowledge come to New Zealand as a result of Marsden funding</li> <li>Reports by contracted researchers; follow-up meetings two-years after completion; regular survey of contracts ten-years after completion</li> </ul>	<ul style="list-style-type: none"> <li>Majority of contracted projects report new international collaboration by completion</li> </ul>	<ul style="list-style-type: none"> <li>Report to Council and MBIE includes synthesis of information</li> <li>Data report to MBIE includes detailed information</li> </ul>	<ul style="list-style-type: none"> <li>Biennial</li> </ul>
<ol style="list-style-type: none"> <li>Marsden research and researchers go on to contribute to <b>economic, environmental, health, social, mātauranga, cultural and other impacts in the long-term</b></li> </ol>	<ul style="list-style-type: none"> <li>Impacts identified by self-reporting, follow-up meetings two-years after completion, and regular survey of contracts ten years after completion</li> <li>Preparation of in-depth case studies of impact and ‘results chain’ for the pathway to impact (including research activity, outputs, outcomes, and application beyond research as impacts) to follow-up and validate self-reports</li> </ul>	<ul style="list-style-type: none"> <li>100% of completed contracts have reported on their contribution to impact</li> </ul>	<ul style="list-style-type: none"> <li>Report to Council and MBIE includes synthesis of impact information</li> <li>Data report to MBIE includes self-reported impacts detail</li> <li>Periodic publishing of case studies</li> </ul>	<ul style="list-style-type: none"> <li>Biennial</li> <li>Periodic case studies</li> </ul>
<ol style="list-style-type: none"> <li>Marsden research and researchers go on to contribute to delivery of the <b>Vision Mātauranga</b> policy to unlock the research and innovation potential of Māori knowledge, resources and people</li> </ol>	<ul style="list-style-type: none"> <li>Researcher reports acknowledging effect of engagement/alignment/participation with the Vision</li> </ul>	<ul style="list-style-type: none"> <li>100% of those indicating alignment in the proposal report outcome</li> </ul>	<ul style="list-style-type: none"> <li>Compliance and outcomes reported to Council</li> </ul>	<ul style="list-style-type: none"> <li>Annual</li> </ul>

<sup>2</sup> Meetings are identified as communication between the Society staff and the Marsden researcher through face-to-face visits (both onsite and offsite), videoconferencing or telephone communication.

<sup>3</sup> NRIS is the new National Research Information System which will gather and report data on research contract funding across government, and link to the ORCID system of unique researcher identifiers.

<sup>4</sup> “Marsden researcher” means someone who has ever been, or is currently, part of a Marsden award

TABLE 2 | Key activities relating to monitoring and control.

This list shows the intended data for collection to ensure that fund processes are followed and help keep funded research on-track.

Key activities (monitoring and control)	Measurement approach	Specific targets	Outputs	Frequency
8. <b>Procedures for assessment of research applications are followed</b> as set out in the Investment Plan and other relevant documents	<ul style="list-style-type: none"> <li>Conduct and outcomes of assessment processes are monitored and recorded by Society staff</li> <li>Conduct of panel meetings, including conflicts of interest management, is monitored by Society staff and an additional Marsden Fund Council observer</li> </ul>	<ul style="list-style-type: none"> <li>All procedures are followed and reported</li> </ul>	<ul style="list-style-type: none"> <li>Deviations from standard procedures are corrected or noted</li> <li>Report on conduct and outcomes of the Marsden Fund Round signed and provided to <b>Council, Minister and published</b> by the Society's Director — Research Funding</li> </ul>	<ul style="list-style-type: none"> <li>Annual</li> </ul>
9. <b>Researchers are making their 'best endeavours'</b> towards contract deliverables	<ul style="list-style-type: none"> <li>Reports by contracted researchers</li> <li>Follow-up meetings to contracted researchers by Society staff (one visit per contract)</li> </ul>	<ul style="list-style-type: none"> <li>100% of completed contracts assessed with at least 90% of these assessed as meeting 'best endeavours'</li> </ul>	<ul style="list-style-type: none"> <li>Risks and issues with meeting contract deliverables are identified and mitigated if possible through advice and variation to contracts</li> <li>Aggregate information provided to Council and MBIE on contract monitoring outcomes (i.e. project management risks and issues identified and mitigated; fraction of contracts where concerns remain)</li> </ul>	<ul style="list-style-type: none"> <li>Annual</li> </ul>

TABLE 3 | Key data elements to measure and report.

