Tertiary Education Commission
Te Amorangi Mātauranga Matua

Performance-Based Research Fund

Sector Reference Group – Consultation Paper #6

Developing Evidence Portfolios – operational guidance for the Research Output component

Contents

Name	Status	Distribution
Developing Evidence Portfolios – operational guidance for the Research Output component	CONSULTATION PAPER	Tertiary education sector and other stakeholders Online feedback to: https://www.surveymonkey.com/s/TCPVGZV Other feedback and questions to: PBRFSRG@tec.govt.nz Closing date: 5pm Friday 8 May 2015

Purpose

1. This paper has been prepared as part of the consultation for the design of the 2018 Quality Evaluation. Specifically it:

    - provides information about the review of the PBRF by the Ministry of Education and the decisions made by Cabinet in relation to changes to the Research Output component;

    - provides information about the background and purpose of the Research Output component, as well as the issues arising from the 2012 Quality Evaluation;

    - sets out the proposed operational framework for the submission of items of Research Output in the 2018 Quality Evaluation;

    - invites feedback on the proposals set out in this paper; and

    - invites feedback on any other matters relating to the Research Output component not covered in this paper.

2. This paper does not include any discussion about changes to the data specifications required for the submission of Evidence Portfolios (EPs); however a sub-group of the Sector Reference Group will be formed and these issues will be addressed through consultation on the technical requirements for data submission for the 2018 Quality Evaluation.

Design principles for the 2018 Quality Evaluation

3. The work of the Sector Reference Group (SRG) in the design of the 2018 Quality Evaluation is based on the following principles and considerations:

    - upholding the objectives and aims of the Performance-Based Research Fund (PBRF) set out in Appendix 1;

    - drawing on the lessons learned as part of the previous Quality Evaluations;

    - accessing relevant experience and expertise across the SRG and the wider tertiary education sector;

    - ensuring that any proposed changes are exposed to rigorous sector and expert scrutiny;

    - achieving a level of consensus regarding how the 2018 Quality Evaluation should be conducted; and

    - avoiding changes that result in unreasonable compliance or high costs unless there is a robust rationale that indicates changes will result in significant improvements.

Background to the Research Output component

4. In the 2003, 2006 and the 2012 Quality Evaluation, the Evidence Portfolios (EPs) submitted by a tertiary education organisation (TEO) for their eligible staff members consisted of three assessable components:

    - The Research Output component which consisted of up to four nominated research outputs (NROs) and up to 30 other research outputs (OROs). The purpose of this component was to highlight the quality of the staff member's research, along with reflecting the breadth and/or depth of their research activity, through their overall platform of research (both the NROs and OROs). This component accounted for 70% of the total score available.

    - The Peer Esteem (PE) component which consisted of up to 30 items of esteem. In the context of PBRF this is used as an indicator of the quality of the staff member's research. It was concerned with the recognition of the staff member's research by their peers, rather than esteem for the staff member's other activities within the TEO, their subject area, or the academic community. This component accounted for 15% of the total score available.

    - The Contribution to the Research Environment (CRE) which consisted of up to 30 items of the contributions that the staff member had made to a vital, high-quality research environment. This component accounted for 15% of the total score available.

5. The PE and CRE components have been merged into a single Research Contribution component for the 2018 Quality Evaluation. An operational framework for the Research Contribution component has been proposed by the SRG in a previous paper.

6. The operational details for the submission of Research Outputs to the 2012 Quality Evaluation were set out in the *PBRF Quality Evaluation Guidelines 2012* ("2012 Guidelines"). The operational guidelines for completing the Research Output component for the 2012 Quality Evaluation have been included in this paper as Appendix 2.

7. There are three criteria which determine the eligibility of research outputs in the context of the Quality Evaluation exercise. In order to be eligible, outputs must be:

    - an output of research as defined for the purposes of the PBRF; and

    - produced (i.e. published, publicly disseminated, presented, performed or exhibited) within the relevant assessment period; and

    - made available to, and assessable by, a peer review panel.

Audit of eligible Research Outputs

8. As part of the conduct of the 2012 Quality Evaluation, the TEC audited the validity of NROs and OROs submitted in EPs. The TEC auditors sampled 10.4% of NROs and 5.2% of OROs, targeting outputs identified as being published in the periphery of the assessment period (2006 and 2011). In addition to the outputs sampled, the TEC

received 165 requests from peer review panels for the auditors to review additional outputs where they believed there were anomalies. [1]

9. The auditors identified both serious and minor errors in outputs submitted.

Table 1: Research Output errors in the 2012 Quality Evaluation

Error type	Volume	
	NRO	ORO
Did not meet the PBRF Definition of Research	1	0
Produced outside the assessment period	45	248
Did not exist / unable to be located	0	4
Similar content to another output in EP	5	4
Incorrectly stating Quality Assured	7	10
Incorrectly classifying as the Research Output type	9	5
Incorrect authorship	20	6
Minor errors	20	11

10. The issues that arose regarding the interpretation and application of each of the three research output eligibility criteria were not systemic. However, they have highlighted the need for further work to ensure that the criteria are unambiguous, and that operational guidance is interpreted and applied consistently across participating TEOs.

Ministry of Education review of the PBRF

11. During 2012/2013 the Ministry of Education undertook a review of the PBRF in collaboration with the Ministry of Business, Innovation and Employment and the TEC.

12. This review sought to build on the existing performance of the PBRF to identify how it could be improved. It included a specific focus on what changes could be considered to increase the efficiency of the PBRF by simplifying the Quality Evaluation process.

13. Between August and October 2013, public feedback was sought on a range of proposed changes. One of these changes was a proposal to reduce the number of "Other Research Outputs" (OROs) in the Research Output component of an EP from 30 down to five.[2]

14. The rationale for this proposal was that the time spent by staff collecting and collating research outputs for EPs is a significant source of transaction costs, and that reducing the number of OROs that can be included would reduce the time spent by researchers collecting and collating this information, and by panels assessing this information, while

[1] TEC, Report from the Audit workstream, 9 April 2013, pp.8-11.

[2] Ministry of Education, Review of the Performance-Based Research Fund Consultation Document, August, 2013, p.18.

still providing sufficient information to allow for robust assessments. It was also noted that this change would allow for an increased proportion of research outputs to be audited by the TEC, strengthening the robustness of the data assessed through the Quality Evaluation process.

15. Feedback received by the Ministry of Education indicated general support for the principle of the proposal. However, it was generally considered that five outputs were too few for a robust assessment.[3] The proposal was amended in light of this feedback, and in February 2014, Cabinet agreed that the number of OROs that could be included in EPs would be reduced from 30 to 12. This change will be implemented for the 2018 Quality Evaluation.

Proposed operational guidance on the Research Output component

16. The 2012 Guidelines provided the sector with advice on what could be included within EPs. The guidelines for the 2018 Quality Evaluation ("2018 Guidelines") will similarly provide operational details on developing the Research Output component of an EP.

17. The SRG has worked on the following assumptions when developing the operational guidance for the Research Output component proposals:

- The 2018 Quality Evaluation will operate on an assessment period of 1 January 2012 to 31 December 2017.
- In order for items to be eligible for inclusion in EPs submitted to the 2018 Quality Evaluation, they must have been 'publicly available' within the assessment period.
- Four NROs and up to 12 OROs (if four NROs have been included) can be included in an EP.
- The information fields and the character limits for the Research Output component will not differ significantly.
- The minimal evidence requirement for new and emerging researchers to have the potential to secure the Quality Category "C(NE)" remains in place and relevant to the Research Output component.[4]
- The component will account for 70% of the total score available.

