

**Tertiary Education
Commission**
Te Amorangi Mātauranga Matua



Centres of Research Excellence Performance Measurement Framework Guidelines

Published by the Tertiary Education Commission

Te Amorangi Mātauranga Matua

National Office

44 The Terrace

PO Box 27048

Wellington, New Zealand

18 June 2015

ISBN 978-0-478-32065-7

Authors

The Tertiary Education Commission

Every effort is made to provide accurate and factual content. The TEC, however, cannot accept responsibility for any inadvertent errors or omissions that may occur.



This work is licensed under the Creative Commons Attribution 4.0 International licence. You are free to copy, distribute, and adapt the work, as long as you attribute the work to the Tertiary Education Commission and abide by the other licence terms. Please note you may not use any departmental or governmental emblem, logo, or coat of arms in any way that infringes any provision of the Flags, Emblems, and Names Protection Act 1981.

Contents

1. Introduction	5
2. Intervention logic model	6
3. An overview of the PMF	8
4. Electronic data collection specifications	10
5. Performance measurement in non-standardised areas	12
5.1 Strategic Outcomes	12
5.2 Management	16
5.3 Knowledge exchange	16
5.4 Public engagement	16
6. Performance measurement in standardised areas	17
7. Additional performance measures outside of those in the PMF	18
8. Annual reporting to the TEC and published annual reports	19
8.1 Annual reporting to the TEC	19
8.2 Publishing annual reports	19
9. Proposed guidelines for attribution of inputs and outputs	22
9.1. Staff	22
9.2. Research outputs	22
9.3. Students	23
9.4. External research income	23
9.5. Commercialisation data	23

Tables

Figure 1: CoRE intervention logic model	7
Table 1: Overview of CoREs performance measurement framework	9
Table 2: Annual electronic data collection specifications	10
Table 3: Performance measures that may be calculated by and used by agencies from the electronic data submission	17
Table 4: Minimum requirements for published annual reports	19
Table 5: Summary data table to be included in any published version of CoRE annual reports	20

Figures

Figure 1: CoRE intervention logic model	7
---	---

1. Introduction

The overriding aim of the Centres of Research Excellence (CoREs) Performance Measurement Framework (PMF) is to get a clear understanding of how CoREs are progressing towards achieving the outcomes stated in their Outcomes Statements. The quantitative measures included in the PMF contribute towards this understanding by providing a set of monitoring data that provides context for looking at impacts and outcomes.

Individual CoREs should use the PMF as a basis to tell their 'performance story' in their Plans and Annual Reports. The Plans should describe what a CoRE intends to achieve (i.e. strategic impacts, research milestones and Key Performance Indicators), and how the CoRE's activities and outputs will contribute to these strategic impacts and outcomes. Annual Reports will then detail the evidence of the progress made in delivering towards these strategic impacts and outcomes. It is important for accountability purposes that the CoREs are able to demonstrate the value of the public's investment.

Plans and Annual Reports must be closely aligned to the requirements of the PMF, and CoRE Annual Reports will, at a minimum, include all the information and data required in the PMF (including the use of electronic reporting where required). As well as annual reporting, an external review of CoRE performance is part of the PMF and will take place at mid-term in the funding round. The scope of this review will be clarified closer to the time.

In previous years, performance reporting was largely at the discretion of the CoREs. This resulted in a variety of approaches to performance measurement and inconsistencies in reporting between CoREs and also within the same CoRE over time. One of the outcomes of the Government's review of the CoREs policy in 2013 therefore was a requirement to develop and implement a PMF that would achieve greater consistency in performance measurement and reporting. This PMF builds on a consistent set of measurements to enable each CoRE, as agreed by the TEC, to tailor its performance measurements and reporting to cater for the unique nature of each CoRE.

The PMF will form the essential foundation for all future performance reporting and monitoring arrangements between the Ministry of Education (MoE), the Tertiary Education Commission (TEC), and Centres of Research Excellence. The data collected through the PMF will be used by the TEC to monitor the use of funding while the MoE will use the data to assess the overall value of the CoREs fund over time. The key focus is on whether the CoREs are making adequate progress towards achieving the stated outcomes, and milestones articulated in their annual plans. If some quantitative measures decline or remain static, this will be looked at in the context of the CoRE and its stated outcomes, so that declines in quantitative measures are not necessarily seen as negative. It is also recognised that given some CoREs are relatively new, it may take some time for the CoRE to gather momentum.

Accountability for the performance of the CoRE will rest with the host institution. Therefore it will be the responsibility of the host institution to monitor and manage the performance of the CoRE. The determination of design of the CoRE funding mechanism issued by the Minister for Tertiary Education, Skills and Employment under section 159L of the Education Act 1989 states that the TEC may impose conditions on funding to ensure that host institutions are adequately accountable to the TEC for the use of the funding.