This list shows the intended data for collection to support analysis for continuous improvement

Key data elements (continuous improvement)	Measurement approach	Outputs	Frequency
10. Portfolio mix by: panel, discipline, award type, professional age, <b>follow-on vs new, size of awards; purpose and type of research</b>	<ul style="list-style-type: none"> <li>Society application and grant management systems</li> </ul>	<ul style="list-style-type: none"> <li>Post-round and on-demand reporting to Council</li> <li>Report to MBIE</li> </ul>	<ul style="list-style-type: none"> <li>Annual/on-demand to Council</li> </ul>
11. Administrative costs for government, researchers and research institutions	<ul style="list-style-type: none"> <li>Society reporting on operational costs</li> <li>Applicant survey at end of application process</li> <li>Rate of referee acceptance</li> </ul>	<ul style="list-style-type: none"> <li>Included in yearly reporting to MBIE</li> </ul>	<ul style="list-style-type: none"> <li>Annual</li> </ul>
12. Stakeholder perceptions	<ul style="list-style-type: none"> <li>Applicant survey at end of application process</li> <li>Panel member reviews of research domains and processes</li> <li>Feedback gathered at annual institution roadshows</li> <li>Follow-up meetings two years after contract completion</li> </ul>	<ul style="list-style-type: none"> <li>Society to report stakeholder perception themes to Council</li> </ul>	<ul style="list-style-type: none"> <li>Annual</li> </ul>
13. Effects of <b>changes to fund</b>	<ul style="list-style-type: none"> <li>Broader panels; Feedback; Follow-on awards, Marsden Fund Council Awards</li> </ul>	<ul style="list-style-type: none"> <li>Annual Investment Plan update will report on monitoring of outcomes of recent changes to fund settings</li> </ul>	<ul style="list-style-type: none"> <li>Annual</li> </ul>

## Te aroturuki i ngā hua o ngā panonitanga tautuhinga pūtea

### **Measuring the effect of changes to Fund settings**

The 2017 Investment Plan introduced some changes to Fund settings. The Council's approach to monitoring the effect of these is described below. The outcomes of this monitoring and any subsequent Council decisions will be reported in future Investment Plan updates.

#### **The Marsden Fund Council Award**

The Council introduced the Marsden Fund Council Award which supports large, interdisciplinary research, from the 2018 round to complement Fast-Start and Standard grants. These larger awards are worth up to \$1 million per year.

#### **Rationale for change**

As a result of this new award category, the Council expects to see an increase in the proportion of highly-interdisciplinary research and in domestic and international connectivity.

#### **Measurement and reporting**

The Council monitors the following variables and reports on them.

- Interdisciplinarity of research funded through Marsden Fund Council Awards vs other awards, as measured by Inter-Disciplinary Distance scores (and other measures if appropriate).
- Number of domestic and international institutions or individuals represented in Marsden Fund Council Awards vs other awards.
- Total citations received (normalized for field and time since publication) by all publications attributed to a Marsden contract, per dollar of funding awarded to those contracts (for Marsden Fund Council Awards vs other awards).

*[Note: this measure will not be assessed until at least three years after a research publication].*

#### **Follow-on grants: allowing researchers to sustain research momentum**

From 2018, there is no longer a restriction on applying for a second grant on the same research project after the completion of a successful Marsden Fund grant.

#### **Rationale for change**

The Council wanted to ensure it was able re-invest in successful research ideas and researchers while maintaining significant support for a pipeline of new and emerging ideas.

#### **Measurement and reporting**

The Council monitors and reports on the total number of awards to existing grant holders and will adjust the settings for the Fund if the number of follow-on awards made becomes a major hindrance to new research being funded.

Currently approximately 45% of Principal Investigators (PIs) on Standard contracts are new to the Fund as PIs each year.

The Council continues to monitor this through annual post-investment round reporting. It will formally review this issue if there is more than a 10 percentage point reduction in this figure.

#### **Feedback: providing more feedback to institutions and unsuccessful applicants**

From the 2018 round, the Council provided quintile feedback to unsuccessful applicants and institutions about the relative performance of their proposals at the Expression of Interest stage.

The Council also instigated the provision of more detailed feedback for Fast-Start applicants who were unsuccessful but close to the cut-off for proceeding to the Full proposal stage (i.e. unsuccessful applicants in the second quintile).

## Rationale for change

These changes ensure a more transparent process and provide incentives for institutions to develop and submit their highest-quality proposals.