[3] Ministry of Education, Review of the Performance-Based Research Fund, Summary of Submissions received on the Review of the Performance-Based Research Fund Consultation Document, March, 2014, pp. 41-44.

[4] In order for a new and emerging researcher to have the potential to secure the new Quality Category "C(NE)", evidence will need to be provided that includes **at least** the following:

a) The successful completion of a Doctoral degree or equivalent during the assessment period for the Quality Evaluation **AND** 'Other' research outputs of an adequate quality and quantity, bearing in mind the time period during which the staff member has been PBRF-eligible (a minimum of two quality-assured research outputs would normally be expected); OR

b) Research outputs equivalent to a) above.

What counts as research in the context of PBRF

The PBRF Definition of Research

18. The PBRF Guidelines provide a general Definition of Research that underpins the operation of the PBRF. This definition applies to all research outputs within the context of the Quality Evaluation process and was specifically intended to be a broad characterisation of research, including original investigation of a professional and applied nature.

19. This definition has been in place for the previous three Quality Evaluation processes, with peer review panels providing further elaboration of the definition within their panel-specific guidelines for greater disciplinary context.

20. The definition also aligns with the definition of research used in international research assessment exercises, however the definition of research used in the United Kingdom's 2014 Research Excellence Framework (REF) is considered to be more inclusive of different types of research, while being more concise than that used in the PBRF.

For the purposes of the REF, research is defined as a process of investigation leading to new insights, effectively shared.

It includes work of direct relevance to the needs of commerce, industry, and to the public and voluntary sectors; scholarship[1]; the invention and generation of ideas, images, performances, artefacts including design, where these lead to new or substantially improved insights; and the use of existing knowledge in experimental development to produce new or substantially improved materials, devices, products and processes, including design and construction. It excludes routine testing and routine analysis of materials, components and processes such as for the maintenance of national standards, as distinct from the development of new analytical techniques. It also excludes the development of teaching materials that do not embody original research.

It includes research that is published, disseminated or made publicly available in the form of assessable research outputs, and confidential reports (as defined at paragraph 115 in Part 3, Section 2).

[1]Scholarship for the REF is defined as the creation, development and maintenance of the intellectual infrastructure of subjects and disciplines, in forms such as dictionaries, scholarly editions, catalogues and contributions to major research databases. [5]

21. The definition of research used in the 2015 Excellence in Research for Australia (ERA) exercise is also more concise and focussed on the core principles of research.

For the purposes of ERA, research is defined as the creation of new knowledge and/or the use of existing knowledge in a new and creative way so as to generate new concepts, methodologies, inventions and understandings. This could include synthesis and analysis of previous research to the extent that it is new and creative.[6]

[5] Higher Education Funding Council for England, 2014 Research Excellence Framework (REF) Assessment framework and guidance on submissions, July 2011, p.48.

[6] The Australian Research Council, Excellence in Research for Australia (ERA) 2015 Submission Guidelines, 2014, p.12.

Concerns regarding the PBRF Definition of Research

22. Following the 2012 Quality evaluation, questions were raised as to whether the Definition of Research appropriately reflects research of an applied or commercial nature or supports the differentiation of research from professional practice in areas like the creative and performing arts.

23. The Professional and Applied Research Expert Advisory Group (PAR EAG), which was introduced for the 2012 Quality Evaluation to provide advice to peer review panels on research of an applied, professional or commercial nature ("applied research"), noted concerns about the low volume and quality of the submissions with an applied research element. The feedback indicated that there was further work required to articulate what could be considered applied research in the PBRF context.

24. The Creative and Performing Arts (CPA) panel also identified that a limited definition of creative research meant that it was difficult for the sector to accurately differentiate creative professional practice from research. This compounded problems with the application of the new and emerging research criteria. This issue is explored in more detail in the consultation paper on staff eligibility.

25. The SRG acknowledges the concerns raised by those researchers whose outputs are of a more applied, commercial or creative nature. To address this, the SRG proposes a revision of the definition of research which encompasses this wider scope. The SRG seeks feedback on the proposed definition below.

For the purposes of the PBRF, research comprises original, independent investigation undertaken in order to contribute to knowledge and understanding and, in the case of some disciplines, cultural innovation or aesthetic refinement. It includes work of direct relevance to the specific needs of national and international businesses and communities, iwi, government and society.

Research findings are normally publicly available and must be open to scrutiny and rigorous assessment by experts within the field and other stakeholders. Public availability may be achieved through various forms of appropriate dissemination including, but not limited to publication, manufacture, construction, confidential reports or public presentation.

In some disciplines, the investigation and its results may be embodied in the form of artistic works, performances and or designs that lead to new or substantially improved insights. Research can also include the use of existing knowledge in experimental development to produce new or substantially improved, materials, products, communications or processes. Research may also contribute to the intellectual infrastructure of subjects and disciplines (e.g. dictionaries and scholarly editions).

Under this definition of research, activities that are part of routine standard practice or do not embody original research are excluded. This includes but is not limited to: routine testing; data-collection and analysis; preparation for teaching (where it does not embody original research); the legal and administrative aspects of commercialisation activities; and professional activities that do not meet the Definition of Research.

26. The SRG also recommends that peer review panels specifically consider the definition of research and develop any specific advice in relation to their subject areas as part of the panel specific guidelines.[7] The SRG seeks feedback on this proposal.

Eligibility of patents as research

27. In the 2012 Quality Evaluation, the eligibility of patents was questioned and there was inconsistent treatment across participating TEOs. The definition of research used in the 2012 Quality Evaluation excluded "The commercial, legal and administrative aspects of patenting, copyrighting or licensing activities" as research.[8] In addition, the 2012 Guidelines required the evidence for patents submitted as NROs or OROs to be confirmation that the patent or trademark had been granted (i.e. a "Copy of the letter confirming the granting of the patents or trademark including the date of acceptance…" and "The letter confirming the granting of the patents or trademark including the date of acceptance (i.e. the date the patent or trademark was granted)..").[9] The panel-specific guidelines of one peer review panel (Physical Sciences) specifically stated "Patents will be considered only if they have been granted and are available to the panel".[10]

28. Based on this information, the TEC identified 255 patent applications where the patent had not been granted and these were removed from EPs.[11]

29. The TEC recognised that there are different stages in the patenting process. However, for the purposes of the 2012 Quality Evaluation only granted patents were considered eligible research outputs. Although the TEC felt that this area of the PBRF Guidelines was clear and unambiguous, it was seen as an area that could be reviewed prior to any future Quality Evaluation processes as there are direct international comparisons.

30. In the United Kingdom's 2014 Research Excellence Framework (REF), both granted patents and published patent applications were eligible research outputs. However, if a patent application was submitted to the 2008 Research Assessment Exercise, the granted patent was not eligible for the subsequent REF.[12] This is in contrast to the 2015 Excellence in Research for Australia (ERA) exercise which only allows granted patents under specific criteria to be submitted as eligible research outputs.[13]

31. It should also be noted that the Professional and Applied Research Expert Advisory Group (EAG) commented in their final report that "In itself, a patent does not constitute the successful application of a body of research. As a consequence, without additional and specific evidence of the application of that intellectual property, EAG Members were unable to assess actual impact, and scored the EP accordingly."[14]

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[7] The TEC is currently seeking feedback from the sector on establishing panels early for the purpose of developing these guidelines early in the process.

