

# Terms of Reference Issue Paper 2: Minimising Transaction Costs

## Purpose

*This paper provides supporting information for the members of the Performance-Based Research Fund (PBRF) Review panel, as they look at one of the six issues in the Terms of Reference (ToR) for the Review – minimising transaction costs of the PBRF.*

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

## Background

Currently excellence in research in TEOs is assessed by three components – a quality evaluation assessment process every six years, annual numbers of postgraduate research degree completions and the amount of external research income generated annually. The two latter components are generally regarded by Government and TEOs as having very low transaction costs when compared to the Quality Evaluation, particularly for TEOs and research staff.

The Quality Evaluation is accepted as a thorough and robust method for measuring an individual researcher's performance in terms of research outputs (journal articles, conference presentations, creative work exhibitions etc.) and research contribution (eg supervision of research students, impact of research for a community or business, peer or industry recognition etc.)

However, there are concerns that this comes with high transaction costs, for research staff, TEOs and government. This was raised as an issue during the 2012/13 review and changes were made after the 2012 Quality Evaluation to simplify the process and reduce costs.<sup>1</sup> This paper discusses how we define transaction costs below.

It is important to note that, as with all of the issues in the ToR, there are interdependencies between potentially reducing transaction costs and any other recommendations made in other areas. For example, introducing further measures to assess impact into the PBRF at a TEO level would increase transaction costs for TEOs.

Most notably, if a decision was made to move to a group-based assessment, then this would potentially reduce the transaction costs for many research staff indirectly in the long term, but would also increase transaction costs in the short-term as a new system was implemented. We will be providing you with a more in-depth discussion on the merits of moving to a group-based assessment when you look at the issue of improving research collaboration and engagement with end-users. At this point, we

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<sup>1</sup> A TEC informal survey of participating TEO research office staff found that while the changes had made the process easier (23 of 35 responses), this did not translate to lower costs – only 7 of 35 said transactions costs were lower due to the changes.

will also look at assessment at the TEO level as an option, which you have raised as an issue.

We suggest any preliminary recommendations around modifying PBRF settings to reduce transaction costs are re-examined by the Panel at the end of the Review, in light of any other subsequent decisions.

## **Issue**

### ***Challenges of Defining Transaction Costs***

There are transaction costs associated with the PBRF for TEOs, research staff and the government (primarily the Tertiary Education Commission (TEC)). These transaction costs are difficult to determine and define.

The Tertiary Education Union (TEU) have shared common concerns that their members have with the high transaction costs of the Quality Evaluation. Many research staff feel that a large amount of their time is spent on preparing their Evidence Portfolios, at the cost of time spent on teaching. They have also raised some more non-traditional 'costs' incurred by research staff, such as the high levels of stress within TEOs that they believe is a result of the 'PBRF approach'.

It is also worth noting that some research staff also incur additional transaction costs, as they also participate in the peer review assessment process for the TEC (ie sitting on panels). In the 2018 Quality Evaluation there were 13 peer review panels, who assessed 8269 evidence portfolios in 43 different subject areas. This requires a significant amount of work by these panellists each Quality Evaluation (including the training that they undergo), although this is voluntary.

Carrying out the Quality Evaluation component is a significant piece of work for the TEC (this includes calculating the annual external research income and research-degree completion components). The project budget for the 2018 Quality Evaluation was approximately \$6.8 million. This includes most, but not all costs, for example, some staff members on the project were permanent staff, and so their salaries were not included in the project budget. However the TEC report that it would not view a reduction in its operational costs as a key driver for change.

During our consultation on what the ToR should cover, a common concern was around the increasingly complex nature of the rules and guidelines. However the concern was not universal, some respondents did not find the process overly difficult and noted that many of the rules were imposed by TEOs, rather than the TEC.

### ***Challenges of Quantifying Transaction Costs***

While there is some evidence of the Quality Evaluation causing additional work for research staff and TEOs, it is difficult to disentangle what TEOs and their research staff are doing specifically for the PBRF, and what recording and assessment for research would take the place of the PBRF.

For example, in the United Kingdom, a review of the Research Excellence Framework found that managers were "asked to indicate the proportion of time spent that would otherwise not have been incurred as part of normal oversight/research management procedures... several respondents suggested that a percentage — ranging from 2% to 100% — of the time spent was in fact part of 'business as usual'.

In particular, one respondent suggested that up to 80% of the submitted academic staff time and up to 100% of other eligible academic staff time was part of 'business as usual'.<sup>2</sup>

If the PBRF had not been introduced, TEOs would likely still be monitoring their research outputs at an institution level for internal performance management and international rankings. While there are some activities that are specific to the PBRF (ie the provision of data to the TEC), it is also likely individual research staff would also be tracking their research activity in some way (either as required to by their TEO or for applications for external funding, new positions etc.)

