Ministry of Education CoRE Review: Feedback received March/April 2013
- Written comments were provided by all CoREs, five Universities, Science NZ, TEU, Universities NZ (15 written submissions)
- Consultation meetings were held with all of the above as well as the Prime Minister's Chief Science Advisor, Business NZ, and the Royal Society of NZ. In addition, discussions were held with The Association of CoREs, a Ministry of Education PBRF/CoRE Expert Advisory Panel and a Ministry Mātauranga Māori Panel.
- This analysis draws on comments made in meetings, as well as written feedback.

In the examples, universities are named UA (University of Auckland), UC (University of Canterbury), UO (Otago University), UV (Victoria University of Wellington); CoREs are identified by part of their name (eg Allan Wilson, Ngā Pae etc).

Responses to Discussion Document Section One:

The CoRE Policy – current policy design features and whether these should be changed

1. What are the benefits and costs of conducting research through a formal inter-institutional network of researchers? What are the challenges?
2. In your view, against which of the original objectives has the CoRE policy been most successful? Which have been least successful? Why?
3. How, if at all, should the CoRE policy objectives be revised? What priority should be placed on different objectives and/or activities?
4. Looking at the design features and operation of CoREs, what factors have been the most important in building or limiting success?
5. How could current policy or operational settings be improved to address any aspects of CoRE policy that currently limit the success of the CoREs?

Examples of feedback

<table>
<thead>
<tr>
<th>Benefits</th>
<th>Commentary</th>
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<tr>
<td>From all submitters: a network of researchers enhances capability and critical mass, attracts and grows talent, builds collaborative multi-disciplinary connections and collaborations.</td>
<td>All submitters view the CoRE model as having a multiple benefits, although universities not hosting CoREs, TEU and Science NZ highlight the privileged role of CoREs at the expense of other high performing research centres and high performing areas of research.</td>
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</table>
**Summary of feedback on CoRE review**

*MacDiarmid: brings together and leverages institutions across the country, combining resources and research strategies*

*Allan Wilson: CoREs are an enabler of collaboration nationally, breaking down institutional barriers*

*UA: helps avoid duplication and unproductive competition*

*Science NZ: [CoREs] have provided a focus for training in their science area at the PhD and Post-doc level, thus attracting good candidates and building national capability*

### Costs

From all submitters: financial costs are identified.  
*UV: extra layers of administrative processes, management and governance. For example, multiple agreements, layered leadership and quality management, additional monitoring, reporting and financial management ….*

*UO: costs incurred through increasing outreach, public engagement, including end-user expertise, increasing inter-institutional discussion and collaboration at Board level all increase admin costs.*

### Challenges

Many submitters cite collaboration as the greatest challenge.  
*Ngā Pae: the most significant challenge is ensuring fairness and involvement of all partners*

*UC: Some major areas of research strength and of economic or social importance to NZ are not covered by existing CoREs*

CoREs themselves and universities identify a wide range of benefits in the model and most stakeholders view CoREs as successful, especially in terms of achieving excellence of research and high levels of collaboration.

No submitters identified costs beyond the infrastructure cost of a CoRE, which, most noted, is lower than for an independent organisation.

Although most submitters consider collaborative activity to be a real strength of CoREs, there is recognition from some submitters (some universities, Science NZ and the TEU) that genuine and deep collaboration is still a significant challenge, given prevailing individual and organisational interests. The TEU and one university see this as driven by a competitive funding model for science funding.

A number of CoREs and universities note that agreed principles and/or guidelines would support excellence across all activities. Guidelines could set out expectations of host and partner institutions. Auckland University has proposed specific best practice guidelines to support a common operating model – see comments later on this.
### Summary of feedback on CoRE review

<table>
<thead>
<tr>
<th>A number of submitters note that individual and organisational interests can undermine cooperative behaviour.</th>
<th>Key issues to further consider: ways to support even greater collaboration; consideration of principles or guidelines (for CoREs, hosts, partners) to support collaboration.</th>
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<tr>
<td>UA: a key issue has been around how to build a genuine collaboration where all parties feel they are treated fairly and have fair access to the available funding [within a CoRE] based on merit.</td>
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### Policy Objectives

#### Success of Objectives

Submissions recognise areas for improvement against objectives.