[8] TEC, PBRF: Quality Evaluation Guidelines 2012, May 2013, p.25.

[9] TEC, PBRF: Quality Evaluation Guidelines 2012, May 2013, p.188.

[10] TEC, Physical Sciences panel-specific guidelines 2012 Quality Evaluation, September 2011, p.4.

[11] Note that these were listed in the "Report from the Audit workstream" as being produced outside of the assessment period.

[12] http://www.ref.ac.uk/about/guidance/faq/researchoutputsref2/

[13] The Australian Research Council, Excellence in Research for Australia (ERA) 2015 Submission Guidelines, 2014, pp. 57-58.

[14] TEC, Professional and Applied Research Expert Advisory Group: Final Report, April 2012, p.5.

32. The SRG seeks feedback on the following options:

- Option 1: Maintain the status quo and allow only granted patents as eligible research outputs.

- Option 2: Allow both granted patents (as Quality Assured research outputs) and patent applications (as non-Quality Assured research outputs) as eligible outputs for the 2018 Quality Evaluation, with a granted patent not being allowed for any subsequent Quality Evaluation exercises by the researcher if the application has been submitted (this is the SRG's preferred option).

The Quality Evaluation assessment period

Determining eligibility of research outputs in the assessment period

33. The main principle governing the inclusion or exclusion of a research output in the PBRF Quality Evaluation process concerns the date when it was first available (i.e. produced, published, publicly disseminated, presented, performed or exhibited) in the public domain. This date needed to be within the assessment period of 1 January 2006 to 31 December 2011.

34. With the increasing availability of publications online during the 2012 Quality Evaluation assessment period, concerns were raised by the sector about the eligibility of research outputs. Concerns centred on examples where an output had an imprint date within the assessment period but the final version was available online prior to the assessment period, or examples where a pre-publication version, for example a proof copy or Accepted Manuscript, was published online during the assessment period but the final version was published after 31 December 2011.[15]

35. Based on the information set out in the Guidelines, the TEC confirmed that the relevant date for determining output eligibility was the date the final version of the output first became publicly available (in the public domain). For example, where the date of imprint differed from the date of actual publication in the public domain, then the date when it was in the public domain determined the output's eligibility not the date of imprint.

36. In cases of online publication, the TEC used the publication history on the publisher's website to determine the date the output was in the public domain. In these cases, where the status (as indicated by the publisher) showed that the final version of the output was published prior to printing, that date determined eligibility. It is acknowledged that the format of this status can differ, for example:

- "Received: [date] / Accepted: [date] / ***Published online***: [date]" (Springer Link)

- "Received [date], Revised [date], Accepted [date], ***Available online*** [date]" (Elsevier)

- "Issue published online: [date]; ***Article first published online***: [date]; Manuscript Received: [date]; Manuscript Accepted: [date]" (Wiley Online Library)

- "***Published ahead of print*** [date]" (Proceedings of the National Academy of Science)

[15] For written publications (such as books, journal articles and conference proceedings), the date of production will generally be that indicated by its date of imprint. However, the date of imprint can and does differ from the date of actual publication (e.g. in the case of journal volumes relating to a particular year in a sequence but actually published in a different year).

37. Where there was no information that indicated online publication, the date of imprint was used by the TEC's auditors to determine eligibility.

38. The TEC provided the following clarification to the sector to assist with determining eligibility of research outputs following the resolution of sector concerns:

    - Research outputs must have been first made publicly available within the assessment period (1 January 2006–31 December 2011) unless claiming the alternative assessment period under the Canterbury Earthquakes Special Circumstance.

    - Where the date of imprint differed from the date of actual publication in the public domain, then the date when it was in the public domain determines the output's eligibility not the date of imprint.

    - If the final version of a nominated research output (NRO) is not available, an accepted manuscript can be submitted if the publication date of the final version is within the assessment period.

    - Research outputs that have completed quality-assurance processes, but which have not been made readily available in the public domain within the assessment period, are not eligible for inclusion in EPs as either a quality-assured or a non-quality-assured research output.

    - Where a research output is on the cusp of the assessment period, TEOs and researchers must assess its eligibility based on the date when it was first made available in the public domain.

    - Where relevant, information about the date of online publication, either on the output or on the publisher's website, can be used to establish the date when an output was first in the public domain. Information in an output's digital object identifier should not be considered as evidence of the publication date.

    - Any variance between the date of imprint and date of actual publication in the public domain can be explained in the description field of the research output referenced in the EP. Tertiary education organisations (TEOs) must be able to provide evidence of the actual date of publication in the public domain if this is requested for audit purposes. Researchers may wish to contact their publishers if there are any doubts regarding the first publication date of a research output.

39. This advice reflects the advice provided to higher education institutions (HEIs) participating in the 2014 REF in the United Kingdom, which specifies that "The relevant date for determining whether or not an output was produced within the publication period, and hence is eligible for submission, will be the date at which the submitted output first became publicly available".[16] The 2015 ERA in Australia also has similar date of publication rules that differentiate between actual and listed dates of publication.[17]

[16] Higher Education Funding Council for England, 2014 Research Excellence Framework (REF) Assessment framework and guidance on submissions, July 2011, p.22.

[17] The Australian Research Council, Excellence in Research for Australia (ERA) 2015 Submission Guidelines, 2014, p.34.

40. The SRG recommends maintaining the existing principle of research output eligibility, which is that the inclusion or exclusion of a research output relates to the date when the final version of that output was first available in the public domain but clarifying the wording of the guidance. The SRG seeks feedback on this proposal and the proposed guidance below:

Policy

A research output can be included in the Research Output component of an EP (either as an NRO or as an 'other' research output) when the final version was first made available in the public domain (i.e. published, publicly disseminated, presented, performed or exhibited) during the assessment period (i.e. 1 January 2012 – 31 December 2017).

This means that research outputs can only be eligible in one Quality Evaluation assessment period. Research outputs first publicly available prior to 1 January 2012, or after 31 December 2017 cannot be included for the 2018 Quality Evaluation round.

Eligibility for inclusion

The basic principle governing the inclusion or exclusion of a research output concerns the date when the final version was first made available in the public domain.

To be eligible for inclusion, a confidential research output or a commissioned report for an external body must have been completed and made available to those who commissioned the research within the assessment period.

Date of imprint outside the assessment period[18]

For written publications (such as books, journal articles and conference proceedings), the date of production is often indicated by its date of imprint. However, the final versions of written publications that are 'pre-published' online (for example, an 'online first' or 'published before print' article) during the assessment period are eligible for inclusion.

> *For example: for a written output where the final version was available online ('online first') on 30 January 2012 and had an imprint date of 30 March 2012, the date of production would be considered to be 30 January 2012.*

Outputs 'pre-published' on or before 31 December 2011 but have imprint dates within the assessment period are not eligible for submission as they are considered to have been publicly available prior to the assessment period.

> *For example: for a written output where the final version was available online ('online first') on 12 December 2011 and had an imprint date of 30 March 2012, the date of production would be considered to be 12 December 2011.*

Any outputs that have imprint dates that fall outside the assessment period but the final version of the output was publicly available within the assessment period are eligible for submission.

> *For example: for a written output where the final version was available online ('online first') on 30 December 2017 and had an imprint date of 28 February 2018, the date of production would be considered to be 30 December 2017.*

Staff members can explain this variance for the relevant NRO in the Description field of the NRO referenced in the EP. Please note that such an explanation is required only for NROs. It is not required for any of the 'other' research outputs.