2. Intervention logic model

The CoREs fund was established in 2001 to support high-performing researchers in the tertiary education sector to concentrate resources and collaborate to produce research that is:

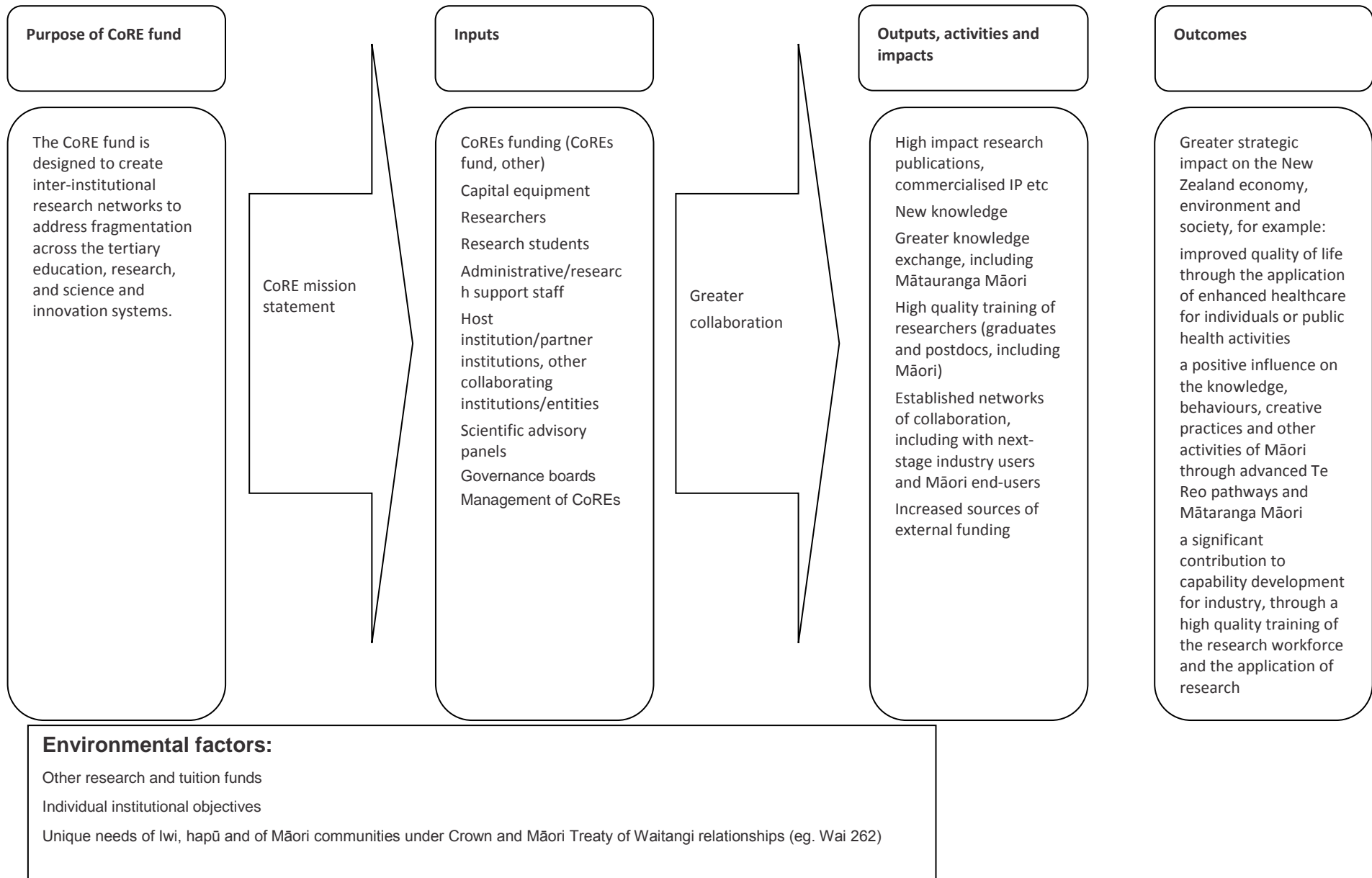
- › strategically focused and linked to New Zealand’s future economic, environmental and societal needs
- › of excellent quality, supporting high-quality, innovative research and research training environments
- › transferable, so that new knowledge is incorporated and applied in teaching programmes, and through outreach activities and engagement with end-users.

The CoREs policy was designed to address fragmentation across the tertiary education, research, and science and innovation systems. Research expertise is widely distributed across New Zealand’s tertiary education institutions and Crown research institutes. In a small country like New Zealand, a widely distributed system is a barrier to concentrated research effort in academic disciplines.

Unlike other government funding models to support research and development, CoREs (in addition to the Performance-Based Research Fund) have a significant focus on tertiary education outcomes through training graduate students and supporting research links to teaching. CoREs are formed from a highly contestable, bottom-up process that allows them to self-identify how their research fits into national priorities.