Gravida: the most successful objective has been the delivery of high-quality, innovative research and research training environments … the most challenging objective to measure in terms of relative success is the impact of knowledge transfer into teaching programmes, outreach activities and engagement with end-users.

UA: all have achieved well under the research excellence criterion under which they were chosen, but it is not clear that the investment has produced more than the status quo (corrected for the additional input funding) in all cases.

Bio Protection: the CoRE policy has been less successful at ensuring capability development aligned to future needs.

MacDiarmid: strategically focused research that is linked to

Many submitters comment on the success of all the objectives. A number of CoREs note that CoREs and Effect demonstrates the success of the objectives.

Science NZ is wary of the claims in CoREs and Effect, but acknowledges the additional contribution of CoREs in collaboration and communication, with a useful international dimension, a science training focus that builds national capability, and useful outreach.

Overall, most submitters view excellence as the primary defining characteristic of CoREs. Most submitters do not comment on relative weightings of other objectives.

A number of CoREs comment on the original expectation that CoREs would become self funding. Whilst most submitters do not support this expectation, a number explicitly support an expectation that where appropriate, CoREs attract a level of external funding, with some CoREs...
Summary of feedback on CoRE review

NZ’s future needs] is the least successful objective.

Maurice Wilkins: least successful original objectives include - the concept that CoREs would eventually become self-funding/self-sustainable.

Revision of Objectives
Most submitters actively or implicitly endorse the current objectives.

Bio-Protection seeks: an increasing focus on research excellence, in which partnering pays a bigger role.

UA: we support the continuation of excellence as a primary focus.

UC: the three original objectives should be retained and should have equal priority.

Science NZ: we agree that CoREs should be selected on the basis of research excellence and the relevance of their discipline to national needs.

UO: Otago supports the status quo, despite the tensions between the policy objectives. Excellence must remain at the heart of all CoREs.

Riddet: CoREs have demonstrated a very high level of performance to date, but their ongoing contributions to NZ’s strategic goals are paramount.

already successful in this regard.

In general, CoREs and universities seek little or no change in policy objectives but a number have suggestions for greater clarity.

The most commonly proposed improvements are clear expectations in relation to overall mission/purpose and around knowledge transfer, translation of research and impact.

The need for clarity of purpose is summed up by the Prime Minister’s Chief Science Advisor (PMCSA) who seeks a clearer statement of mission (referred to as investment intent by one of the Expert Advisory Panel), which would more specifically define the characteristics of a CoRE, including the range of and relative priorities within CoRE activities.

The PMCSA offered to contribute further to work on defining the mission and expected scope of a CoRE.

Most CoRE and university submitters (and the PMCSA), stress the need to retain sufficient flexibility to allow for responsiveness and innovation, which implies a high rather than detailed and operational level of mission definition.

There is some comment on the limited scope of issues addressed by CoREs, with the TEU and one University suggesting a further range of themes that new CoREs could address, including social and regional development priorities.
**Summary of feedback on CoRE review**

MacDiarmid: [...] since 2001 there have been a number of major changes to the science research sector and strategic focus has changed considerably [...] this makes it difficult to ensure coherence and alignment of funding vehicles to deliver greatest benefit to NZ [...] Enhanced delivery on this objective would be achieved with clearly defined national vision and vehicles for delivering that vision – and through integrated collaboration across activities in partner organisations and the network that are not driven by the science and scientists alone.

Ngā Pae: the CoRE policy could have greater emphasis upon knowledge exchange, translation to transformation (positive change).

Gravida: current policy objectives should be weighted evenly, and measured to pull scientific research through the innovation-knowledge transfer pipeline.

Maurice Wilkins: building translational skills remains important – CoREs have an opportunity to build skills in translating research, including commercialisation awareness (and even entrepreneurial zeal), in their graduate students and staff .....