[18] This guidance uses the NISO definition for imprint date or date of publication which is "the nominal date of creation or issue of a work designated by the publisher or creator of the work."

Where the actual publication date differs from the date of imprint, TEOs may be asked to provide evidence of the actual date of publication for audit purposes.

Accepted Manuscript provision

41. In the 2003 and 2006 Quality Evaluation exercises, it was expected that the final published version of nominated research outputs (NROs) would be physically supplied to the TEC by the TEO for examination by panel members.

42. The 2012 Quality Evaluation introduced an online system that supported and encouraged NROs to be supplied in an electronic format. Concerns were raised that accessing NROs electronically could breach copyright. The previous SRG recommended that Accepted Manuscripts (defined by NISO standard RP-8-2008) could be submitted as evidence only for the purpose of assessment by panels. The rationale was that Accepted Manuscripts are usually not subject to the same copyright restrictions and therefore more likely to be accessible to the TEC, TEOs and panel members. As Accepted Manuscripts were to be supplied as evidence only, the final version of the NRO was still required to have been publicly available within the assessment period (1 January 2006 – 31 December 2011). This provision did not apply to other research outputs (OROs) as no physical evidence is required for assessment. This recommendation was agreed and implemented by the TEC.

43. In order to address these concerns, the TEC negotiated a copyright agreement with Copyright Licensing Limited (now Copyright Licensing New Zealand) to support the provision of NROs electronically for the purpose of assessment. This agreement allowed panellists to access the information provided by the TEOs without breaching copyright. Participating TEOs also held similar agreements, and the TEC and Copyright Licensing Limited provided advice to TEOs regarding the sharing of information for the 2012 Quality Evaluation.

44. No copyright breaches were identified as a part of the 2012 Quality Evaluation and the TEC will negotiate another agreement with Copyright Licensing New Zealand for the 2018 Quality Evaluation to provide similar protections against potential breach of copyright.

45. An additional Accepted Manuscript provision was introduced following the earthquakes in Canterbury. In order to assist staff members affected by the earthquakes, it was decided that an Accepted Manuscript could be submitted as an NRO in its own right if the manuscript had been accepted for publication within the assessment period but the publication date of the final version had been delayed beyond 31 December 2011. All the provisions put in place for the Canterbury Earthquake Special Circumstances will be reviewed as part of a paper later in 2015 and this aspect will also be considered as part of that work.

46. During the audit process the TEC identified 18 research outputs which did not meet the requirements under the Accepted Manuscript provisions and which were subsequently removed from EPs.

47. The SRG seeks feedback on the following options:

    - Option 1: Maintain the Accepted Manuscript provision but clarify that the provision only relates to the submission of evidence for an eligible NRO, and that Accepted Manuscripts are not eligible NROs in their own right (this is the SRG's preferred option).

- Option 2: Remove the Accepted Manuscript provision to reduce ambiguity of the NRO requirements.

Research Output information required for the Evidence Portfolio

48. Following the 2012 Quality Evaluation, the peer review panels and the expert advisory groups identified a number of recommendations for change for future evaluation exercises that would support the assessment process. One of the common recommendations from those involved was improving the type and quality of information and evidence provided within an EP for nominated research outputs.

Research output types

49. In previous Quality Evaluations, staff members have had to choose up to four Nominated Research Outputs (NROs) and having met that threshold, up to 30 Other Research Outputs (OROs) to include in their EP. These outputs were required to be categorised as one of 31 Research Output types. In comparison, the 2014 REF in the United Kingdom used seven output types while the 2015 ERA exercise in Australia uses nine output types.[19]

50. Although the Guidelines listed the output categories, definitions were not included, which led to confusion in the categorisation of outputs in some cases and inconsistency in the use of output types across the sector. Further, the large number of output types and sub-types appeared to overlap and create unnecessary complexity.

51. The SRG proposes 16 Research Output types which aggregate the previous 31 types. The proposed types can be found in Appendix 3.

52. The SRG seeks feedback on the following options:

- Option 1: Consolidating the list of output types to 16 types as identified in Appendix 3 (this is the SRG's preferred option).

- Option 2: Maintain the status quo.

53. Information was also provided on the evidence required for both NROs and OROs for audit purposes, and the 2012 Guidelines also provided information on what electronic or physical evidence could be submitted for NROs submitted in EPs for the 2012 Quality Evaluation. This will be included in the consultation on the draft Guidelines for the 2018 Quality Evaluation.

Quality assurance

54. Research Outputs submitted to the Quality Evaluation process are required to indicate if they are or are not Quality Assured. The 2012 Guidelines note that for a Research Output to be identified as Quality Assured it must have successfully completed a formal quality-assurance process. This is taken to mean the output must have been subject to formal, independent scrutiny by those with the necessary expertise and/or skills to

[19] 2014 REF types were books (or parts of books); journal articles and conference contributions; physical artefacts; exhibitions and performances; other documents; digital artefacts (including web content); and other. 2015 ERA types were books – authored research; book – chapters in research book; journal articles – refereed, scholarly journal; conference publications – full paper refereed; original creative works; live performances of creative works; recorded/rendered creative works; curated or produced substantial public exhibitions and events; and research reports for an external body.

assess its quality (including, where relevant, its rigour, logic, clarity, originality, intellectual significance, impact, applications, artistic merit, etc.). The 2012 Guidelines also state that research outputs will be assessed primarily on their quality. As a part of this, formal processes of academic peer review or other forms of quality assurance may provide the peer review panel with some assurance about quality. The absence of such review or other formal mechanisms of quality assurance will not in itself be taken to imply lower quality.[20]

55. Concerns have been raised that the current operational guidance on Quality Assurance in the PBRF context does not provide sufficient clarity on the Quality Assurance standards expected by panels, and that it does not sufficiently reflect the processes that are undertaken for some non-standard research outputs within Māori and Pacific research and applied research, and therefore outputs such as commissioned reports would be not weighted highly by panels. TEOs with strong industry connections were concerned that staff could potentially be disadvantaged by producing commissioned reports based on such a perception.

56. The SRG recommends that panels include specific guidance on the Quality Assurance standard expected (that is consistent with the definition) and detail acceptable formal Quality Assurance processes for non-standard research outputs as part of the panel-specific guidelines. The SRG seeks feedback on this recommendation.

57. The SRG also proposes to include additional examples of Quality Assurance processes for non-standard research outputs within the 2018 Guidelines (see proposed text below) and seeks feedback on this proposal.

Formal quality-assurance processes

Formal quality-assurance processes vary between different disciplinary areas. They include, but are not limited to:

- Peer-review or refereeing processes undertaken by journals and book publishers.
- Other review processes employed by editors, editorial committees or publishers.
- The refereeing of conference papers.
- A final report for commissioned research.
- Review processes specific to Māori or Pacific research processes and/or methodologies.
- Review processes undertaken by major galleries, museums and broadcasters.
- Review processes employed by users of commissioned or funded research.

[20] TEC, PBRF: Quality Evaluation Guidelines 2012, May 2013, p.52

"Other Comments" field

58. For the 2012 Quality Evaluation, EPs contained a field for "Other Comments". The 2012 Guidelines advised that where a staff member had fewer than four NROs they could provide a comment regarding this in the "Other Comments" field. The technical specification for completing EPs also noted that this field could be used for any relevant information on the nature, quantity, and quality of research outputs that demonstrates research quality during the assessment period. As a result of the limited information, there was little consistency in how this field was used by individuals or TEOs.

