

Research Quality Framework

Assessing the quality and impact
of research in Australia

Research Impact

September 2006

1 Executive Summary

The Research Quality Framework Development Advisory Group (RQFDAG) has developed the following key recommendations for the optimal methodology for assessing research impact as part of the RQF:

- Research impact is the social, economic, environmental, and/or cultural benefit of research to end-users in the wider community regionally, nationally, and/or internationally.
- The impact to be assessed for the RQF will be that impact which occurs during the six-year assessment period, but may be based on original research conducted earlier.
- Impact will be attributed to institutions based on the location of Research Groupings during the six-year assessment period.
- No minimum quality rating will be necessary for impact assessment, however, the research from which the impact is derived must be sound.
- Institutions will have the discretion to nominate Research Groupings of no less than five researchers for assessment as this best corresponds with their strategic focus.
- The basis of assessment for a Research Grouping will be an Impact Statement of no more than ten pages, which includes a statement of claims against impact criteria, up to four case studies illustrating those claims, and details of end-users who may be contacted as referees.
- Verifiable and auditable indicators should only be used, where appropriate, as evidence to support qualitative claims of impact, given that impact indicators lack robustness and cannot be used as a proxy.
- Expert Assessment Panels will be constituted of six core members, plus three expert end-users to conduct impact assessments and three discipline-specific researchers to conduct quality assessments.
- Impact will be assessed against a five-point rating scale, plus a rating of “Not Assessed”.
- Funding will be allocated to institutions whose Research Groupings receive ratings of “D” and higher to encourage a greater uptake of Australian research.
- Excellence will be rewarded by allocating enhanced funding to those institutions whose Research Groupings receive the highest impact ratings.
- Clear guidelines, both for submission and assessment, will be developed at the discipline-specific level during further development of the RQF.
- A pre-implementation trial of the impact assessment, along with quality, will be undertaken in 2007 across selected disciplines and institutions to thoroughly test the RQF model.

2 Introduction

The RQFDAG established the Technical Working Group on Research Impact to make recommendations on an optimal methodology for assessing research impact. The Group met four times from June to August 2006, and presented its findings to the RQFDAG, upon which this report is largely based.

The Technical Working Group built upon the Expert Advisory Group's (EAG) considerations, and recent developments in Australian and international research and practice in assessing research impact, including the National Health and Medical Research Council's Measure of Research Impact and Achievement model and the Australian Technology Network's trial RQF exercise. The Group also undertook a subsequent sector consultation, and commissioned RAND Europe to carry out an independent critical appraisal of its findings.

3 Underlying Principles

The assessment of research impact is an incentive for researchers to focus on the outcomes of their research insofar as these provide benefit to Australia's society, economy, environment and/or culture.

The RQF seeks to identify and reward excellence in research, and is by definition inequitable. However, it is a fundamental principle that the impact assessment model will apply equally across all research fields and disciplines.

Impact assessment will complement research quality, as determined by the RQF, and while the underlying research must be demonstrably sound it does not necessarily have to score highly on Quality assessment to be rated for Impact.

Pure basic research will not be disadvantaged by the RQF, and neither shall this essential research be devalued. While Research Groupings focussed on pure basic research are unlikely to derive much benefit from the assessment of impact, they should be able to perform well in quality assessments. Conversely, Research Groupings that have an applied focus and may not achieve high ratings for quality, will have the opportunity to demonstrate their excellence through the impact assessment.

Research impact will be based on actual outcomes and their assessable impact. Prospective impact will not be part of the RQF.

Research which leads to tangible and assessable impact must, to some demonstrable degree, have been conducted recently, as the eventual impact assessment will be used to determine future research funding allocations.

A key principle is to direct RQF-related funding towards that research which generates impact. Hence, funding should be allocated towards institutions whose Research Groupings successfully demonstrate claims against any of the impact criteria. This will encourage behaviours that lead to a greater uptake of Australian research. Rewarding excellence is a further key principle, with enhanced funding distributed to institutions with Research Groupings receiving the highest impact ratings.

The natural unit of Impact assessment is the Research Grouping. These groupings already exist in many cases, and the grouping's rationale and strategy is an essential component of measuring Impact. It should be at the discretion of the research institution to select Research Groupings for the RQF, with the institution having discretion over how many Groupings and which staff are included for assessment. This entails that smaller Research Groupings should be accommodated, to a **minimum of five group members with no upper limit.**

4 Defining Research Impact

Research Impact is the social, economic, environmental and/or cultural benefit of research to end-users outside the peer academic community regionally, nationally and/or internationally.