The intervention logic model for the CoREs fund is produced in Figure 1. This shows how the CoREs fund is designed to result in better outcomes via increased collaboration of high quality researchers.

Figure 1: CoRE intervention logic model



3. An overview of the PMF

An overview of the structure and content of the PMF is presented in Table 1. This categorises the components of the PMF into themes (areas of interest). The themes identified in the framework are:

- › Strategic outcomes;
- › Knowledge exchange;
- › Public engagement;
- › Research excellence;
- › Research commercialisation;
- › Research output;
- › Collaboration;
- › Human capital development;
- › Research capability; and
- › Management.

Where applicable, within each theme is an associated subtheme, followed by a description of what general area of performance is being assessed, whether a standardised approach is taken to performance measurement and how often it is being collected.

In addition to the explicit themes, there are other implicit themes within the framework. For example, internationalisation is not identified as an explicit theme in the PMF, but several measures have an international element to them (such as external research income and collaboration).

The overview of the PMF identifies where the performance reporting by CoREs will be done in a standardised manner. For example, the reporting of peer reviewed research outputs will be done in a standardised manner, with common classifications of research outputs and a common approach to attribution.

However, we recognise the unique nature of the CoREs. Because each CoRE has a different focus and mission, it is not possible to measure some of these themes in a standardised way. Information on areas such as the strategic outcomes of the CoRE and how the CoRE undertakes knowledge exchange activities will be gathered, analysed and reported in ways that reflect the characteristics of the CoRE and its focus. More detail on how performance will be measured in these areas is presented in Section 5.

It is acknowledged that not all of the themes listed above will be relevant to all CoREs (such as research commercialisation) given the difference in the foci of each CoRE.

Table 1: Overview of CoREs performance measurement framework

Performance theme	Sub-theme (where applicable)	Description	Standardisation of performance measurement	Frequency of evidence collection	Notes
Strategic outcomes		The impact of CoRE research on New Zealand's society, economy and environment	No	Annual	CoREs will propose to the TEC an Outcomes Statement (in line with section 5 of this PMF) and how the CoRE's delivery towards achieving these outcomes will be measured and reported on an annual basis (including the type of evidence they expect to be able to provide to demonstrate this). The TEC will expect the CoRE to describe and demonstrate how their activities and outputs lead to impacts which will deliver or contribute towards high-level outcomes for New Zealand's economy, society, and environment. The TEC must agree with the Outcomes Statement and relevant measures before the Funding Letter is agreed with the Host Institution. Annual reports must therefore describe the evidence of the strategic impact of the CoRE in line with the agreed impact measures. The links between their activities and outputs and their intended outcomes and impacts should be clearly articulated in the Annual Report.
The strategic outcomes above are likely to take some time to emerge. The reporting in the themes below will be used to help monitor progress of the CoRE in achieving the strategic impacts.					
Knowledge exchange		Knowledge exchange activities (such as outreach) of the CoRE	No	Annual	CoREs will propose what and how it will be evidenced. The TEC must agree with the proposed measurement of knowledge exchange activities before the Funding Letter is agreed with the Host Institution
Public engagement		The way in which CoREs engage with the public	No	Annual	CoREs will propose what and how it will be evidenced. These must be articulated in the Plans, which are agreed with TEC.
Research excellence	External research income	External research income (ERI) earned by the CoRE by type	Yes	Annual	The reporting of external research income will help to show the leverage provided by the CoRE brand.
	Citations	Academic impact of research by the CoREs	Yes	This will be calculated by agencies	The agencies will link the unit-record data collection of journal publications to commercial bibliometric databases to generate various measures of the academic impact of CoRE research through the analysis of citations. This analysis will take place after a sufficient time has elapsed for citations to accrue to CoRE publications.
Research commercialisation	Licenses	The value of license income and the number of licenses	Yes	Annual	
	Spinouts	The number of and capital value of spinouts	Yes	Annual	
	Research protection	Other forms of commercialisation activities where applicable	Yes	Annual	Includes: Patent applications, patents granted, patents commercialised and invention disclosures.
Research output	Research output	The bibliometric details of research outputs of the CoREs by type	Yes	Annual	Electronic submission of research publications will enable the generation of measures of academic impact and assessment of collaboration by agencies.
Collaboration	Collaboration in research output	Analysis of journal publications to assess collaboration/networks	Yes	This will be calculated by agencies	The agencies will link the unit-record data collection of journal publications to commercial bibliometric databases to analyse collaboration with other researchers and institutions.
	Collaborative partners	List of collaborative institutions and entities	Yes	Annual	CoREs will list their collaborative institutions and entities each year and report on the status of the partners (domestic or international and by type).
Human capital development	Students studying at the CoRE	Details of the students by level of qualification	Yes	Annual	The electronic unit-record reporting of student details will allow for linking to administrative datasets and reporting on demographics. CoREs are to report on this in their annual electronic data submissions as specified in Table 2.
	Completion of qualifications by students studying at the CoRE	Details of the students who have completed their qualification	Yes	Annual	The electronic unit-record reporting of student details will allow for linking to administrative datasets and reporting on demographics. CoREs are to report on this in their annual electronic data submissions as specified in Table 2.
	Student outcomes	Immediate destinations of graduates upon completing study	Yes	Annual	CoREs are to report on the immediate post-study destination of research students who have completed their studies. This will be done on a unit-record basis. There is no requirement for CoREs to track graduates in the longer term.
		Longer term post-study destinations of graduates— data sourced from Statistics New Zealand's Employment Outcomes of Tertiary Education (EOTE) dataset	Yes	This will be calculated by agencies	The agencies will link the unit-record student data submitted by CoREs to administrative datasets to track the longer-term destinations of graduate students.
Research capability	Staffing data	Details of staff at the CoRE	Yes	Annual	The unit record data submitted here will allow a statistical and demographic profile of CoRE staff.
Management	Management	Management of the CoREs	No	Annual	
	Financial management	Income and expenditure of CoREs	Yes	Annual	The CoREs will report income and expenditure data on an annual basis. This includes the reporting of actual and budgeted income/expenditure.