59. Feedback from panel members has indicated that this field was most useful when it provided a wider context for the staff member's 'platform of research'.

60. The SRG seeks feedback on the proposal to rename this section "Platform of Research - Contextual Summary" and on the following descriptor for the section:

The "Platform of Research - Contextual Summary" section allows staff members to provide information that will assist assessors to consider the research outputs and contributions presented in the EP in the wider context of the individual's research over the assessment period.

Presentation of Other Research Outputs

61. The 2012 Guidelines allowed all research outputs to be ordered in accordance with the staff member's preference and this order was retained when the panel member viewed the EP. Some TEOs submitting EPs to the 2012 Quality Evaluation clustered the 30 Other Research Outputs (OROs) by type, while others did not.

62. In addition to this, the Description field for OROs was used in different ways by different TEOs. Although the TEC advised that this field should be used for bibliographic information only to support the assessment and audit processes, some TEOs allowed staff to provide additional information regarding the researcher's contribution, as well as reflecting on quality and relevance and impact. Feedback from some peer review panels was for a greater level of consistency in the presentation of this information.

63. The SRG seeks feedback on the following options for presenting OROs by type:

    - Option 1: Maintain the status quo.

    - Option 2: Require OROs to be clustered by type but ordered in accordance with the staff member's preference (this is the SRG's preferred option).

64. The SRG also proposes that only bibliographic information, including that relevant to creative research types (advised in the panel-specific guidelines) be allowed in the ORO Description field.

Standardisation of information and evidence

65. The 2012 Quality Evaluation was the first time that the submission and accessing of NRO evidence was administered through an information technology (IT) system; a total

of 29,332 NROs were submitted.[21] Panels were required to examine a minimum of 25% of the NROs in the EPs they were responsible for assessing.[22]

66. Although the TEC allowed for the submission of physical evidence of NROs, the submission of evidence in electronic form was recommended and advice was provided that all links provided must take the user directly to the text of the NRO.[23] The IT system allowed TEOs to submit up to four web links or electronic documents as evidence for NROs and then allowed panel members to directly access these outputs for assessment. This system allowed panels to access over 80% of the submitted NROs in the assessment process.[24]

67. Panel members were often accessing and assessing up to 60 EPs and feedback from panels was reflective of aspects that would support the assessment process and ensure that the assessment was fair to all researchers. For example, panels indicated that the digital format was an extremely positive change to the assessment process. However, they also recommended a greater level of standardisation of NRO information and evidence as this would assist the assessment process by ensuring a high level of consistency across EPs. Examples of standardisation given included naming formats and specification of the type of information included in fields.

68. Panels also identified a number of issues relating specifically to the evidence submitted by TEOs including:

    - Web links that took the user to closed repositories or sites that required subscriptions.

    - Web links that took the user to internal TEO repositories or documents that asked the user to request the physical output directly from the TEO, potentially allowing the TEO to identify the panel member assessing the EP.

    - The submission of web links and electronic documents that were supporting documentation with no evidence of the actual research output.

    - The submission of poor quality PDF documents, sound files and other forms of visual evidence.

69. Addressing the issues raised above would ensure that staff members submitting EPs were not negatively impacted as a result of poor quality submissions.

70. The SRG recommends that:

    - greater standardisation of information and evidence be introduced for the 2018 Quality Evaluation; and

    - the rules regarding the information and evidence submitted in the Research Output are tightened to ensure that electronic links only go to the actual research, go to open

[21] TEC, Evaluating Research Excellence – the 2012 Assessment Final Report, October 2013, p.31.

[22] TEC, PBRF: Quality Evaluation Guidelines 2012, May 2013,, p.129

[23] Chapter 7 of the 2012 Guidelines provided more detailed information about the forms of evidence, media and formats for providing research outputs for assessment.

[24] TEC, Evaluating Research Excellence – the 2012 Assessment Final Report, October 2013, p.31.

sites (where applicable) and provide files of sufficient quality to be appropriately assessed.

71. The technical sub-group of the SRG will be responsible for the development of proposals to address these issues as well as specific information on the requirements; however the SRG welcomes feedback on the recommendations above.

Providing feedback

72. Feedback is sought from the sector and other key stakeholders on the information outlined in this paper, as well as the options for consideration.

73. The SRG also welcomes feedback on any other matters not included in this paper that relate to the Research Output component.

74. Feedback can be completed:

    - online: https://www.surveymonkey.com/s/TCPVGZV
    - or via email using the template provided on the TEC website, with completed templates being emailed to PBRFSRG@tec.govt.nz.

75. All feedback would be appreciated as soon as possible, but no later than 5pm Friday 8 May 2015.

Appendix 1: Objectives and principles of the PBRF

Objectives of the PBRF

The primary objectives of the PBRF are to:

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

In doing so the PBRF will also:

- support the development of postgraduate student researchers and new and emerging researchers;
- support research activities that provide economic, social, cultural and environmental benefits to New Zealand, including the advancement of Mātauranga Māori; and
- support technology and knowledge transfer to New Zealand businesses, iwi and communities. [25]

Principles of the PBRF

The PBRF is governed by the following principles:

- *Comprehensiveness*: the PBRF should appropriately measure the quality of the full range of original investigative activity that occurs within the sector, regardless of its type, form, or place of output;
- *Respect for academic traditions*: the PBRF should operate in a manner that is consistent with academic freedom and institutional autonomy;
- *Consistency*: evaluations of quality made through the PBRF should be consistent across the different subject areas and in the calibration of quality ratings against international standards of excellence;
- *Continuity*: changes to the PBRF process should only be made where they can bring demonstrable improvements that outweigh the cost of implementing them;
- *Differentiation*: the PBRF should allow stakeholders and the government to differentiate between providers and their units on the basis of their relative quality;

[25] The objectives were revised as a part of the Ministry of Education's review of the PBRF and agreed by Cabinet in February 2014.

- *Credibility*: the methodology, format and processes employed in the PBRF must be credible to those being assessed;

- *Efficiency*: administrative and compliance costs should be kept to the minimum consistent with a robust and credible process;

- *Transparency*: decisions and decision-making processes must be explained openly, except where there is a need to preserve confidentiality and privacy;

- *Complementarity*: the PBRF should be integrated with new and existing policies, such as charters and profiles, and quality assurance systems for degrees and degree providers; and

- *Cultural inclusiveness*: the PBRF should reflect the bicultural nature of New Zealand and the special role and status of the Treaty of Waitangi, and should appropriately reflect and include the full diversity of New Zealand's population. [26]

[26] These principles were first enunciated by the Working Group on the PBRF. See *Investing in Excellence*, pp.8-9.

Appendix 2: 2012 Quality Evaluation Guidelines – Information relating to the Research Output component

What Counts as Research?

Definition

For the purposes of the PBRF, research is original investigation undertaken in order to contribute to knowledge and understanding and, in the case of some disciplines, cultural innovation or aesthetic refinement.

It typically involves enquiry of an experimental or critical nature driven by hypotheses or intellectual positions capable of rigorous assessment by experts in a given discipline.

It is an independent*, creative, cumulative and often long-term activity conducted by people with specialist knowledge about the theories, methods and information concerning their field of enquiry. Its findings must be open to scrutiny and formal evaluation by others in the field, and this may be achieved through publication or public presentation.

In some disciplines, the investigation and its results may be embodied in the form of artistic works, designs or performances.