For the purposes of the RQF, research impact relates to the benefits of research produced by Australia's universities that extend beyond academe into the wider community. Research impact therefore does not relate to academic citations, academic research grant income, or markers of academic esteem. However, the academic community may be considered to be end-users in some cases, such as research into higher education policy and curriculum development.

Research impact has been broadly categorised into four impact domains:

- **Social Benefit** - Adding to the social capital of the nation. For example, improving quality of life; stimulating new approaches to social issues; changes in community attitudes, and influence upon developments or questions in society at large; informed public debate and improved policy-making; enhancing the knowledge and understanding of the nation; improved equity; and improvements in health, safety and security.
- **Economic Benefit** - Adding to the economic capital of the nation. For example, improved productivity; adding to economic growth and wealth creation; enhancing the skills base; increased employment; reduced costs; increased innovation capability and global competitiveness; improvements in service delivery; and unquantified economic returns resulting from social and public policy adjustments.
- **Environmental Benefit** - Adding to the natural capital of the nation. For example, improvements in environment and lifestyle; reduced waste and pollution; improved management of natural resources; reduced consumption of fossil fuels; uptake of recycling techniques; reduced environmental risk; preservation initiatives; conservation of biodiversity; enhancement of ecosystem services; improved plant and animal varieties; and adaptation to climate change.
- **Cultural Benefit** - Adding to the cultural capital of the nation. For example, supporting greater understanding of where we have come from, and who and what we are as a nation and society; understanding how we relate to other societies and cultures; stimulating creativity within the community; contributing to cultural preservation and enrichment; and bringing new ideas and new modes of experience to the nation.

5 The Impact Assessment Model

The assessment of research impact for the RQF uses a progressive, criteria-based model that measures each distinct level of research impact along the pathway from the original research to the final benefit to the end-user community.

The first category of positive activities that denotes the most basic level of research impact is broadly referred to as engagement. This is where Research Groupings are actively engaging with end-users to disseminate the outcomes of their research to address an identifiable social, economic, environmental and/or cultural issue.

The second level of research impact is the actual adoption of the research by end-users. This level is distinct from engagement in that end-users are already familiar with the research and how it can address their particular issues, and they have deliberately chosen to implement it. This adoption can be demonstrated in a number of ways, including new policies, practices or legislation, changed attitudes, behaviours or outlooks, and new products etc.

The third distinct level of research impact is the social, economic, environmental and/or cultural benefit enjoyed by the wider community as a result of the research having been adopted.

In order to reward the highest research excellence, the RQF will include an additional classification of research impact that represents Research Groupings in the top 2% of those whose research results in benefit to the wider community. This level is not distinguished from the previous level by criteria, instead it is the magnitude of the social, economic, environmental and/or cultural benefit to end-users by which it is defined.

Some Research Groupings may not be suited to impact assessment, either as a result of their focus on pure, basic research, or due to the stage of development of their research. In such cases, Research Groupings will make a claim in their Context Statement for exclusion from the impact assessment.

Another category exists in the impact assessment model for those Research Groupings that are either unable to demonstrate that they have achieved the criteria for any of the four levels of impact above, or they are unable to successfully claim that they should not be assessed for impact.

5.1 Timeframe

Research impact assessed for the RQF will be that impact which occurs within the six year assessment period, but may be based on original research conducted earlier. This is because impact is often not realised within six years of the original research, and it would reflect poorly on the RQF to have little impact submitted for assessment.

Expert Assessment Panels will use their judgment to determine a reasonable timeframe within which the original research was conducted, provided that:

- the original research can be attributed to the Research Grouping;
- the researchers who conducted the original research are still research active; and
- sufficient contextual evidence is provided to demonstrate why impact from the previous original research should be included.

5.2 Attribution

Research impact will be attributed to the institution where the Research Grouping is located during the six-year assessment period. In cases where Research Groupings move from one institution to another within the assessment period, both institutions may claim the impact for the duration of the Grouping's residence.

In the case of researcher mobility, a Research Grouping may claim the continuing impact of the research conducted by a former member, providing that a remaining member of the active research team remains resident.

A Research Grouping may claim the impact of the earlier research of its individual members, for example, an economist joining a schizophrenia institute. While the economist's previous research may be unrelated to the current Research Grouping, this research may be included in the impact assessment. This will encourage cross-disciplinary collaboration. It also allows individual researchers to form notional Research Groupings with other researchers in order to preserve their anonymity for the RQF. In addition, allowing this mobility within assessment may encourage high quality researchers to return to Australia.