4. Electronic data collection specifications

As well as presenting performance information in annual reports, CoREs are required to submit performance data electronically to the TEC. The specifications of the data requirements are presented in Table 2. **The data that is submitted electronically must align with what is reported by CoREs in annual reports.**

The provided Excel templates should be used to record the required data and are to be returned at the time of submission of the annual reports. The templates contain detailed instructions on what information is to be inserted into the templates.

We expect unit record data to be submitted to enable agencies to carry most of the burden of analysis of each CoRE's performance – the agencies will link the CoREs unit record data to other data in administrative datasets. For example, the electronic collection of research output details will allow for additional analyses of networks of collaboration and citation analysis. It also allows for the easier identification of duplicate entries, which has been identified as an issue in past reporting.

Table 2: Annual electronic data collection specifications

Theme	Data to be submitted	Descriptor
Research output	Lists of peer reviewed research outputs by type	Types of research output to be reported include: journal publications, books, book chapters, published conference publications, other. See excel template for unit record details to be submitted for each research output.
Commercialisation	Counts of licenses granted	Counts of licenses by country of source (NZ, overseas, total)
Commercialisation	Total income from licenses	Income from licenses split by country of source (NZ, overseas, total)
Commercialisation	Number of spinouts	Count of number of spinouts
Commercialisation	Market capitalisation of spinouts	Sum of the market capitalisation of spinout companies
Research protection	Number of patent applications	Count of the number of patent applications
Research protection	Number of patents granted	Count of the number of patents granted
Research protection	Number of patents commercialised	Counts of number of patents commercialised
Research protection	Number of invention disclosures	Counts of the number of invention disclosures
Human capital development	Lists of students	List of students studying at the CoRE with the following details reported: TEO name, l_name, f_name, Institution student ID number, qualification level, status (continuing study, completed qualification, did not complete qualification), graduate destination (further study in NZ, employed in NZ in Māori organisation/entity, etc).
Human capital development	Immediate destinations of graduating students	Counts of graduates by immediate post-study destination. Categories include: further study in NZ, further study overseas, employed in NZ other, employed in NZ in Māori organisation/entity, employed overseas, other
Collaboration	List of organisations with which the CoRE collaborates with or has a relationship with at the organisational level	List of collaborating partners with the CoRE categorised by domestic/international and also by type. Type would include categories such as: CoRE partner, other tertiary education institutions, CRI, private sector company, industry body, other Government agencies and Māori institutions/entities (such as Māori development organisation, Māori

Theme	Data to be submitted	Descriptor
		entity/collectives, mandated iwi and hapū entity, whānau ora service organisations, other Māori entity). This does not include the normal researcher level collaborations on research outputs which will be determined using bibliometric data.
Research capability	Staffing data	List of researchers with the following details: f_name, l_name, TEO, position title (principal investigator, associate investigator, postdoctoral fellow, research technician, administrative/support) job title (professor, associate professor etc), FTE, gender, ethnic group, iwi affiliation, and whether a Mātauranga Māori researcher
Research excellence	External research income	The amount of ERI awarded via Vote Science and Innovation by type (Marsden, HRC, National Science Challenge, Other). Also the number of contracts.
Research excellence	External research income	The amount of non-Vote Science and Innovation ERI by type. Also the number of contracts.
Financials	Income/expenditure by CoRE	Income/expenditure statements showing revenue by source and expenditure by category. See Financials template.

Note: See the associated Excel template for more details.

5. Performance measurement in non-standardised areas

The PMF contains areas which will not require a standardised approach to reporting. These are in the broad policy themes of: strategic outcomes, management, knowledge exchange and public engagement. The section below outlines the general approach that will be taken to reporting and performance measurement in these areas.