- In addition, a number of CoRE submitters seek to attach specific measures to a range of activities in order to be able to demonstrate achievement of policy objectives across the portfolio of CoREs as well as for individual CoREs. See performance discussion later.

**Key issues to further consider:**

- clarity of investment intent and a definition of the ‘mission’ of CoREs;
- based on defined ‘mission’, clarify consistent delivery expectations at a level that does not constrain flexibility to self-determine detailed operations; how to use these expectations to specify performance measures.

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**Design and operational features**

Submitters have identified a number of possible improvements.

**UA:** The establishment of quasi governance boards and the tendency [...] to perceive CoREs as independent entities has created confusion. This should be clarified by agreeing the design of the CoRe model and establishing best practice.

- There is some support for agreement over a set of high level principles or guidelines that would create a more consistent operating model.

- Auckland University proposes the adoption of a specific set of best practice principles and a structural model to guide practices across CoREs. This would cover principles for participation/collaboration as well as regarding host/partner...
<table>
<thead>
<tr>
<th>Science NZ:</th>
<th>Instead of soliciting CoRE proposals in an open fashion, the government should indicate in which fields they wish to see CoREs established.</th>
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<tbody>
<tr>
<td>UA:</td>
<td>The hosted collaboration model employed by all CoREs has proved to be an effective and long lasting model that works well in building inter institutional and national confidence in these models.</td>
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<tr>
<td>Allan Wilson:</td>
<td>the six year funding model provides sufficient time for questions of substance to be addressed and results linked to end-users.</td>
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<tr>
<td>Bio-Protection:</td>
<td>Put more emphasis across the CoRE portfolio on building Maori science capability.</td>
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<tr>
<td>Allan Wilson:</td>
<td>the provision of capital expenditure has been critical to the ability of CoREs to be the forefront of scientific research.</td>
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<tr>
<td>Gravida:</td>
<td>development of standard formula for calculation of CoRE overheads, including post doctoral follows.</td>
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<tr>
<td>UO:</td>
<td>one danger would be to be too prescriptive about what a CoRE would be, what it should look like, and how it should be managed and governed.</td>
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CoREs and universities nonetheless wish to see a level of flexibility in governance/management/operations retained. Three CoREs specifically do not want to see prescribed operating models, preferring CoREs to retain the flexibility to choose the best model for its needs.

A number of CoREs link a greater level of consistent operational practice with consistent assessment of performance measurement.

CoREs specifically value the ability to act responsively in terms of the research agenda, including the ability to channels fund into new and emerging areas and to manage a programme of events to support knowledge transfer and training.

**Key issues to further consider: consistent high level principles or guidelines.**
Summary of feedback on CoRE review

Discussion Document Section Two:

The relationship between the CoREs and other policies and programmes to support research and development.

6. What are the strengths of the CoRE policy relative to other collaborative research models (i.e. Partnerships and Platforms)?  
7. In the future, how similar or different should CoREs be from other collaborative models, such as Platforms and Partnerships?  
   Should there be defining features of a CoRE? How should any changes be reflected in policy or operational settings?  
8. How should end-users be involved in determining the future research and education direction of the CoREs? What would need to change to achieve this? What benefits or risks would this create?  
9. Could the fit be improved between the objectives of CoRE policy and other forms of government support for research and development? How might these be achieved? What would be the benefits and risks of change?

<table>
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<tr>
<th>Examples of feedback</th>
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<tr>
<td><strong>Other collaborative models</strong></td>
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<tr>
<td><em>UO:</em> CoRE structures are settled and reflect well-known approaches found in other countries.</td>
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<tr>
<td><em>Ngā Pae:</em> No other research funds provide [the same] flexibility and level of collaborative model support for innovative and novel collective approaches to problem solving.</td>
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<td><em>TEU:</em> the CoREs have a particular strength in allowing effective inter-institutional and inter-disciplinary teams which can be more difficult to establish within current university structures and funding parameters.</td>
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<tr>
<td><em>Allan Wilson:</em> CoREs are distinctive in combining world class research with links to end-users. [...] The emphasis on human capital development is a further strength of CoREs relative to other models.</td>
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There is unanimous support for the CoRE model within the wider research and science system and many submitters promote the benefits of the CoRE model over other existing models.