Research Groupings may claim the impact of research conducted by adjunct researchers, even if these researchers do not have a full-time equivalent status of 0.4 and are not eligible for inclusion in the overall RQF assessment, provided they are demonstrably active in the research undertaken by the group. This should encourage collaborative research between universities and other institutions.

6 Demonstrating Research Impact

Extensive review of the latest literature and international practice in demonstrating and assessing research impact reveals that impact metrics cannot be used as a proxy for determining impact ratings for Research Groupings. Impact metrics are underdeveloped, and hence are neither robust surrogates for research impact, nor stand alone tools to inform the allocation of research funds. However, some qualitative and quantitative indicators should be employed, where appropriate, to support impact claims. A description of some potential impact indicators is at Appendix A.

A Research Grouping's impact will not necessarily be best assessed by using the same four research outputs per researcher submitted as the basis for assessing research quality. This is because the Research Outputs used to demonstrate quality and impact are often quite different due to the target audience, and impact that occurs within the six year assessment period is likely to be derived from Research Outputs produced earlier.

For these reasons, Expert Assessment Panels will adopt a holistic approach in the appraisal of Research Groupings' Context and Impact Statements. The Research Grouping must demonstrate actual impact as opposed to potential impact, and this must be verifiable. Robust and transparent Panel judgements can then be made on a case by case basis on Research Groupings' claims to have realised degrees of research impact derived from their original research.

6.1 Context Statement

In its Context Statement, a Research Grouping will make a word-limited, strategic case about the direction, focus, and nature of its research, and how this relates to research impact. Research Groupings will provide contextual information when using original research conducted prior to the assessment period to demonstrate impact. Cases where the original research is older than fifteen years will be treated as special by Expert Assessment Panels, and will require additional supporting evidence.

6.2 Impact Statement

In its Impact Statement, a Research Grouping will provide a statement of claims against impact criteria that represent each of the classifications of impact described in Section 5 above. The broad criteria will require a demonstration of:

- the engagement with end-users recognising the importance of the research to address a defined social, economic, environmental and/or cultural issue;
- the adoption of the research by the relevant end-user community to generate new policies, products, , processes, attitudes, behaviours and/ or outlooks;
- how the research has produced social, economic, environmental and/or cultural benefits for end-users regionally, nationally and/or internationally; and
- the extent of the benefit arising from the research.

These broad impact criteria will be supplemented by generic and discipline-specific sub-criteria to help focus Research Groupings' responses. Wherever possible, Research Groupings should include verifiable and auditable impact indicators in support of their claims. In addition, related Research Outputs or other evidence of research activity, must be made available to Expert Assessment Panels.

Research Groupings will also provide up to four brief case studies that illustrate examples of how their research has achieved a level of impact.

Finally, Research Groupings will include details of end-users who can be contacted by Expert Assessment Panels and Specialist Assessors to seek verification of their claims. However, end-user testimonials should not be sought, given the potential burden on the community.

The maximum length of an Impact Statement will be 10 A4 pages in an 11-point font, and must be signed off at the institutional level.

A draft Impact Statement template, which will undergo further development during discipline-specific workshops in 2007, is at Appendix B.

7 Assessing Research Impact

The structure of Expert Assessment Panels will allow for different, but overlapping membership for assessing research quality and research impact, with quality and impact judged on separate occasions. Each Panel will have a core group of six members, three of whom will be international experts. Three additional discipline-specific experts will assist the core group for quality assessments, and another three expert end-users will assist the core members in the assessment of impact.

Expert Assessment Panels will review Research Groupings' Evidence Portfolios, and, based on the evidence provided in the Context and Impact Statements, will apply their collective expert judgement to determine the validity of the claims made against the impact criteria. For each Research Grouping, the Expert Assessment Panels will assign impact ratings of "A" to "E", or "Not Assessed" (defined in Section 7.1 below), on the basis of the whole submission on balance. This rating process will be moderated between discipline panels to ensure that equivalent assessments are made, and that cross-disciplinary research is treated fairly.

7.1 Impact Ratings

Expert Assessment Panels will assess the broader impact of research on the basis of the following five-point scale, which corresponds to the distinct levels of impact defined in Section 5 above:

Rating	Description
A	Adoption of the research has produced outstanding (in the top 2%) identifiable social, economic, environmental and/or cultural benefit for the wider community regionally, nationally or internationally.
B	Adoption of the research has produced identifiable social, economic, environmental and/or cultural benefit for the wider community regionally, nationally or internationally.
C	Research has been adopted to produce new policies, products, paradigms, attitudes, behaviours and/or outlooks in the end-user community.
D	Research is engaging with the end-user community to address social, economic, environmental and/or cultural issues regionally, nationally or internationally.
E	Research has had limited or no identifiable social, economic, environmental and/or cultural outcome for the wider community regionally, nationally or internationally.