5.1 Strategic Outcomes¹

Purpose

The TEC will agree with the host institution an Outcomes Statement (Statement) for each CoRE. This Statement must describe and demonstrate how they will deliver or contribute towards high-level outcomes for New Zealand's economy, society, and environment. The Statement must also align with the government's CoRE mission statement.

This Statement will underpin the TEC's monitoring and engagement with the CoRE. Host institutions will also agree with the TEC a suite of annually reported impact measures which articulate the impacts that contribute to high-level outcomes. The TEC must agree with the Statement and relevant measures before the host institution is provided with a funding letter.

The links between a CoRE's activities and outputs and their intended outcomes, should be clearly articulated in the Statement and in future reporting to the TEC.

Government agencies are particularly interested in future CoRE reporting which includes evidence of their contribution towards the government's CoRE mission statement (e.g. innovation and response to opportunity, effective collaboration, and end-user engagement such as evidence that the needs of end-users are influencing research direction), and desired outcomes on other stakeholders (e.g. that the CoRE's research is being used by stakeholders).

Definitions of outcomes, impacts, and outputs.

There is a distinction between the outcomes, impacts, outputs, and activities of research.²

Outcomes are changes in the state, condition, effects on, or consequences for the economy, society, community, or environment resulting from the activities and outputs of the CoRE in its fulfilment of its Strategic Outcomes Statement. Outcomes also help provide the rationale for the range of outputs delivered.

Outcomes should guide the development of a CoRE's suite of strategic impacts such as: increasing employment, improving health and/or wellbeing, improving environmental or cultural outcomes, increasing productivity or creativity, or dramatically changing the state of knowledge within a field.

It is recognised that some research will have immediate outcomes whereas other research projects may take much longer to achieve outcomes, and that the impacts from research (especially basic research) on outcomes do not necessarily follow a linear process.

¹ Adapted from the 'Science Foundation Ireland Research Outcome Framework', January 2013.

² Adapted from: Auditor-General's Auditing Standard (Revised), the audit of service performance reports, Office of the Auditor-General, 2011, accessed 18 March 2014 at <http://www.oag.govt.nz/2011/auditing-standards/docs/28-ag-4rev-audit-service.pdf>

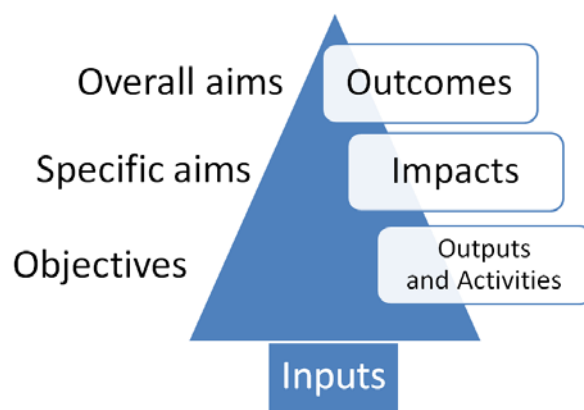
Impacts are the contributions made to an outcome by a specified set of outputs or activities. Impacts are the relatively immediate or have a direct effect on stakeholders, end-users, or beneficiaries of the CoRE's outputs and activities.

For example, this could include influencing policy guidelines, building capability, improving practice or product development, and/or having a significant and profound impact on the knowledge base within a particular discipline.

Outputs mean the goods or services that are produced by a CoRE, particularly those produced for third parties. Publications, discoveries, documents, licences and patents are examples of outputs.

Activities are those undertakings by the CoRE which may indirectly or directly contribute towards achieving desired impacts and/or outcomes and include, for example, public engagement with schools, community outreach activities and public lectures, holding student conferences and symposia, offering scholarships, and establishing new collaborations, connections or partnerships with community organisations and research entities.

This distinction can also be shown in the following diagram³:



Examples of outcomes

A CoRE's activity can have multiple outcomes which benefit New Zealand's economy, society, and environment. A sample of possible broad outcomes and specific impacts which contribute towards these outcomes are included below for the host institution's consideration in drafting up its Strategic Outcomes Statement and proposed measures of progress towards delivering on the Outcomes Statement.

Economic and Commercial

These are outcomes where the impacts are on businesses, either new or established, or other types of organisation which undertake activity that may create wealth.

Examples of impacts which contribute to these outcomes may include:

- › The performance of an existing business will be improved, through the introduction of new, or the improvement of existing, products, processes or services; the adoption of new, updated or enhanced technical standards and/or protocols, or the enhancement of strategy, operations or management practices.
- › Spin-out or new business is created, will establish its viability, or generate revenue or profits.

³ Adapted from the Charities Evaluation Services (United Kingdom) planning triangle.

- › Industry, other organisations, or charitable foundations are investing in their own research and development through research collaboration.

Societal

These are outcomes where the impacts are on individuals, groups of individuals, organisations or communities whose quality of life, knowledge, behaviours, creative practices and other activity will be influenced positively.