The CoRE model, with its significant focus on human capital development, is seen as appropriate given its siting within the Education system, with clear linkages to educational outcomes, a focus of research quality and a role in community outreach to influence both potential end-users and future generations of scientists and researchers.

The aspects of CoREs that are seen to contribute most to their success are: focus on fundamental (up-stream) research and capability development, simplicity of the two party contract and hosting arrangement, TEC light-handed contract/performance management (allows flexible responses), devolved funding where the CoRE bases internal funding allocations on merit, a purpose and activities...
**Summary of feedback on CoRE review**

*Gravida: CoREs are a combination of mission and investigator-led collaboration.*

*UV: Some commentators assert, in relation to choosing the best research investments, the most successful approach is to simply back the best science. It is, at least in part, in this spirit that CoREs are funded.*

Submissions note the complementary nature of the CoRE model.

*Science NZ: the CRIs consider that the CoREs have been lively contributors to the national research effort […] Their role complements the roles of the other main providers.*

*UA: The positioning of the CoRE Fund within Vote: Education is entirely appropriate. Its broad objectives which go beyond research outputs to include teaching and skills development, outreach and creation of a knowledgeable and discerning society are distinct from the narrower objectives of Vote: Science and Innovation.*

**End-user involvement**

*Science NZ: In general the model is not so well suited to applied research, technology transfer, or commercialization. […] Loading these tasks onto CoREs will detract from their primary role and inhibit relationships with partners including CRIs …*

*Bio-Protection: The long term value of CoREs inevitably depends on the quality of linkage with next-users and end-users and stakeholders and a focus on research translation and impact. A number of CoREs note they have formal end-user or industry panels.*

All CoREs support active two-way engagement with end-users and stakeholders and a focus on research translation and impact. A number of CoREs note they have formal end-user or industry panels.

A distinction is drawn by most submitters between research driven by end-user interest, which is the domain of operational research, and investigator-led research supported by the outward facing character of CoRE engagement, linking research activities to communities of
Summary of feedback on CoRE review

| users and hence the efficiency and effectiveness of knowledge uptake over time. |
| Gravida: End-users are involved - and must be involved - through the range of ongoing stakeholder activities. |
| Ngā Pae: End-users should be involved through specific clear forums on areas, topics or research needs and questions. Risks [...] include giving a mandate to a non-expert group regarding research ... |
| UC: Each CoRE Governance Board could have an end-user advisory panel which advises the Board on its strategic direction. |
| Riddet: CoRE funding does not exist in isolation - other complementary programs of funding allow the knowledge and capability built within CoREs to be applied or utilised for public or industry benefit. |
| Bio-Protection: The presence of a CoRE in a particular research field should, however, give confidence to other research funders/investors as the complementary role of the CoRE will inform and underpin overall research investment in that field. |

| stakeholders with an interest in their research. |
| CoREs undertaking research with a more applied focus have developed a range of links to more specific (eg commercial) end-users. CoREs and a number of universities note that such end-users, typically focused on immediate impacts and with limited appreciation of the CoRE focus on research excellence, risk skewing the objectives and focus of CoRE research. |
| Submissions suggest the CoRE itself is in the best position to determine the most appropriate end-user engagement, the specific nature of this will depending on the research focus and characteristics of stakeholders. Otago University notes that in previous CoRE selection rounds, identification of CoRE contribution and connection with stakeholders was a key area of focus. |

**Key issue to further consider: role of guidance or expectations around end-user engagement (perhaps within mission statement for CoREs suggested above)**

| A number of submitters see potential opportunities for CoRES in the National Science Challenges and want to see alignment of NSC processes with CoRE selection timing so that opportunities for wider investment in CoREs and NSCs can be optimised. Some submissions identified the opportunity to see NSCs as, to a greater extent, ‘mission-led |

**Fit between CoREs and others**

| Maurice Wilkins: clear need to align CoRE policy settings with National Science Challenges – may not need changes to CoRE policy but CoREs need the opportunity to re-shape their futures incorporating aspects of the NSCs, including hosting many of them; requirements for hosting NSCs need |
## Summary of feedback on CoRE review

| **clarification as soon as possible** | CoREs’. This is also the view of members of the Expert Advisory Group.  

