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# **CEO Foreword**



I am pleased to present the report of the Engagement and Impact Assessment Pilot (El Pilot). The report is a result of developing the assessment, following its announcement in December 2015 as part of the Government's *National Innovation and Science Agenda* (NISA).

The report presents the findings of the EI Pilot and changes to the methodology for the first full EI assessment in 2018 (EI 2018). The pilot findings underpin the refinement of the 2018 methodology, which could not have occurred without the strong support of the university sector and research endusers. Equally, the advice of the Engagement and Impact Steering Committee and its working groups was invaluable in ensuring we developed a methodology suited to the task of assessing engagement and impact.

A key principle guiding the development of the methodology was that any assessment must be rigorous while at the same time minimise the burden on the university sector. As a consequence of the review and feedback received during the pilot, the number of engagement indicators has been reduced, with an accompanying reduction in the administrative load for universities.

By using a small set of key indicators alongside narrative statements, with all ratings made by panels of experts, I am confident that EI 2018 will be rigorous and offer valuable insights across all research disciplines.

This report represents an important step towards recognising the research achievements universities make in addition to research excellence. I look forward to the launch of El 2018. With the continued support of the university sector, I am certain the El assessment will succeed in identifying the valuable engagement activities the sector undertakes and the resulting impact its research makes to our society, economy, environment and culture.

**Professor Sue Thomas** Chief Executive Officer Australian Research Council

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# Summary

In 2017 the Australian Research Council (ARC) conducted a pilot of the Engagement and Impact Assessment (the EI pilot). The objective of the EI pilot was to test methodology in preparation for the first full Engagement and Impact Assessment in 2018 (EI 2018). This report summarises the findings from the EI pilot and sets out the methodology for EI 2018.

The Government announced the Engagement and Impact assessment in December 2015 as part of the National Innovation and Science Agenda (NISA). The aim of the assessment is to examine how universities are translating their research into economic, social and other benefits and to encourage more collaboration between universities and research end-users. It will do this by using expert review of quantitative and qualitative measures of research engagement and impact at the discipline level.

In March 2016, former Minister for Industry, Innovation and Science, the Hon. Christopher Pyne MP along with Minister for Education and Training, Senator the Hon. Simon Birmingham, announced the membership of the Engagement and Impact Steering Committee—comprising leaders from the university and industry sectors.

Through the guidance of the Steering Committee and two supporting working groups—the Technical Working Group and the Performance and Incentives Working Group—the ARC and the Department of Education and Training (DET) developed a methodology for piloting in 2017. The pilot methodology was based on extensive consultation with the university sector, industry and other end-users of research.

The pilot commenced in December 2016 with the university sector receiving the guidelines for submissions. To minimise the burden on universities and to allow for testing across the range of disciplines, the pilot sought submissions from four different broad disciplines for engagement and six for impact. The impact pilot also tested an interdisciplinary impact study and an Indigenous research impact study.

The ARC received submissions in May 2017 with 39 universities making almost 300 submissions. Five assessment panels assessed the submissions throughout June 2017. A review panel considered the findings of the pilot. Through this period, the ARC sought feedback from participating universities and assessment panel members on the methodology. The Steering Committee and working groups met separately in August 2017 to consider the findings of the pilot and provide advice on modifications to the methodology for EI 2018.

## Summary of key findings

The pilot tested a methodology for assessing the engagement and impact of university research by:

- 1. Defining the Unit of Assessment (UoA) as the two-digit Australian and New Zealand Standard Research Classifications (ANZSRC) Field of Research (FoR) codes at the submitting institution<sup>1</sup>.
- 2. Allowing for the submission of interdisciplinary and Indigenous research UoAs for impact.
- 3. Assessing engagement using a suite of quantitative indicators and supporting narratives.
- 4. Assessing impact through narrative studies with one impact study submitted per UoA.
- 5. Using expert review panels—comprising academics and end-users—to determine the ratings.

Part 1 of this report details the full pilot methodology.

Overall, the methodology of the pilot was considered successful and suitable for rolling out in a full assessment in 2018—subject to the following modifications.