This makes it difficult to provide evidence on this issue. In addition, while we have some qualitative evidence from TEOs on the amount of time their research staff spend on the PBRF<sup>3</sup>, this isn't comprehensive, and still encounters the issue of how much of that time would have been spent on similar research tracking activities. Some would also argue that the PBRF process has helped TEOs put in place processes necessary for ensuring good practice for research.

We would note that the Universities New Zealand Research Committee (UNZRC) provided us with some specific information on its transaction costs as part of the 2012/13 Review. It was estimated that from 2007-2012 (a six year period), the quality evaluation process cost around \$40 million for all eight universities combined. Although it was noted at the time, that these figures were conservative, it is also possible that due to the difficulties in distinguishing PBRF costs, these estimates may be on the generous side.

UNZRC also made it clear at the time that the time and effort spent on compiling and collating evidence portfolios by research staff was the greatest cost.

### ***Transaction Costs for Different TEOs***

Transaction costs for TEOs are disproportionately higher for smaller TEOs as they aren't large enough to achieve cost savings through centralisation. The recently established New Zealand Institute of Skills and Technology (NZIST) will have the potential to mitigate this for the ITP sector. We will be providing you with a more detailed analysis of how the Review of Vocational Education (RoVE) changes relate to the PBRF at a later meeting.

However, for other smaller TEOs (wānanga and Private Training Establishments (PTEs)) a reduction in transaction costs would have a greater impact than for universities. For example, high transaction costs have recently been raised with us as an issue by Te Wānanga o Aotearoa. The wānanga was disappointed with the amount of funding it will receive after the 2018 Quality Evaluation which it sees as disproportionate, especially as this was the reason they did not participate in the 2012 Quality Evaluation.

### ***Other Incentives in the System***

We would also note that government only has one part to play – while the PBRF has contributed to the issues outlined, a reduction in what the PBRF requires of TEOs

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<sup>2</sup> REF Accountability Review: Costs, benefits and burden. P17 <https://www.technopolis-group.com/report/ref-accountability-review-costs-benefits-and-burden/>

<sup>3</sup> For example, a DVC Research at one university estimated that a senior researcher would spend 60-80 hours preparing their evidence portfolio, while a junior researcher would spend about 20-30 hours.

and their staff does not prevent TEOs from still requiring the same information from their staff. Practice assessment already occurs (ie mock PBRF assessment), and TEOs could continue to require staff to participate in these. This is because they may find the information useful for purposes outside of the PBRF (ie performance management).

Funding is not the only incentive for TEOs to participate in the PBRF; the reputational element also plays a strong role. TEOs often publicise specific aspects of their PBRF Quality Evaluation results in their advertising material and use them to attract postgraduate students. Australia no longer attaches any funding to its Excellence Research Assessment (ERA), and did not experience a decrease in the participation of TEOs when funding was decoupled. Instead all institutions continued to participate, due in large part to the international reputational drivers.

In addition, although the PBRF per-point funding (the amount of funding attached to each funded quality category) has decreased over each Quality Evaluation, TEOs continue to participate (we will have a more detailed report on this for you at a later meeting).

## **Possible Areas for Consideration**

### ***Unit of Assessment***

As signalled above, we will provide you with a more detailed analysis of options for moving to group-based assessment when you look at the issue of improving research collaboration and engagement with end-users. At this point, we will also look at assessment at the TEO level as an option, which has also been raised as an issue for discussion.

### ***Current Frequency of the Quality Evaluation***

Currently the Quality Evaluation is run on a six year cycle (the 2018 results were released in April of this year). The results of the 2018 Quality Evaluation continue to show fairly small percentage shifts for TEOs in terms of overall funding between each Quality Evaluation, which suggests that there is the potential to shift to a longer funding cycle with low levels of risk around errors in levels of funding individual TEOs.

### ***Longer Quality Evaluation cycle***

A longer time period could be particularly beneficial to some areas, such as the Humanities, which tends to experience longer research timelines. In general, research projects can often take place over more than one Quality Evaluation cycle, with time needed for planning, funding proposals, dissemination of findings etc. It could also be useful for potentially assessing impact, which generally requires a longer time period to fully demonstrate.

There are concerns that a longer time period could be detrimental to early career researchers if they were 'left out' of the cycle for a long period. However, it could allow for research staff to take careers breaks without being concerned about this negatively impacting on their Quality Evaluation results.

Another concern with a longer cycle is that it could reduce accessibility for new, smaller TEOs to join the PBRF. This could potentially be mitigated through a

midpoint review for new TEOs, or not requiring them to participate in the Quality Evaluation to qualify for funding for the other two components, as is the current requirement.