Some Research Groupings may not be suited to impact assessment, either as a result of their focus on pure, basic research, or due to the stage of development of their research. In such cases, Research Groupings will make a claim in their Context Statement for exclusion from the impact assessment. Expert Assessment Panels satisfied with the claims for exclusion will award a publicly reported rating of "Not Assessed."

Rating	Description
Not Assessed	The research from the Research Grouping is not assessed for impact.

7.2 Funding

The RQFDAG has established the Technical Working Group on Modelling to make recommendations on an appropriate funding model for the RQF.

A key principle of the RQF Impact Assessment Model is to direct funding towards that research which generates impact. Accordingly, funding will be allocated to institutions based on Research Groupings that receive an impact rating of “D” and higher. This will encourage behaviours that lead to a greater uptake of research in Australia. Rewarding excellence is a further key principle, with enhanced funding distributed to institutions with Research Groupings receiving the highest impact ratings, although exemplars of “A” impact are likely to be rare.

The impact assessment model is itself non-linear and will yield a distribution of impact ratings that is skewed towards the bottom of the scale. Therefore, a linear funding model will necessarily distribute a disproportionately large amount of funding to institutions whose Research Groupings score the highest ratings. Whereas the application of a non-linear funding model will result in additional emphasis on higher ratings and may serve to disincentivise positive research activities at lower levels of the scale.

8 Further Development

Further work is required at the discipline level to effectively integrate impact assessment into the RQF.

8.1 Guidelines

It is essential to provide explicit guidelines on preparing Impact Statements and demonstrating the level of Research Impact a Research Grouping believes that it has achieved. Research Groupings need clear guidance on the nature of the qualitative and quantitative evidence that can be provided to demonstrate impact at various points on the impact scale.

Explicit guidelines on assessing research impact against the ratings must also be developed at a discipline-specific level. Expert Assessment Panels will need specific guidance on the kind of evidence appropriate to substantiate claims made against the various impact criteria. These guidelines will match the guidance given to Research Groupings.

A discipline specific consultation will be undertaken in 2007 to develop generic and discipline-specific guidelines for the RQF. This consultation will produce, on a discipline basis, a description of the kind of research which will attain impact ratings from “E” through to “A”, and the types of qualitative and quantitative evidence which can be used to substantiate these various impact claims. In addition, exemplars of each level of impact rating will be developed at the discipline level. This process will be moderated between disciplines and panels so that, for example, a “B” in engineering is equivalent to a “B” in philosophy or dance, and that exceptional instances of “A” research impact in every field are rigorously and reasonably identifiable. It is also essential that multidisciplinary research which crosses fields and panels will be fairly assessed.

8.2 Pre-Implementation Trial

Due to the experimental nature of measuring impact separately as part of a research assessment exercise anywhere in the world, it is essential to test the RQF impact assessment model in an operational trial prior to its implementation. The pre-implementation trial should test the full RQF model across selected institutions and disciplines, given the relationship between quality and impact, the overlapping structure of the Expert Assessment Panels, and the variations in other RQF trials carried out by some universities.

Potential Indicators of Research Impact

The Technical Working Group on Research Impact has reviewed in detail the literature and international practice in developments in assessing and demonstrating research impact. The Group found that impact metrics are novel and underdeveloped, and hence are neither robust surrogates for research impact, nor stand-alone tools to inform the allocation of research funds. At this stage, Impact metrics cannot be used as a proxy for determining impact ratings for Research Groupings.

However, at a Research Grouping level, it may be possible to employ some qualitative and quantitative indicators, where appropriate, to support claims of impact.

The following potential impact indicators are illustrative and non-exhaustive, but they do represent the sorts of measures that Research Groupings could use to support their claims of impact at the various points along the rating scale.

Indicator
Reduced pollution
Regeneration or arrested degradation of natural resources
Lives saved
Reduced infection rates
Reduced treatment time and cost
Increased literacy and numeracy rates
Positive reviews of creative publications and performances
Increased cultural awareness
Royalties
Increased employment
Reduced costs and resource usage
Increased competitiveness of Australian industry
Spin off companies
New products & inventions
Licences
Creative works commissioned
Change in procedures, behaviours, outlook etc
New policies, guidelines, legislation etc
Citations of research in legal judgements which become case law.
Contracts and industry funding
Repeat business
Number of presentations involving contact with end-users
Community awareness of research
Non-academic publications & performances
Collaborative projects with end-users
Citations in Government reports, Hansard, etc
Provision of expert advice and submissions to enquiries etc
Invitations to be a visiting researcher or researcher in residence at an end-user institution (if based on research merit)
Invitations to be on reference, advisory and/or steering committees (if based on research merit)

(Draft Template)

Research Quality Framework

IMPACT STATEMENT

Institution:

Research Grouping:

Discipline:

How has the Research Grouping engaged with end-users to address a social, economic, environmental and/or cultural issue?