## Overarching methodology

The following modifications will be made to the overarching pilot methodology:

- Rating scales for engagement and impact. The pilot rated engagement and impact individually on a three-point scale—Limited, Emerging and Mature. El 2018 will also rate engagement and impact on three-point scales but the labels will be low, medium and high.
- **Dividing FoR 11 Medical and Health Sciences** into two groups—Biomedical and Clinical Sciences, and Public and Allied Health Sciences—due to the diversity and high volume of research covered by this FoR.
- Low-volume threshold for participation in the El Assessment. The low volume threshold will be raised to 150 outputs. If an institution considers that a UoA falling below the low-volume threshold has sufficient evidence to be assessed for engagement or impact, it can choose to opt-in.

## Definition of engagement

## The **definition of engagement** will be simplified to:

The interaction between researchers and research end-users outside of academia, for the mutually beneficial transfer of knowledge, technologies, methods or resources.

End-user will be explicitly defined as:

An individual, community or organisation external to academia that will directly use or directly benefit from the output, outcome or result of the research.

Examples of **end-users** include businesses, governments, non-governmental organisations, communities and community organisations. **Specific exclusions** of research end-user are:

- Publicly funded research organisations (CSIRO, AIMS, ANSTO, etc.).
- Other higher education providers.
- Organisations that are affiliates, controlled entities or subsidiaries (such as Medical Research Institutes) of a higher education provider.

<sup>&</sup>lt;sup>1</sup> The term institution refers to all Australian higher education institutions eligible to participate in ERA

• Equivalents (international or domestic) of the above exclusions<sup>2</sup>.

## Definition of impact

Refining the **definition of impact** as follows (to include explicit reference to culture):

The contribution that research makes to the economy, society, environment and culture beyond the contribution to academic research.

## Engagement methodology

The following modifications will be made to the methodology for assessing engagement:

## Engagement indicators

EI 2018 will collect and assess four quantitative engagement indicators:

- **Cash support from end-users** (against Higher Education Research Data Collection (HERDC) categories)
- Total HERDC income per FTE (specified schemes)
- End-user sponsored grants: proportion of HERDC Category 1
- Research commercialisation income.

In 2018, data on the **co-supervision of Higher Degree by Research (HDR) students** by end-users will be collected but not assessed. Not assessing this indicator in EI 2018 recognises the challenges there may be for institutions collecting this data and the upcoming DET changes to the collection of HDR data. The ARC expects that future rounds will assess this indicator.

## Normalisation/Scale

Full-Time Equivalent (FTE) staff numbers for each UoA will be supplied to assessment panel members for context only. FTE will not drive the rating a UoA receives.

## Engagement narratives

EI 2018 will comprise two text-based elements: an indicator explanatory statement and an engagement narrative.

The **indicator explanatory statement** of around 750 words will accompany the indicator data for each UoA. Institutions can use this statement to complement their indicator data by adding context or further explanation.

The **engagement narrative** of around 1000 words will accompany the indicators and explanatory statement. Institutions can use the narrative to describe their engagement activities, strategy and/or objectives. They can select evidence including, but not limited to, indicators that were tested in the pilot but are not formal indicators in El 2018. These indicators form part of a comprehensive list of **optional engagement indicators**. Institutions can draw on any qualitative or quantitative information for their narrative—not just indicators from the optional list.

In EI 2018, assessment panels will be able to put more emphasis on the engagement narrative for disciplines in which the metric indicators are less relevant, such as HASS.

<sup>&</sup>lt;sup>2</sup> This definition will be included in the Draft El 2018 Submission Guidelines for public comment.

#### Impact methodology

The modifications to the impact methodology are:

#### Assessment structure and ratings

Assessing and **rating approach to impact and impact separately**—using the three-point rating scale (above).

#### Indigenous research and institutional interdisciplinary impact studies

**Indigenous research impact studies** will proceed alongside continuing consultation with the Aboriginal and Torres Strait Islander research community, to refine the definition of and collection of information about engagement activities and impact associated with Aboriginal and Torres Strait Islander research. Consistent with the new definition, these studies will be referred to as Aboriginal and Torres Strait Islander research impact studies.

**Institutional interdisciplinary impact studies** will proceed subject to clearer guidance to institutions about what distinguishes interdisciplinary impact studies from discipline-based studies.