A longer cycle could also result in a loss of knowledge within TEOs about how best to participate in the PBRF (particularly in smaller TEOs with less staff, the TEC has found a significant difference in capability and knowledge between TEOs). To combat this, TEOs could continue to carry out their own assessment, which would mean research staff continue to experience high individual transaction costs.

One option would be to look at the possibility of mid-term reviews, ie for early career researchers or smaller TEOs, however this would likely negate reductions in transaction costs, as the TEC would have to run this process, and some TEOs would have to participate in both usual and mid-term Quality Evaluations.

A longer timeframe would allow the TEC more time to implement any changes and prepare for the potential of a markedly changed Quality Evaluation process (ie carrying out group-based rather than individual-based assessment). This would ensure that any changes were well-implemented and worked well for TEOs and research staff. It would also give TEOs more time to prepare for a different process.

A longer cycle would help avoid the burden on peer review panels. The TEC has reported difficulties in finding sufficient members for some panels (e.g. MEDPH, SSOCCS) and Maori, Pasifika, and ITP panellists across the board. This would be compounded if the next Quality Evaluation required more panellists. However, in a survey of panellists following the 2018 Quality Evaluation, when asked if they would consider being a panellist in the future, 50% said they definitely would, and 30% said they probably would (with the caveat that this does not address whether their TEO would be willing to support them to do so given the high workload).

If substantive changes arise from the PBRF Review, then the usual engagement with the sector will have to be compressed to meet the next Quality Evaluation deadline in 2024. This engagement with the sector has been a critical success factor in past Quality Evaluations, as the TEC has built consensus about the peer review process.

### *Shorter Quality Evaluation cycle*

While moving to a shorter cycle is also a potential consideration, a short timeframe would compromise the TEC's ability to maintain a high-quality IT system. This could, depending on the nature of the changes, require significant alternations to their current system, or an entirely new system. In turn, this could have implications for the robustness of the Quality Evaluation process.

### ***Use of Simpler Metrics***

There has been discussion of the New Zealand Research Information System (NZRIS) and if the metrics from that could be used in the PBRF and vice versa. Currently under development, NZRIS will be a national, online hub of information on the research, science and innovation sector. There is the potential for greater alignment of different data collection, such as with the PBRF and NZRIS, which would mean data could be more easily reused by research staff (instead of having to start afresh every time and rework their data).

However it should be noted that this would likely only apply to some research areas. In addition, some respondents that we talked to had some concerns around this, such as that it would not currently pick up non-traditional outputs, and be a much narrower set of metrics. It would also need to address the fact that all the universities currently have different management systems, and would likely need funding to shift to the same system. We will be having a presentation from MBIE on where this work is at, and the potential for it to be part of the PBRF.

Current research suggests that peer assessment is best practice in the evaluation of research and warns against a reliance on bibliometric indices. Further information on this is annexed. We will also be providing you with a separate report on metrics and the PBRF from the Ministry's data analytics team.

### ***Introduction of Self-Assessment***

In the original recommended model for the PBRF (as outlined in the 2000 Tertiary Education Advisory Commission report) the quality evaluation component was to be determined using a system of institutional self-assessment, subject to five-yearly external audits of random samples, conducted by independent, multi-disciplinary assessment panels. This system was seen as having the advantage of lower transaction costs than the British and Hong Kong systems of the time.

However, the Working Group set up subsequently, recommended external peer review to evaluate the quality of researchers, rather than self-assessment audited by external panels, determining that this would build the credibility of the PBRF and develop widespread understanding of the research quality standards.

This has resulted in a generally internationally well respected and robust system. Any shift to the originally envisaged self-assessment system would bring the potential for new issues. A stringent auditing system would be needed, to avoid any accusations of bias by TEOs when assessing the research of their own research staff. In addition, there is the potential that a peer review system might need to be maintained in some form for smaller TEOs which have less capacity to run a self-assessment process. This means there would likely not be a large reduction in overhead costs for the TEC.

On self-assessment most universities do practice a preparatory form of this, with mock panels set up to assess research before it is submitted. This is also done in some smaller TEOs in much more informal ways, although in general there is much less resource and capacity for this in smaller organisations, so the introduction of self-assessment would disproportionately increase their transaction costs (or they would be unable to run a self-assessment process, as noted above).

### ***Adjustment of Funding Proportions across the Three PBRF Components***

A shift to a lower proportion of the total fund being allocated based on the results of the QE<sup>4</sup>, could signal that less emphasis and resources should be spent on it by TEOs and their staff. However this would disadvantage the non-university TEOs<sup>5</sup>. Also, as noted above incentives to continue to focus heavily on the QE would remain as TEOs often publicise their QE results heavily.