Research includes contribution to the intellectual infrastructure of subjects and disciplines (eg. dictionaries and scholarly editions). It also includes the experimental development of design or construction solutions, as well as investigation that leads to new or substantially improved materials, devices, products or processes.

* The term 'independent' here should not be construed to exclude collaborative work.

Excluded activities

The following activities are excluded from the Definition of Research except where they are used primarily for the support, or as part, of research and experimental development activities:

- Preparation for teaching
- The provision of advice or opinion, except where it is consistent with the PBRF's Definition of Research
- Scientific and technical information services
- General purpose or routine data-collection
- Standardisation and routine testing (but not including standards development)
- Feasibility studies (except into research and experimental development projects)
- Specialised routine medical care
- The commercial, legal and administrative aspects of patenting, copyrighting or licensing activities
- Routine computer programming, systems work or software maintenance (but **note** that research into and experimental development of, for example, applications software, new programming languages and new operating systems **is** included)
- Any other routine professional practice (eg. in arts, law, architecture or business) that does not comply with the Definition.**

** Clinical trials, evaluations and similar activities will be included, where they are consistent with the Definition of Research.

General Guidelines for the RO Component

Importance

The RO is the most important of the three assessment components of an EP (see "three components" on page 34). This component measures the quality of research through focusing on an assessment of research outputs.

Definition of research output

For a research output to be eligible for inclusion in an EP, it must be:

- An output of research as defined for the purposes of the PBRF – see Chapter 1 Section D: What Counts as Research? on page 25 of these Guidelines

  AND

- Produced (ie. published, publicly disseminated, presented, performed or exhibited) within the relevant assessment period – see The Meaning of the Assessment Period on page 57 of these Guidelines

  AND

- Able to be made available to, and assessable by, a peer review panel.

The only exception to the public dissemination of research outputs during the assessment period is for confidential research outputs (see Confidential Research Outputs on page 23 of these Guidelines).

Nominated research outputs (NROs)

Each EP contains (up to) four nominated research outputs (NROs). An NRO is an output nominated by the PBRF-eligible staff member as one of their best research outputs.

Judgement on merit

Research outputs will be assessed primarily on their quality:

- All research activity, whether basic, fundamental, strategic, artistic or applied, will be assessed against the same broad indicators of quality
- All types of research outputs will be considered on their merits. No particular research output will be considered to be of higher quality than any other simply because of their type
- Although formal processes of academic peer review or other forms of quality assurance may provide the peer review panel with some assurance about quality, the absence of such review or other formal mechanisms of quality assurance will not in itself be taken to imply lower quality.

Number of research outputs to be included

Staff members should select their best research outputs produced during the assessment period for inclusion as their (up to) four NROs. (See also Where NROs are Fewer than Four on page 66.)

(Up to) 30 'other' research outputs that meet the criteria for inclusion can also be included in the EP.

The (up to) four NROs and (up to) 30 'other' research outputs give a maximum of 34 research outputs for each EP. Where a staff member has produced more than 34 research outputs during the assessment period, they should select their better outputs for inclusion in the EP.

Ordering of research outputs

NROs may be ordered in the EP as the researcher wishes and this order will be retained when the panel member views the EP. Similarly, the "other" research outputs may be ordered as desired, and this order will be retained when the panel member views the EP.

Quality-assured and non-quality-assured outputs

Both quality-assured and non-quality-assured research outputs may be included as NROs or as 'other' research outputs. See Quality-Assured and Non-Quality-Assured Research Outputs on page 60 for further discussion on the meaning of 'quality-assured'.

Outputs with similar content

Some research outputs contain much material of a broadly similar, if not identical, nature to others. For example:

- A journal article may be a slightly revised version of an earlier refereed (or non-refereed) conference paper
- A book may draw heavily on material previously published by the author(s) in articles, chapters of other books or a thesis
- Exactly the same output may be published separately in two or more languages.

When selecting their NROs, staff members should not include outputs that are identical, or virtually identical, in nature and content to other NROs assessed in their PBRF evidence portfolios. This includes revised or modified versions of outputs that were submitted in previous Quality Evaluations and republished in the current assessment period.

Staff members may include outputs to which there have been minor changes in their list of 'other' research outputs, although the general criterion of selecting their best work still applies. If such an output is selected for inclusion, the Description field of the output should note that it is a modified version of another output.

Access by panel to research outputs

All of the NROs cited in an EP must be available for review by a panel. The preferred format for NRO availability is a link to an electronic version in a publicly available repository. If a link to an external repository is provided it must take the user directly to the text of the NRO.

If a link is not possible an electronic version of the NRO must be supplied by the TEO to the TEC. This electronic version will be stored in a temporary repository from which panel members may access it during the period of assessment. The links to or electronic versions of NROs must be supplied by the TEO to the TEC at the time the EP is supplied.

Up to five links or files can be provided for each NRO.

Where the panel requests a copy of the NRO and the actual provision of the NRO is unduly difficult or impossible – eg. where the research output is a large piece of art held in private ownership – alternative evidence of the output (eg. a digital photograph) should be presented instead.

Types of Research Output

Research outputs to be classified under their type

Research outputs include:

- Published academic work (such as books, journal articles, conference proceedings, and Masters or Doctoral theses)
- Work presented in non-print media (such as films, videos and recordings)
- Other types of outputs (such as intellectual property, materials, products, performances and exhibitions).

Research outputs are classified according to a number of types, as listed immediately below. Each research output included in an EP must be classified under one of these types.

If the panels consider it necessary for the purposes of assessing outputs in their discipline, further information about research output types will be supplied in the panel specific guidelines.

List of research output types

Research outputs may be one of the following types:

- Artefact/Object/Craftwork
- Authored Book
- Awarded Doctoral Thesis
- Awarded Research Masters Thesis
- Chapter in a Book
- Commissioned Report for External Body
- Composition
- Conference Contribution
    - abstract
    - full conference paper
    - conference paper in published proceedings
    - poster presentation
    - oral presentation
    - other
- Confidential Report for External Body
- Discussion Paper
- Design Output
- Edited Book
- Exhibition
- Film/Video
- Intellectual Property (eg. patent, trademark)
- Journal Article
- Literary translations, where these contain significant editorial work in the nature of research
- Monograph
- Oral Presentation
- Performance
- Scholarly Edition
- Software
- Technical Report
- Working Paper
- Other Form of Assessable Output (including but not limited to book reviews, magazine articles, new materials, structures, devices, images, products, buildings, food products and processes, published geological and/or geomorphological maps, and explanatory texts).

Selecting the research output type

The staff member should indicate the research output type that best matches each one of their (up to) 34 outputs. Where the research output has been reproduced in another medium (eg. performance that has been recorded, an exhibit has been filmed), the staff member should classify the research output in terms of its original form. For example, a performance may be recorded on a video but the research output type would be Performance (and not Video).

Confidential Research Outputs

Introduction

Some research outputs may be confidential for a variety of reasons. This topic provides guidance on how such research is to be handled.

Inclusion of confidential research outputs

Confidential research outputs (ie. outputs not in the public domain) may be listed in an Evidence Portfolio (EP) if the employing TEO can arrange all necessary permissions and make any other arrangements for members of peer review panels to access those research outputs if required.

Confidential Nominated Research Outputs (NROs) should not be emailed. The preferred means of providing them for assessment is for the TEO to put them into CD or DVD format and courier them to the TEC.

If confidential outputs are included in the list of 'other' research outputs, they will not be called for examination by the panel – but sufficient information has to be provided in the EP to enable the TEC to independently verify the existence of each output (which may include sighting the report).