## Measurement and reporting

The Council and Royal Society Te Apārangi will engage with unsuccessful applicants and institutions to understand whether these changes to feedback:

1. change perceptions of transparency, and
2. inform decisions about revising and resubmitting proposals.

## Combined panel trial

In the 2018 round, the Council instituted the Combined Panel Trial (CPT), being a broader cross-disciplinary panel. Three panels were agreed for the pilot CPT: Economics and Human Behaviour (EHB); Humanities (HUM); and Social Sciences (SOC). Applications to these three panels were considered in parallel by the trial Humanities, Behavioural and Social sciences' (HBS) where a subset of applicants were asked to assess each other's proposals.

## Rationale for change

The Marsden Fund's review had placed an expectation that the Council would explore alternatives to the traditional Panel process in the belief that:

1. the Panel process would become unsustainable with the number of EOIs received by the Fund predicted to grow
2. the Panel process may have difficulty in fairly assessing proposals that fall into disciplinary gaps between panels, particularly inter-disciplinary proposals.

The combined panel (and additional moderation step by the Council) was intended to allow greater moderation when assessing proposals from different disciplines, avoid perceptions and risk of disciplinary bias, increase expert availability, and allow better consideration of interdisciplinary proposals while managing the burden on assessors.

## Measurement and reporting

The variables and approach in Table 4 were used to measure performance of the CPT.

TABLE 4

Variable	Measurement approach
<b>Accuracy of scoring of proposals</b>	Level of congruence of application FOR codes with those of assigned assessors
<b>Rigour and ease of decision-making</b>	Panel convenor judgement of how well the process works and how robust decisions are vs current panel model
<b>Risk of disciplinary bias</b>	<ol style="list-style-type: none"> <li>1. Change in mix of disciplines funded and their success rates vs prior years in component panels</li> <li>2. Representation of disciplines in panellists</li> </ol>
<b>Expert availability</b>	Assessor rating as to how each application aligns to their own field
<b>Support for research in interdisciplinary and emerging research fields</b>	Interdisciplinary span of field-of-research combinations in successful proposals vs prior years
<b>Burden on assessors</b>	<ol style="list-style-type: none"> <li>1. Number of applications which each assessor scores compared with panellists</li> <li>2. Self-report measure of time spent by assessors overall compared with the panels</li> </ol>
<b>Perceptions of process in sector</b>	Engagement with successful and unsuccessful applicants during feedback process. Feedback from within research institutions
<b>Administration costs</b>	Estimated cost per proposal vs other panels, including: <ul style="list-style-type: none"> <li>• Royal Society Te Apārangi FTE-hours for support of process</li> <li>• Meeting costs, including travel and facilities</li> <li>• Assessor burden estimate – including time spent assessing proposals and in meetings</li> </ul>

## Outcome of the Combined Panel Trial

The CPT assessment process concluded and a white paper is available on the web (<https://www.royalsociety.org.nz/assets/CPT-whitepaper-for-web.pdf>). The pilot CPT was run with a mixture of strong and weak success. The goal of a scalable process with a higher-rate of expert assessment was achieved, but without robust evidence that this process met or improved the existing panel process. In addition, with assessors taking similar amounts of time to panellists to assess each EOI, the CPT process does not appear to provide a way of reducing the overall burden of assessment to the research system; instead, it can be expected to spread that burden more widely across the sector.

## Additional moderation step by Council

From the 2018 round, the Council considered using scores from international referees to moderate across all panels for proposals near the funding cut-off. The cost of proposals was also included in the overall assessment of the highest contribution to the Fund's objectives within the funding available.

### Rationale for change

The broader panel and additional moderation step was intended to allow greater moderation when assessing proposals from different disciplines, avoiding perceptions and risk of disciplinary bias, to increase expert availability, and allow better consideration of inter-disciplinary proposals while managing the burden on assessors.

### Measurement and reporting

The Society's Director of Research Funding provided a summary of the outcomes of the additional moderation step in reporting on the Marsden Fund round to the Council.

### Outcome of additional moderation steps

In trialling this moderation step, the Council found it uninformative and lacking rigour for discriminating the proposals at the funding cut-off across panels as intended. Following formal review by the Council, this moderation step has been discontinued.

The Marsden Fund Te Pūtea Rangahau a Marsden supports excellence in leading-edge research in New Zealand.

E whakahaerehia ana te Pūtea Marsden e Te Apārangi mō te taha ki te kāwanatanga.

Whakapā mai | [Contact us](#)

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