*Key issues to further consider: links between NSCs and CoREs - ensure no process/timing barriers.* |
| --- | --- |
### Discussion Document Section Three

#### Opportunities to increase the value of public investment in CoREs;

10. Should the CoRE policy place stronger incentives on the application, utilisation and commercialisation of research? How? What benefits or risks would this create?

11. How might the obligations on host organisations, or the relationship between CoREs, host organisations and other organisational partners be changed to support CoREs to generate greater value from their activities, increase income for CoREs, or improve outcomes from collaboration?

12. There are a number of choices presented on page 11. Assuming the size of the CoRE fund remains constant, how would you respond to the choices identified?

13. How could performance monitoring for CoREs be improved?

14. Which performance measures should all CoREs report against in a consistent manner?

15. What more could CoREs contribute in the future?

16. Any other comments?

<table>
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<th>Examples of feedback</th>
<th>Commentary</th>
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</table>
| **Research application, utilisation and commercialisation** | Most submissions made comments the importance of research application and utilisation.  

Submissions support expectations that CoREs will continually improve research translation and the demonstrated impact of their work but there is little support for extending the role of CoREs into direct commercialisation which is not seen as a compatible role for CoREs.  

A number of submitters note that channels exist for commercialisation of CoRE work where appropriate, for example through CRIs and university commercialisation services. Most submissions support close working relationships between CoREs and appropriate commercialisation services. |

*MacDiarmid: CoREs drive and participate in research translation, strengthening and working with, rather than duplicating, the activities of their partners.*  

*UC: navigating the pathway to increased utilisation and commercialisation could be improved - there is a role of Callaghan Innovation here.*  

*Bio-Protection: ... knowledge transfer from CoREs can be facilitated very effectively where CoRE funded research is integrated with a wider portfolio of complementary research from other sources (e.g. MBIE, industry).*  

*Gravida: [...] each of the CoREs must translate scientific*
<table>
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<tr>
<th>discovery for public good and in many instances, for several CoREs, this will involve commercial partners.</th>
<th>The Mātauranga Māori Expert Panel specifically seeks good evidence from CoREs of the impact of their research, commenting that CoREs need to be able to identify who benefits from their research. Some CoREs note that they actively incorporate commercialisation skills in their training of researchers thereby expanding the national skill base in key growth sectors of the economy.</th>
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<tbody>
<tr>
<td>Maurice Wilkins: CoREs for whom commercial outcomes are a logical output of their work are already incentivised.</td>
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<tr>
<td>UA: the TEC could work with each CoRE to develop a set of measurable objectives related to the translation of its research into practice.</td>
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<tr>
<td>Roles of hosts/partner institutions</td>
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<td>Many submitters comment on host/partner relationships.</td>
<td>Submitters see host and partner relationships as central to the successful performance of the collaboration. A number of submissions reflect on best practice for successful host/partner relationships, with some specifically supporting the consideration of a set of formal principles such as those proposed by Auckland University.</td>
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<td>Universities NZ: For example, consideration could be given to clarifying the governance arrangements, although [...] imposing a more formal governance model could reduce the flexibility which enriches the CoRE model ...</td>
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<tr>
<td>Gravida: The increasing understanding that they 'host' rather than 'own' CoREs is really helpful.</td>
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<td>UO: There might be expectations around Board and Science/Expert advisory representation.</td>
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<td><strong>Choices – number, funding, research focus, duration</strong> UC: we would like to see an increase in the number of CoREs funded, say from 7 to 10. [...] A new round of CoRE bidding would invigorate the research sector in NZ</td>
<td>Submitters do not support increasing the number of CoREs without increasing the fund. Submitters generally recognise that there must be opportunities for new CoREs as part of the future selection round.</td>
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<tr>
<td>Maurice Wilkins: Predetermining the number of CoREs does not seem advisable - a competitive round will reveal whether</td>
<td>CoRE and university submitters believe there is a need to</td>
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there are areas not already covered in existing CoREs that could be the basis of new CoREs, and whether the science is strong enough to make them viable.