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<sup>4</sup> Currently 55% QE, 25% research degree completions, 20% external research income

<sup>5</sup> For the 2019 initial allocations, universities received 54.4% of their funding from the QE component, while ITPs received 72.6%, PTEs received 87.9% and wānanga received 47.1%

If a decision is made to introduce a separate component relating to the impact of research, the proportionality of the current three components will have to be adjusted to accommodate this (ie a decision made about how to reduce the current proportions, and how much to assign to impact).

Proactively Released

## Annex 1: Research on the use of metrics and best practice in research evaluation

International best practice and statements of evaluation of research strongly oppose metrics as a sole measure of research quality, and state that peer review is the appropriate method for accurate assessment.

*“Our correlation analysis of the REF2014 results at output-by-author level (Supplementary Report II) has shown that individual metrics give significantly different outcomes from the REF peer review process, and therefore cannot provide a like-for-like replacement for REF peer review.”<sup>6</sup>*

*“Peer review, adhering to strict standards, is widely accepted as by far the best method for research evaluation.”<sup>7</sup>*

*“There has been too much reliance on bibliometric indices and indicator-based tools as measures of performance by many evaluation committees and exercises, leading to the danger of superficial, over-simplified and unreliable methods of evaluation. This bad practice involving the misuse of metrics has become a cause for serious concern.”<sup>8</sup>*

*“There is a serious danger that undue emphasis on bibliometric indicators will not only fail to reflect correctly the quality of research, but may also hinder the appreciation of the work of excellent scientists outside the mainstream; it will also tend to promote those who follow current or fashionable research trends, rather than those whose work is highly novel and which might produce completely new directions of scientific research. Moreover, overreliance on citations as a measure of quality may encourage the formation of aggregates of researchers (or “citation clubs”) who boost each other’s citation metrics by mutual citation. It thus becomes important to concentrate on better methods of evaluation, which promote good and innovative scientific research.”<sup>9</sup>*

*“Bibliometric data cannot be used as a proxy for expert assessment. Well-founded judgment is essential. Overemphasis on such metrics may seriously damage scientific creativity and originality.”<sup>10</sup>*

The Journal Impact Factor, as calculated by Thomson Reuters\*, was originally created as a tool to help librarians identify journals to purchase, not as a measure of the scientific quality of research in an article. With that in mind, it is critical to understand that the Journal Impact Factor has a number of well-documented deficiencies as a tool for research assessment. These limitations include: A) citation distributions within journals are highly skewed [1–3]; B) the properties of the Journal Impact Factor are field-specific: it is a composite of multiple, highly diverse article types, including primary research papers and reviews [1, 4]; C) Journal Impact Factors can be manipulated (or “gamed”) by editorial policy [5]; and D) data used to calculate the Journal Impact Factors are neither transparent nor openly available to the public [4, 6, 7].<sup>11</sup>

<sup>6</sup> P ix [https://responsiblemetrics.org/wp-content/uploads/2019/02/2015\\_metricride.pdf](https://responsiblemetrics.org/wp-content/uploads/2019/02/2015_metricride.pdf)

<sup>7</sup> P 1 Statement on good practice in the evaluation of researchers and research programmes by three national Academies - Académie des sciences, Leopoldina and Royal Society <https://www.academie-sciences.fr/pdf/rapport/avis111217.pdf>

<sup>8</sup> <https://www.academie-sciences.fr/pdf/rapport/avis111217.pdf> P 1-2

<sup>9</sup> <https://www.academie-sciences.fr/pdf/rapport/avis111217.pdf> P 2

<sup>10</sup> <https://www.academie-sciences.fr/pdf/rapport/avis111217.pdf> P 3

<sup>11</sup> <https://sfdora.org/read/>

## **Annex 2: International Comparisons**

Overall, many of these issues are not specific to the PBRF – any system that assess research performance with a strong peer review element encounters the issue of high transaction costs.

### ***United Kingdom***

The Research Excellence Framework (REF) in the UK is a group-based assessment model. “The £212M cost of preparing the REF submissions comprises an element for preparing impact submissions, £55M, and an element for all other costs incurred by HEIs, £157M. This £212M may include double-counting, reflecting the challenge for sample HEIs in distinguishing additional REF-related costs from 'business as usual' (i.e. the underlying cost of managing research quality) and the difficulty to confidently separate the costs related to their impact submission from all REF-related costs. The £212M cost to the UK HE community overall yields a cost per submitted researcher of around £4K.”<sup>12</sup>

### ***Australia***

The Excellence Research Assessment has a much shorter review cycle of three years, which means TEOs, research staff, and government incur transaction costs more often. However they also use a mixed method system (some subjects are assessed using metrics, others with peer review), which does reduce transaction costs in some areas.

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<sup>12</sup> REF Accountability Review: Costs, benefits and burden. <https://www.technopolis-group.com/report/ref-accountability-review-costs-benefits-and-burden/>