# Abbreviations

ACGR	Australian Competitive Grants Register
ANZSRC	Australian and New Zealand Standard Research Classification 2008
ARC	Australian Research Council
DET	Department of Education and Training
El Assessment	Engagement and Impact Assessment
El Pilot	Engagement and Impact Assessment Pilot
EI 2018	Engagement and Impact Assessment 2018
ERA	Excellence in Research for Australia
FoR	Field of Research
FTE	Full-Time Equivalent
HASS	Humanities, Arts and Social Sciences
HDR	Higher Degree by Research
HERDC	Higher Education Research Data Collection
LOA	Licences, Options, and Assignments
NHMRC	National Health and Medical Research Council
NISA	National Innovation and Science Agenda
PIWG	Performance and Incentives Working Group
REF	Research Excellence Framework (United Kingdom)
STEM	Science, Technology, Engineering and Mathematics
TWG	Technical Working Group
UoA	Unit of Assessment

# Introduction

This report sets out the methodology of the El Pilot, analyses the resulting indicator data, and explores the feedback and recommendations from the various committees and groups involved in the review process. It also sets out key elements of the methodology for El 2018.

## Policy context

The Australian Government invests approximately \$3.5 billion in university research each year. Measures of research quality—such as ERA—consistently show that Australian universities produce excellent research, which is fundamental to the generation of high value and enduring innovation. However, generating high quality research is only part of the innovation process. As the Australian Government's *Review of Research Policy and Funding* (Watt Review) noted, 'the diffusion of knowledge is just as important for innovation as the creation of knowledge'.<sup>3</sup> Furthermore, the report shows that improved research collaboration benefits both the users of research and researchers themselves:

It benefits businesses and other end users through the access to ideas, knowledge, equipment and talent that they would not otherwise possess. This gives commercial advantage and boosts productivity.

... Better collaboration with end users can also produce a range of intangible benefits to researchers including enhanced reputation, insights to shape research agendas, opportunity to engage in real life problems, engagement with the broader community and improved employability for graduates.<sup>4</sup>

Existing evidence suggests that Australia's university sector can do more to link its high quality research with potential end-users of research. Experience from overseas—for example in the United Kingdom's Research Excellence Framework (REF)—has shown that the assessment of the impacts of research beyond academia creates incentives for universities and researchers to focus more strongly on the wider benefits when planning and conducting their research.

Acknowledging this evidence from the REF and the Australian experience with ERA helping universities focus more on research quality, the Watt Review recommended a national assessment of engagement and impact as a way of improving university collaboration with industry.<sup>5</sup> The Australian Government accepted this recommendation and announced the development of a new EI Assessment as part of a range of measures under NISA in December 2015. It aims to help drive collaboration between universities and end-users and to help universities focus on research with more direct social, economic and environmental benefits.

Under NISA, the ARC and DET were tasked with developing the assessment. To ensure universities continue to pursue high quality research as well, the new assessment will run as a companion exercise to ERA 2018. To ensure that the assessment includes the best measures to drive research engagement and impact, the government decided to run a pilot exercise in 2017 prior to the first full assessment.

<sup>&</sup>lt;sup>3</sup> Watt, I. 2015, Report of the Review of Research Policy and Funding Arrangements, p 65.

<sup>&</sup>lt;sup>4</sup> Watt, I. 2015, Report of the Review of Research Policy and Funding Arrangements, pp 65-66.

<sup>&</sup>lt;sup>5</sup> Watt, I. 2015, Report of the Review of Research Policy and Funding Arrangements.

## Development of the pilot methodology

To oversee the development of the methodology of the El Assessment—including the pilot—the government established the Engagement and Impact Steering Committee. The CEO of the ARC and the Deputy Secretary of DET jointly chaired the Steering Committee with the other members comprising higher education and industry leaders. Two working groups supported the Steering Committee—a Technical Working Group was established to provide expert advice on the development of indicators that will support the engagement and impact assessment; and a Performance and Incentives Working Group to provide advice to the ARC about the potential incentive effects of the preferred model.

The Steering Committee and working groups each met twice between March and September 2016 to develop the methodology for the pilot. As part of this process, the Steering Committee adopted the following set of parameters for the assessment and the pilot methodology:

- A retrospective (not prospective) assessment of research performance.
- The eligible universities are the institutions defined in Tables A and B of the Higher Education Support Act 2003—currently 42 universities.
- All research disciplines involved.
- Accounts for different disciplinary practices and does not advantage one discipline over another.
- Seeks to minimise the data collection burden on participating institutions.
- Is cost effective and makes use of the existing ARC systems to the greatest possible extent.