Bio-Protection: setting up new CoREs should involve capital investment, in order to ensure they operate at world class standard as soon as possible.

Maurice Wilkins: several CoREs will only be able to maintain their research excellence if enabled to purchase new equipment in the upcoming round.

UV: Underfunding CoREs has the potential to destroy investment value.

UA: The areas of focus for the CoREs were not selected strategically. To start to limit the selection may compromise the primary objectives around research quality and excellence in research training/teaching.

Riddet: Ideally funding for CoREs would increase to compensate for the erosion of value from cost inflation. Failing that, the priority should be that CoREs are selected on the basis of clear potential to deliver in an identified strategic area and that they are adequately funded to do so.

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<th>Performance monitoring</th>
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<td><strong>UA</strong>: One option is for the TEC to develop some compulsory indicators, alongside a basket of optional performance indicators, of which CoREs are required to select a number to report against.</td>
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maintain capital funding, although there is recognition that capital funding is a mixed blessing for CoREs because of the high cost of depreciation (which CoREs were required to set aside out of operational funding). There is the suggestion of setting expectations that hosts/partners contribute capital funding or associated depreciation funding.

Submitters note the different levels of funding across CoREs. The level of benefit is seen to be directly related to the level of investment, with most CoREs noting that their ability to use funds effectively depends on long term certainty of funding.

Submitters are divided over whether strategic relevance areas should be prescribed, but CoREs are generally in favour of the current ‘bottom-up’ approach based on excellence.

Many submitters seek a clearer understanding of the meaning and application of strategic relevance within the CoRE policy, including how NSC areas might affect a view of strategic relevance.

Following work carried out to compile CoRES and Effect, CoREs are aware of the inconsistencies of attribution that complicate measurement of CoRE performance. As a result, most CoREs propose an element of consistent definition to support more consistent performance
**UO:** ... if there was one area that could be improved it is developing wider measures of collaboration, for example: extent of co-supervisions of PhD students; access and usage of equipment; Board and Science Advisory representation, spread of Principal Investigators.

**Bio-Protection:** proposes consistent reporting in the following areas (noting that work is needed to develop and refine appropriate measures in each domain) - research outputs, capability development, research networks, knowledge transfer, strategic outcomes and impacts.

**MacDiarmid:** The danger lies in those indicators, over time, being mistaken for the objectives themselves. We advise against a purely metric-based system in isolation from contextual considerations.

**Science NZ:** The government's investment in the CoREs is quite small in terms of its total science expenditure. Performance monitoring needs to be commensurate. Nevertheless, it is hard to see how the funding is used. This should be addressed, preferably using a common template across CoREs.

**Science NZ** notes the complexity of performance measurement for CoREs in this environment, observing that it is hard to differentiate the outputs of a CoRE from the outputs of its partner organisations. As Science NZ states this raises problems of double counting, but to isolate performance works against the principle of collaboration.

Nonetheless, a majority of submitters support the measures in the Discussion Paper, or slight variations.

Most feedback supports the use of a mix of quantitative and qualitative reporting and some support the development of impact measures, some of which might be CoRE specific. Submissions from CoREs demonstrates that they recognise the value of further work to identify and refine performance measures.

In discussion, a number of CoREs and universities noted the option of building current quality mechanisms such as peer review by external advisory and end-user boards into a wider performance management and reporting mechanisms.

Some submitters caution against a monitoring and reporting regime that is too complex, suggesting that external review on a regular basis is more valuable.

**Key issues to consider further: clarity around expectations in terms of strategic contribution; improved performance management framework.**