It will not be adequate, for example, to include a confidential research output with a title of 'confidential report' and/or with no location details. The onus is on the staff member to provide an EP that can be assessed and verified, including any confidential NROs in the EP.

Examples of confidential research outputs

Confidential research outputs may include, but are not limited to:

- Commercially sensitive research reports
- Research and evaluations for government agencies that have not been released to the public
- Research for iwi, hapu or whanau that includes material relating to confidential and culturally significant knowledge.

Research output type

Confidential outputs must be listed in the EP under the research output type Confidential Report for External Body.

The Meaning of the Assessment Period

Policy

A research output **cannot** be included in the Research Output field of an EP (either as an NRO or as an 'other' research output) unless it was produced (ie. published, publicly disseminated, presented, performed or exhibited) during the assessment period (ie. 1 January 2006 – 31 December 2011). This means that research outputs produced prior to 1 January 2006 or after 31 December 2011 cannot be included for the 2012 Quality Evaluation round.

Staff members affected by the Canterbury Earthquakes are able to select an alternative assessment period of 1 January 2005 – 31 December 2010.

Eligibility for inclusion

The basic principle governing the inclusion or exclusion of a research output concerns the date when it was produced, and readily available in the public domain.

To be eligible for inclusion, a confidential research output must have been completed and made available to those who commissioned the research within the assessment period.

Date of imprint outside the assessment period

For written publications (such as books, journal articles and conference proceedings), the date of production will generally be that indicated by its date of imprint.

However, where the date of imprint differs from the date of actual publication and the imprint date falls outside the assessment period but the actual publication date was inside the period (eg. in the case of journal volumes relating to a particular year in a sequence but actually published in a different year), staff members should explain this variance for the relevant output in the Description field of the NRO referenced in the EP. Please **note** that such an explanation is required only for NROs. It is not required for any of the 'other' research outputs.

Where the actual publication date differs from the date of imprint, TEOs may be asked to provide evidence of the actual date of publication for audit purposes.

Accepted Manuscripts

If the final version of a Nominated Research Output is not available, a staff member will be able to submit an Accepted Manuscript (defined by NISO standard RP-8-2008) as a Nominated Research Output. An 'Accepted Manuscript' is to be understood as the author's final manuscript as accepted for publication at the completion of the peer review process. The publication date of the final version must be within the assessment period, except in the following case.

Where a staff member has been affected by the Canterbury Earthquakes, they will be able to submit Accepted Manuscripts as Nominated Research Outputs if the manuscript has been accepted for publication within the assessment period (1 January 2006 – 31 December 2011) but the publication date of the final version has been delayed beyond 31 December 2011. In this case the staff member will need to include details of the expected publication date in the Description field for the NRO.

If a staff member affected by the Canterbury Earthquakes selects the alternative assessment period (1 January 2005 – 31 December 2010) then this provision will not apply.

It is also recommended that for any Accepted Manuscript, the EP should include a link to the part of the journal's website that describes its review process.

Quality-assurance process not sufficient for eligibility

Where a research output has successfully completed the relevant quality-assurance processes but has not been produced (published, publicly disseminated, presented, performed, or exhibited) within the assessment period, it is **not** eligible for inclusion in the EP. For the definition of quality assurance, see Quality-Assured and Non-Quality-Assured Research Outputs on page 60.

For example, where the manuscript of a book successfully completed a quality-assurance process by 31 December 2011 but the book itself was not published before that date, it is not eligible as either a quality-assured research output or a non-quality-assured research output.

By contrast, a paper that has successfully completed the relevant quality-assurance processes and was published prior to 31 December 2011 (or appeared in a publication with an imprint date within the assessment period) may be included as a quality-assured research output.

Employer during assessment period

Staff members may include any research output produced during the assessment period regardless of where they were employed during the period in question.

Reprints

A book originally published prior to 1 January 2006 but reprinted during the assessment period is not eligible for inclusion. However, a second (or subsequent) edition of a book originally published prior to 1 January 2006 will be eligible if the new edition includes significant new research material. Please **note** that repeated reprints and new editions of a book may be evidence of research-related peer esteem, and thus a matter worth mentioning under the Peer Esteem (PE) component.

Research output eligibility

Example 1

A staff member prepared a paper (which meets the PBRF Definition of Research) in December 2011 for a conference held early in 2012.

Such a paper is **not** eligible for inclusion as a research output unless the staff member can provide reliable evidence that it was in fact produced within the assessment period (ie. completed in its final form and publicly disseminated and thus was readily available within the public domain).

A draft of such a paper or a related discussion paper that was distributed to just one or two colleagues for comment prior to 31 December 2011 is **not** eligible for inclusion as a research output.

Example 2

A research output was completed but not published, publicly disseminated, presented, performed, or exhibited during the assessment period.

Such an output is **not** eligible for inclusion as a research output.

Example 3

A research output has an imprint date of 2012 but was publicly disseminated (ie. produced) and available in 2011.

Such an output **is** eligible for inclusion as a research output.

For example, an article is published on the website of a journal during the assessment period and then published in hard copy in that journal after the assessment period. Such an article **is** eligible as a research output.

Note: For NROs, staff members should explain this variance for the relevant NRO in the Description field of the EP.

Example 4

A research output is completed and produced in 2006 but has an imprint date of 2005.

Such an output **is** eligible for inclusion as a research output.

Example 5

An exhibition has a finishing date of 1 January 2006, or a starting date of 31 December 2011.

Such an exhibition **is** eligible for inclusion as a research output.

Quality-Assured and Non-Quality-Assured Research Outputs

Quality-assured research outputs defined

A **quality-assured research output** is defined as any research output that, prior to its publication (public dissemination, presentation, performance, or exhibition), has successfully completed a formal quality-assurance process.

Successful completion of a formal quality-assurance process means the output must have been subject to formal, independent scrutiny by those with the necessary expertise and/or skills to assess its quality (including, where relevant, its rigour, logic, clarity, originality, intellectual significance, impact, applications, artistic merit, etc).

Each research output that is included in an EP must be classified as quality-assured or non-quality-assured. Staff members should use the definition above to guide them in classifying each of their research outputs included in the EP.

Formal quality-assurance processes

Formal quality-assurance processes vary between different disciplinary areas. They include, but are not limited to:

- Peer-review or refereeing processes undertaken by journals and book publishers
- Other review processes employed by editors, editorial committees or publishers
- The refereeing of conference papers
- Review processes undertaken by major galleries, museums and broadcasters
- Review processes employed by users of commissioned or funded research.

Quality-assured v. reviewed

Quality-assurance processes are different from review processes as used in the PE component. A research output may have been reviewed in the public arena **after** its publication or public dissemination. Such reviews do **not** meet the definition of a quality-assured research output. These reviews, however, may be included in the Evidence Portfolio under the Peer Esteem component.

Non-quality-assured research outputs

A non-quality-assured research output is one that:

- Has not been subject to a quality-assurance process

  OR

- Is currently in the process of being quality-assured

  OR

- Has been unsuccessful in completing a formal quality-assurance process (ie. it has been peer-reviewed and rejected, possibly two or more times).

A non-quality-assured output that has been included as an NRO is more likely to be requested for scrutiny by the panel than a quality-assured NRO is.

Absence of quality assurance

Where a research output has been produced (ie. published, publicly disseminated, presented, performed, or exhibited) in the assessment period but has not been subject to a quality-assurance process in that period, then it is eligible for inclusion as a non-quality-assured research output. It must not be claimed as a quality-assured research output.