The Steering Committee also agreed on a set of indicator principles, found in Appendix B. Using these parameters and the indicator principles, the ARC refined the pilot methodology through extensive consultation with the higher education and research sector, industry and other end-users of research. Two formal consultations were undertaken:

- A public consultation via an *Engagement and Impact Assessment Consultation Paper*, 2 May–24 June 2016, with 120 responses received.
- An end-user survey of industry and other end-users or beneficiaries of university research, 2 May–1 June 2016. The survey targeted just over 1900 end-users (ARC Linkage partners, Industry Growth Centres and industry peak bodies). The response rate was about 10 per cent.

The ARC CEO also held a series of face-to-face meetings with industry leaders and industry peak bodies to further gauge industry perspectives on ways to improve research engagement. In addition, the Steering Committee and working groups drew on lessons from Australian and international models of engagement and impact studies including the UK REF, the ATSE *Research Engagement for Australia* trial and the Go8-ATN Excellence in Innovation for Australia trial.

## Conduct and review of the pilot

The pilot commenced in December 2016 when the ARC provided participating institutions with the EI Pilot Submission Guidelines. In the first half of 2017, institutions collected data and drafted their narrative statements. The ARC received submissions in May 2017. There were 39 universities who made submissions for the pilot with:

• 94 engagement submissions made across the four disciplines tested for engagement

- 200 impact submissions made including
  - $\circ$  155 impact studies across the six disciplines tested for impact
  - $\circ$  26 institutional interdisciplinary impact studies and
  - 19 Indigenous research impact studies.

In June 2017, 64 highly experienced researchers and research end-users conducted the pilot assessments across five assessment panels. The assessment process included an initial examination of submissions by individual assessors followed by a meeting of the whole assessment panel to moderate and determine final ratings.

Following the conclusion of the assessments, the ARC convened a separate pilot review panel comprising members of the assessment panels, experts in research evaluation and research end-users. This panel met in July 2017 to review the pilot methodology and to provide further advice to the ARC. The ARC also sought feedback from all participating universities, the assessment panel members and institution cohort groups.

The Steering Committee and working groups subsequently met in August 2017 to consider the outcomes of the pilot, as well as the changes to the methodology for El 2018 set out in this report.

## Structure of the report

This report has the following four parts:

- Part 1—pilot methodology
- **Part 2**—pilot findings on the overall assessment framework
- Part 3—pilot findings on the engagement methodology
- **Part 4**—pilot findings on the impact methodology.

Pilot Methodology

## Introduction

Part 1 of the report outlines the methodology for assessing research engagement and impact tested in the pilot. It discusses the overarching framework for assessment, including the structure of the UoA. It further details the data and narrative information collected, the disciplines tested, the definitions, and rating scales for engagement and impact.

## Pilot framework

The pilot tested the engagement and impact of university research at the discipline level. It defined the UoA as the two-digit ANZSRC FoR at the submitting institution. The assessment panels examined and rated engagement and impact separately, and across different disciplines. Each panel in El 2018 will assess both the engagement and impact of a UoA.

Panels used a suite of quantitative indicators and a supporting narrative statement to assess engagement in the pilot. To assess impact, panels rated narrative impact studies that demonstrated the approach to impact and example of impact within UoAs. Each assessed UoA was allocated a single rating for impact and a single rating for engagement. Figure 1 illustrates this framework.

Figure 1: Overarching methodology for the El Pilot



## Engagement methodology

Panels assessed engagement in the pilot using a suite of quantitative indicators and a supporting narrative statement.

The engagement pilot assessed UoAs across the following two-digit FoRs:

- 03 Chemical Sciences
- 11 Medical and Health Sciences
- 21 History and Archaeology
- 22 Philosophy and Religious Studies.

The reference period for the quantitative and qualitative engagement information submitted by participating universities was 1 January 2008 to 31 December 2013. This reference period was based on existing ERA reference periods for ERA 2015 and ERA 2012, so that existing data could be used to minimise burden on institutions participating in the pilot.

## Definition of engagement

The pilot tested a definition of engagement, which provided guidance to institutions about what kind of data and information they should include in their engagement submissions. The definition of engagement used for the pilot was:

Research engagement is the interaction between researchers and research enduses (including industry, government, non-government organisations, communities and community organisations), for the mutually beneficial exchange of knowledge, technologies and methods, and resources in a context of partnership and reciprocity.