Sub-questions may be added along the lines of:

- What is the social, economic, environmental and/or cultural issue that your research seeks to address?
- How does your research address this issue?
- What end-user/s have you engaged with to address this issue?
- How have you engaged with these end-users?
- What research outputs/findings did you share with these end-users?
- What indicators can you provide in support of your claims?

Further discipline-specific sub-questions may also be added to assist Research Groupings focus their responses.

Verifiable, positive responses to these questions would demonstrate that the Research Grouping has engaged with end-users to address an identifiable social, economic, environmental and/or cultural issue.

A Panel satisfied with the responses to these questions would be able to award a minimum rating of "D" to a Research Grouping.

(Draft Template)

What new products, policies, legislation, paradigms, attitudes, outlooks etc have end-users adopted, implemented and/or taken up as a result of engaging with your Research Grouping?

Sub-questions may be added along the lines of:

- What was the new product, policy, outlook etc?
- What end-users implemented/adopted this new product, policy etc?
- When did these end-users adopt the new product etc?
- How did the end-users adopt this new product etc?
- How is this adoption related to your research?
- What indicators can you provide in support of these claims?

Further discipline-specific sub-questions may also be added to assist Research Groupings focus their responses.

Verifiable, positive responses to these questions would demonstrate that end-user/s have adopted/implemented the research outputs/findings of a Research Grouping.

A Panel satisfied with the responses to these questions would award a rating of “C” to a Research Grouping.

The impact rating scale is necessarily progressive. That is, an end-user cannot adopt a Research Grouping’s findings unless there has already been some level of engagement first. To effectively assess this progressive scale of impact, asking these questions in order – engagement, adoption and so on – forces Research Groupings to ‘tell a story’ of how their research has generated impact. Telling the story makes it easier for Research Groupings to demonstrate their impact, and it also makes it easier for Panels to assess their claims.

As these criteria/questions are progressive, increasing numbers of Research Groupings will be unable to effectively answer successive questions/criteria.

(Draft Template)

What are the social, economic, environmental and/or cultural benefits of the new product, policy, legislation, paradigm, attitude, outlook etc adopted by end-users?

Sub-questions may be added along the lines of:

- What was the result of the new product etc that was adopted by the end-user?
- Who benefited from the adoption of the new product etc?
- How did they benefit from the new product etc?
- How is this benefit linked to the adoption of the research?
- How is this benefit linked to your research?
- What indicators can be used to support these claims?

Further discipline-specific sub-questions may also be added to assist Research Groupings focus their responses.

Verifiable, positive responses to these questions will demonstrate that end-users have derived social, economic, environmental and/or cultural benefit from the implementation/adoption of the research output/findings.

Panels satisfied with these responses can award an impact rating of "B" to Research Groupings.

As stated above, this is a progressive scale from engagement to adoption to benefit. Once again, fewer Research Groupings will be able to demonstrate that they have achieved this level of impact.

(Draft Template)

What is the magnitude or extent of the social, economic, environmental and/or cultural benefit to end-users as a result of the implemented research?

Sub-questions may be added along the lines of:

- How long will this benefit last?
- How many end-users benefited?
- What are the implications of these benefits?
- What indicators can support your claims?

Further discipline-specific sub-questions may also be added to assist Research Groupings focus their responses.

Verifiable responses to these questions will demonstrate the extent of the benefit achieved by the implementation of the research.

Panels will have to use their judgement to judge the scale of the benefit. For those Research Groupings that have generated massive benefits in the top 2% of the sector, Panels should award a rating of "A".

This is the elite impact rating that very few Research Groupings will be able to achieve. Like the "B" rating, it is the benefit that follows engagement and adoption, but it is the scale of that benefit that determines whether an "A" can be awarded.

(Draft Template)

Case Study 1

Provide a brief case study that illustrates your claims to the above impact criteria.

(Draft Template)

Case Study 2 (optional)

Case Study 3 (optional)

(Draft Template)

(Draft Template)

Case Study 4 (optional)

(Draft Template)

Details of End-Users

Provide details of end-users who can be contacted by Expert Assessment Panels to verify your claims to the above impact criteria.

Do not provide written references or testimonials from end-users.

Experience of End-User	Name	Position	Organisation	Phone	Email