Examples of impacts which contribute to these outcomes may include:

- › Public debate is stimulated or informed by research.
- › Public awareness, attitudes, and understanding is enhanced by CoRE engagement with them with research of social or cultural significance.
- › Research contributes to community regeneration.
- › Research strengthens relationships and activities which give effect to the Treaty of Waitangi.

Public policy and services

These are outcomes where the impacts are on government, non-governmental organisations (NGOs), charities and public sector organisations, and society - either as a whole or groups of individuals in society.

Examples of impacts which contribute to these outcomes may include:

- › In delivering a public service, a new technology or process will be adopted or an existing technology or process improved.
- › Policy debate will be stimulated or informed by research evidence.
- › Policy decisions or changes to legislation, regulations or guidelines will be informed by research evidence.

Advancing Te Reo Māori and Mātauranga Māori

These are outcomes where the impacts are on Māori as individuals, groups of individuals, whānau, Māori organisations or Māori communities whose quality of life, knowledge, behaviours, creative practices and other activity will be influenced positively through advanced Te Reo pathways and Mātauranga Māori.

Examples of impacts which contribute to these outcomes may include:

- › Revitalisation and recovery of iwi dialect, culture and customs.
- › Mātauranga Māori pedagogy and pathways that advance and accelerate outcomes for Māori students and the New Zealand education system.
- › Stronger global business channels, ROI and more R&D for Māori businesses and Māori authorities/collectives and Iwi/hāpū asset managers.
- › Stronger community capability and resilience through collaborative, strengths-based approaches which enhance tino rangatiratanga or self-determination of Māori people, whānau, hapū and iwi.

Health

These are outcomes where the impacts are on individuals (including groups of individuals) and families/whānau whose health outcomes will be improved or whose quality of life will be enhanced (or potential harm mitigated) through the application of enhanced healthcare for individuals or public health activities.

Examples of impacts which contribute to these outcomes may include:

- › A new drug, treatment or therapy, diagnostic or medical technology will be developed or adopted.
- › Patient health outcomes will be improved through, for example, the availability of new drug, treatment or therapy, diagnostic or medical technology, improvements to patient care practices or processes, or improvements to clinical or healthcare guidelines.
- › Disease prevention or markers of health will be enhanced by research.
- › The costs of treatment or healthcare will reduce.
- › Quality of life will be improved by new products or processes through, for example, improved water quality or access to healthcare.
- › Animal health and welfare will be enhanced by the CoRE's research.

Environmental

These are outcomes where the impacts are on the natural environment and/or the built environment, together with societies, individuals or groups of individuals who benefit as a result.

Examples of impacts which contribute to these outcomes may include:

- › The environment will be improved through the introduction of new products, processes, or service; the improvement of existing product, processes or services; or the enhancement of strategy, operations or management practices.
- › The management or conservation of natural resources, including issues around global competition for energy, water and food resources, end-user uptake of initiatives will be influenced or improved.
- › The management of an environmental risk or hazard will be improved.

Capability

These are outcomes where the impacts are on individuals, groups of individuals, organisations or communities whose understanding and/or engagement with science will be increased.

Examples of impacts which contribute to these outcomes may include:

- › Improved scientific and technical skills of current and future workforce and/or increased awareness and engagement in science
- › Increased public engagement in science and science literacy (eg. changes to education or the school curriculum will be informed by research)
- › Public debate will be stimulated or informed by research
- › Public interest and engagement in science, engineering and mathematics will be stimulated, including through the enhancement of related education in schools
- › The awareness, attitudes, education and understanding of the public will be enhanced by engaging them with research of social or cultural significance

- › Increased productivity of the workforce through improvements in health, work environment etc.

5.2 Management

In this area, CoREs must provide evidence of the impact of the advice received from its strategic science advisory panel on the CoRE’s strategy and research programme (eg, identification of risks and opportunities, contributing to research excellence). And, if there has not been a significant impact, what are the reasons for this.

Annual reporting of the evidence of good management practice must include at least the following:

- › progress made on delivering on the research plan,
- › appropriate resource allocation,
- › sound processes in place (such as internal reviews), and
- › a high-quality risk assessment framework that includes the headings in the table below.

Risk	Likelihood <i>(on a scale of 1-5, 5 being highly likely)</i>	Potential impact on the CoRE <i>(on a scale of 1-5, 5 being a major impact)</i>	Mitigation plan/s in place

CoREs must also report using the financial reporting template (attached). Financial information must be appropriately comprehensive and transparent, and variances between the budget and actuals must be explained.

5.3 Knowledge exchange

There are a variety of approaches that CoREs can take to knowledge exchange activities (such as outreach). Therefore, performance reporting in this area will not be standardised but the CoREs must describe how research findings have been exploited and utilised by end-users, and how research plans have been jointly developed with end-users and stakeholders.