For example, a working paper or non-refereed conference paper produced in 2010 may be included as a non-quality-assured research output.

Production in the assessment period necessary

As long as the non-quality-assured research output has been produced (ie. published, publicly disseminated, presented, performed, or exhibited) within the assessment period, it will be eligible for inclusion in the EP.

Research Output Information Required for the Evidence Portfolio

Information required

The tables below show the information required about research outputs included in an EP. All outputs included in an EP must meet the PBRF Definition of Research (see Chapter 1 Section D: What Counts as Research? on page 25 of these Guidelines).

Nominated Research Outputs (NROs)

Requirements for Nominated Research Outputs (NROs) are as follows:

- NROs must be the (up to) four best research outputs produced during the assessment period

An EP must contain at least one NRO or it will not be accepted

- NROs may relate to one or a number of different research activities/projects – staff members may nominate research outputs that relate to different aspects and/or development of the research activity.

Note: Staff members will not be penalised for including fewer than four NROs (provided there is at least one NRO in an EP), but if there are fewer than four NROs in an EP there should not be any 'other' research outputs included. Also **note** that if the reason for having fewer than four NROs falls within the criteria for Special Circumstances, the staff member will need to provide an explanation for this in the Special Circumstances sections of the EP.

Digital availability of NROs

TEOs are strongly encouraged to make NROs digitally available whenever appropriate. This includes digital versions of text, photographs, videos or whatever other digital forms are suitable to allow assessment of the NRO. The preferred means is by providing a Uniform Resource Identifier (URI) link to the NRO source. This source could be a website, a file store maintained by the TEC, a filestore maintained by the TEO or an external filestore.

All links provided must take the user directly to the text of the NRO.

The EP information now includes field(s) for specifying the URIs associated with an NRO. Provision has been allowed for up to 5 digital files per NRO.

If a digital version of the NRO cannot be supplied the TEO must provide a description of the physical location at which the NRO can be accessed for assessment.

NROs: information required in EP fields

There is additional information required in the EP for each of the NROs.

This is set out in the following table:

Field	Information Required
Research Output Type	Selected from approved list of types.
Order of Assessment	A number from 1 to 4 to specify the order in which the NROs will be presented for assessment.
Quality-assured	An indicator that defines if the research output has been through a process that meets the definition of 'quality-assured' for the PBRF (see Quality-Assured and Non-Quality-Assured Research Outputs on page 60 of these Guidelines).
Title	The title of the research output as it appears on the output.
Authors	Listed in the order and as they appear on the output, up to a maximum of four. Where there are more than four authors, the number of other authors should be recorded.
Year Available	The year that the output was produced (2006 – 2011 inclusive or 2005 – 2010 inclusive).
Source	Information that can be used to identify where an item is published or made available. It can contain the following: parent document, volume, issue, article/chapter/session number, pagination, publisher, place, year.
My Contribution	Where the research output has more than one author, provide details on the staff member's overall contribution to the output including the nature of that contribution.
Description	A comprehensive description of the nature and significance of the output. Why the output has been selected as one of the best four produced during the assessment period. If necessary, how the output embodies research, as defined in the PBRF Definition of Research (see Chapter 1 Section D: What Counts as Research? on page 25 of these Guidelines). The nature of the quality-assurance process (for quality-assured outputs, where this may not be standard within the discipline for this type of output). A description of the research content, where this is not evident from the output itself (eg. where a textbook has been included). Any other information specific to the research output type.

Location Details	A description of how or where the NRO can be physically located or retrieved if it is not accessible using a URI
URI	The URI location of an electronic NRO. There can be more than 1 URI for a single NRO (but no more than 5). For example, a file of pictures and a video file. The following URI formats are acceptable: file://[NRO Location and Name] o This will indicate that the NRO content was uploaded to TEC FTP file store prior to assessment closing date http:// [NRO Location and Name] o This will indicate a non-secure publicly available web location where the NRO content can be located. No authentication should be required to access this location https:// [NRO Location and Name] o This will indicate a secure publicly available web location where the NRO content can be located. No authentication should be required to access this location ftp:// [NRO Location and Name] o This will indicate a publicly available FTP location where the NRO content can be located. No authentication should be required to access this location. TEOs must take all reasonable steps to ensure that any URI supplied that links to a website or an external file store, will remain a usable link to the NRO through the period of assessment.

'Other' research outputs

Requirements for the 'other' research outputs are as follows:

- There may be up to 30 'other' research outputs, all produced during the assessment period
- Where a staff member has more than 30 'other' research outputs that are eligible for inclusion, the best 30 should be selected
- Where a staff member has fewer than 30 other outputs that are eligible for inclusion, they should include them all – this will provide the panel with a complete picture of the staff member's research output during the assessment period
- Where a staff member has fewer than four NROs, there should be no 'other' research outputs included
- 'Other' research outputs will not need to be supplied to peer review panels, but they will be subject to the TEC's data checking and verification processes.

'Other' research outputs: information required in EP fields

There is additional information required in the EP for each of the (up to) 30 'other' research outputs.

This is set out in the following table.

Field	Information Required
Research output type	Selected from a drop-down list in the EP.
Quality-assured	An indicator that defines if the research output has been through a process that meets the definition of 'quality-assured' for the PBRF (see Quality-Assured and Non-Quality-Assured Research Outputs on page 60 of these Guidelines).
Description	Entered in a recognised bibliographic format. This must include the title or name of the output, author, and sufficient location details to enable the TEC to independently verify its production (eg. publication, publisher, publication year, and place of publication or equivalent details).

Appendix 3: Proposed Research Output types

Current types	Proposed types
Artefact/Object	Original Creative Work
Composition	
Design Output	
Exhibition	
Film/Video	
Performance	
Authored Book	Authored Book
Monograph	
Chapter in Book	Chapter in Book
Conference Contribution - Paper in Published Proceedings	Conference Contribution - Published Paper
Conference Contribution - Full Conference Paper	
Conference Contribution - Abstract	Conference Contribution - Other
Conference Contribution - Oral Presentation	
Conference Contribution - Other	
Conference Contribution - Poster Presentation	
Confidential Report	Report
Technical Report	
Report for External Body	
Discussion Paper	Discussion or Working Paper
Working Paper	
Edited Book	Edited Book or Special Edition
Intellectual Property	Intellectual Property
Journal Article	Journal Article
Literary Translation	Scholarly Publications
Scholarly Edition	
Oral Presentation	Oral Presentation
Other Form of Assessable Output[27]	Other
Software	Software
Thesis - Masters	Thesis - Masters
Thesis - PhD	Thesis - PhD

[27] Other Form of Assessable Output types can include but are not limited to book reviews, magazine articles, new materials, structures, devices, images, products, buildings, food products and processes, published geological and/or geomorphological maps, and explanatory texts.

Appendix 4: Links to relevant documents

Investing in Excellence, 2002

ERA 2015 Submission Guidelines, 2011

REF 2014, Assessment framework and guidance on submissions, July 2011

PBRF: Quality Evaluation Guidelines 2012, May 2013

Professional and Applied Research Expert Advisory Group: Final Report, April 2013

Review of the Performance-Based Research Fund Consultation Document, August, 2013

PBRF Evaluating Research Excellence: The 2012 Assessment, October 2013

Review of the Performance-Based Research Fund, Summary of Submissions received on the Review of the Performance-Based Research Fund Consultation Document, March, 2014