One area of knowledge exchange which may be analysed in a standardised manner by agencies is details of downloads of published research. There is no requirement for CoREs to undertake this work as the unit record journal article data will be used to derive this information.

5.4 Public engagement

As with knowledge exchange, there are a variety of approaches that CoREs can take in public engagement activities. Performance reporting will not be standardised in this area, but CoREs must describe how research findings have been communicated to the general public.

6. Performance measurement in standardised areas

In standardised areas, Government agencies will monitor the performance of the CoREs using the data submitted as part of the electronic submission (see Table 2).

Government agencies may also undertake additional analysis as set out in Table 3.

Table 3: Performance measures that may be calculated by and used by agencies from the electronic data submission

Theme	Metric	Descriptor	Notes
Research excellence	External research income per FTE	Total ERI divided by FTEs	Measure of productivity calculated from electronically submitted ERI and staffing data.
Research output	Research output per FTE	Total research outputs divided by number of FTEs	Measure of productivity calculated from electronically submitted research output and staffing data.
Research output	Publication profile	Distribution of publications by publication venue – for journals and conferences	To be derived by agencies from electronically submitted lists of journal articles and used as contextual factor when analysing bibliometric data such as citations.
Human capital development	Students per FTE	Total number of CoRE students divided by number of FTEs	Measure of productivity calculated from electronically submitted student and staffing data.
Human capital development	Students qualifications per FTE	Total number of CoRE students completing qualifications divided by number of FTEs	Measure of productivity calculated from submitted student and staffing data.
Human capital development	Demographics of students	A breakdown of the students at the CoRE by demographic characteristics. This includes: age, residency, ethnic group	To be derived by agencies from the unit record student lists provided electronically. The breakdowns of CoRE students may be compared to breakdowns of the whole of the NZ system (with a specific focus on Māori students). This analysis is for monitoring rather than funding purposes.
Human capital development	Demographics of graduating students	A breakdown of graduating students by demographics. This includes: age, residency, ethnic group	To be derived by agencies from the unit record student lists provided electronically. The breakdowns of CoRE students may be compared to breakdowns of the whole of the NZ system (with a specific focus on Māori students). This analysis is for monitoring rather than funding purposes.
Human capital development	Leaving cohort analysis	Counts of leaving cohorts by whether completed qualification successfully or not by level	To be derived by agencies from the unit record student lists provided electronically
Research capability	Staffing data demographics	Demographic breakdown of staff	Agencies may report on demographic breakdowns of staffing based on the unit record collection (with a specific focus on Māori staff). This analysis is for monitoring rather than funding purposes.
Human capital development	Longer-term destinations of graduating students	Counts of graduates by destination and level by years post-study. Destinations include: further study, employed, overseas, other.	To be derived by agencies using the EoTE dataset. <u>CoREs do not need to collect data for this measure.</u> This may include analysis of industry of employment in NZ. Comparisons may be made with the whole of the NZ system

		Post-study median incomes	
Collaboration	Networks of collaboration	Identification of networks/collaborators using journal article publication	This data will be derived by agencies from the unit record journal article data collection. This may include looking at international collaboration.
Research excellence	Academic impact	Citation analysis of journal publications normalised for subject and year of publication. Including: percentile analysis (e.g. what % of publications in top 10% of cited publications) and average rate of citation	This data will be derived by agencies from the unit record data collection of journal articles.
Knowledge exchange	Downloads of research	This uses bibliometric data to measure downloads of research and who by.	This measure will be derived by agencies using the unit record journal article data to link to bibliometric databases and report on how many downloads and who by.

Notes: 1. FTE in these metrics refers to researcher FTE. 2. This list may be added to by Government agencies.

7. Additional performance measures outside of those in the PMF

CoREs can add additional performance measures they feel best demonstrate the value and impact of their contributions. However, the TEC must agree the additional performance measures before the host institution is provided with a funding letter from the TEC.

8. Annual reporting to the TEC and published annual reports

8.1 Annual reporting to the TEC

All information/data in the PMF must be reported as a component of the CoRE annual report to the TEC, and will be a condition of funding.

8.2 Publishing annual reports

CoREs must publish an annual report that includes the key elements of the information supplied to the TEC under the PMF. Publishing performance data is an essential part of the accountability of CoREs to the public for their Crown funding. Published annual reports also provide information that can be used by members of the public, the media, researchers and analysts who look to understand the performance of the tertiary education and innovation systems.

Although each CoRE is responsible for the content of its published annual report, there are certain minimum requirements that must be met. These are set out in Table 4.

Table 4: Minimum requirements for published annual reports

Area	Requirements
Strategic Outcomes Statement	The CoRE must include its Strategic Outcomes Statement in full in the annual report and report on the progress made in that year on delivering towards the Outcomes Statement. The CoRE must also report a high level summary of the activities undertaken, outputs produced and impacts made in that year.
Statement of service performance	The CoRE must report on: Its research outputs – including listing all research outputs published in the year Its work with students – listing the students working in the CoRE, by each level of study and institution and also reporting on immediate post study outcomes for graduates Its knowledge exchange and public engagement activities External research income, by source Any other outputs the CoRE has produced, including any commercialisation work, any patenting, any policy advice developed and given, any community support provided.
Financials	The CoRE must show the amount of CoRE funding they have received from the TEC and how it was spent.
Management	The CoRE must report on its management and governance structure and related activities
Researchers	The CoRE must list the names of researchers at the CoRE and what institution they are affiliated with. The position title of the researcher is also required (i.e principal investigator, associate investigator, post-doctoral fellow).
Partner organisations	The CoRE must list its partner organisations
Table of statistics	The CoRE must publish the table of statistics each year as presented below in Table 5.

*CoREs must ensure they have the informed consent of students and researchers before publishing their details (including photos) in the annual report.

Table 5: Summary data table to be included in any published version of CoRE annual reports

Broad category	Detailed category	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6
Value of CoRE funding from TEC (\$M)							
FTEs by category	Principal investigators						
	Associate investigators						
	Postdoctoral fellows						
	Research technicians						
	Administrative/support						
	Research students						
	Total						
Headcounts by category	Principal investigators						
	Associate investigators						
	Postdoctoral fellows						
	Research technicians						
	Administrative/support						
	Research students						
	Total						
Peer reviewed research outputs by type	Books						
	Book chapters						
	Journal articles						
	Conference papers						
	Other						
	Total						
Value of external research contracts awarded by source	Vote Science and Innovation						
	Other NZ Government						
	Domestic – private sector funding						
	Overseas						
	Other						
	Total						
Commercial activities	Number of licenses						
	Income from licenses						
	Patent applications						
	Patents granted						
	Invention disclosures						
	Spinouts (note whether cumulative or actual)						
	Capitalisation value of spinouts						

Students studying at CoRE by level	Doctoral degree	
	Other	
	Total	
Number of students completing qualifications by level	Doctoral degree	
	Other	
	Total	
Immediate post-study graduate destinations	Further study in NZ	
	Further study overseas	
	Employed in NZ	
	Employed overseas	
	Unknown	
	Other	
Total		

Note: The data presented in this table is a high-level summary. Data reported in annual reports should be in alignment with that reported to the TEC under the PMF.

9. Proposed guidelines for attribution of inputs and outputs

One purpose of the guidelines for attribution in the PMF is to ensure there is more consistency in reporting between CoREs, while acknowledging that CoREs may operate in quite different ways within different host universities. Because of these differences, it is expected that CoREs will need to exercise an element of pragmatism and judgement to determine whether and to what extent the following ‘measures’ are attributable to the work of the CoRE:

- › the researchers
- › the students
- › research publications and other outputs
- › research contracts

For example, outputs by CoRE researchers that don’t contribute to the agreed CoRE outcomes and/or constitute part of the agreed CoRE research plans should not be included in the CoRE’s count of outputs.

Due to the collaborative nature of the CoREs, it is acknowledged that statistical data on staff and students may overlap with reporting to other funding bodies such as Marsden or MBIE. CoREs reporting should include all staff and student FTE related to the CoRE. Duplicates will be corrected if statistical data is merged with data from other funding bodies (e.g. for the MBIE-led S&I Domain Plan).

We also expect that the CoRE’s decisions on attribution made in the application will define the ongoing attribution decisions.

This section presents proposed guidelines on which inputs and outputs must be attributed to a CoRE, given that researchers/investigators will have multiple roles and be funded from multiple sources. Also, CoREs will fund their research in different ways.

9.1. Staff

Both headcounts and full-time equivalents (FTE) of staff must be reported by CoREs.

Researchers/investigators must be reported by the CoRE if the researcher/investigator:

- › was contracted by the CoRE; and
- › (b) had a clear obligation to the CoRE (irrespective of how they were funded) and the CoRE research programme.

In reporting FTEs of staff, CoREs must follow the same approach that they used in the initial application process to the Royal Society. **The FTE allocated to a researcher must be a fair representation of work and commitment.**

9.2. Research outputs

Research outputs must be reported by the CoRE if the research output was directly funded by the CoRE.

9.3. Students

Research students must be reported by the CoRE if:

- › (a) the CoRE financially supported the student through stipends, scholarships or consumables; or
- › one or more of the supervisors of the student was a CoRE researcher/investigator and the research of the student was part of the research programme of the CoRE.

For research students, the FTE reported must be the EFTS component of their research thesis studied in that year.

9.4. External research income

External research income must be reported on a per-annum basis by the CoRE if one of the researchers/investigators in the contract was a CoRE researcher/investigator and the research was part of the research programme of the CoRE.

9.5. Commercialisation data

Commercialisation data must be reported by the CoRE if one of the researchers/investigators associated with the research involved in generating the commercialisation income was a CoRE researcher/investigator and the research was part of the research programme of the CoRE.