## Engagement indicators and narrative

The quantitative indicators of engagement tested in the pilot were:

- cash support from end-users
- total HERDC research income (specified categories)
- ratio of ARC Linkage grants to ARC Discovery grants
- research commercialisation income
- co-supervision of HDR students by research end-users
- co-authorship of research outputs with research end-users
- co-funding of research outputs with research end-users
- patents granted
- citations in patents to traditional research outputs
- in-kind support from end-users
- the proportion of total research outputs available via open access.

An engagement narrative (500 words in length) provided context for the indicators and allowed institutions to describe engagement activities. It also allowed institutions to provide additional quantitative information, which was considered during the review as possible indicators for subsequent rounds. Institutions could add up to four additional indicators, for each submitted UoA.

## Assessment of engagement

The rating a UoA received for engagement depended on the assessment panel's holistic judgement of the evidence provided by the indicators and the narrative. There was no weighting applied to any particular indicator. Following assessment, the panel assigned a rating of either Limited, Emerging or Mature using the scale below:

## Engagement rating scale

## Mature

- Strong evidence of research engagement within the UoA across a broad range of indicators and the narrative.
- Strong evidence that research engagement is well integrated into the development and ongoing conduct of research within the UoA.

## Emerging

- Evidence of research engagement within the UoA across a number of indicators and the narrative.
- Evidence that research engagement is incorporated into relevant parts of the research process within the UoA and/or that research engagement is improving.

## Limited

- Little or no evidence through the indicators or the narrative of research engagement within the UoA.
- Little or no evidence that research engagement is incorporated into the research process or that research engagement activities are being developed.

## Impact pilot methodology

The pilot tested impact through the submission and assessment of narrative based impact studies. Each institution could submit one impact study per UoA, which included such information as:

- the approach to impact in the UoA—that is, the mechanisms used by an institution or its faculties, departments, schools etc., to facilitate research impact
- an impact example—detailing the nature and extent of the impact that occurred
- the research associated with the impact.

The definition for impact was:

*Research impact is the contribution the research makes to the economy, society and environment, beyond the contribution to academic research.* 

The reference period for impact was 1 January 2011–31 December 2016 (6 years). The reference period for associated research was 1 January 2002–31 December 2016 (15 years).

There were three types of impact UoAs:

- UoAs defined by the six two-digit FoRs tested for impact:
  - 05 Environmental Sciences
  - 07 Agricultural and Veterinary Sciences
  - 09 Engineering
  - 13 Education
  - 19 Studies in Creative Arts and Writing
  - 20 Language, Communication and Culture
- Institutional interdisciplinary—an optional additional impact study per institution.
- Indigenous research.

Interdisciplinary impact studies were included so that institutions could highlight specific examples of collaboration across disciplines that brought about impact. Although the UoA impact studies allowed for additional FoR codes to be assigned, the interdisciplinary impact study is a way of creating incentives for collaboration and highlighting its importance.

#### Indigenous research impact studies

In response to stakeholder feedback, the pilot sought to address concerns that Indigenous research may not be represented adequately in discipline-based reporting. The pilot trialled Indigenous research as separate impact UoAs.

The Indigenous Research Assessment Panel assessed Indigenous research UoAs and considered other UoAs that indicated there was an Indigenous research element. The panel also provided advice to the ARC regarding the overall suitability of this approach.

## Assessment of impact studies

The assessment focused on the approach to impact, in which institutions explained the goals, plans and activities they had enacted to support and enable impact in relation to the UoA. This included:

- support for the UoA from the institution at all levels to achieve impactful outcomes
- how researchers interacted and engaged with end-users
- evidence of how mechanisms of research translation were integrated into research practices
- articulation of the link between the approach to impact in the UoA and the example of impact used in the impact study.

The rating a UoA received for impact depended on the judgement the assessment panel made on the approaches to impact and the example of impact. While there was a focus on the approach to impact, the assessment panels made their judgement using all the information provided in the impact study template. The panel assigned a rating of either Limited, Emerging or Mature using the scale below:

## Impact rating scale

## Mature

- Strong evidence of well-established mechanisms for helping research within the UoA translate into significant social, economic or environmental benefits.
- Strong evidence that the mechanisms for translating research are well-integrated into the development and ongoing conduct of research within the UoA.
- Evidence that the research has had a significant and identifiable impact beyond academia.

## Emerging

- Evidence that mechanisms were in place to encourage or promote the translation of research into social, economic or environmental benefits.
- Evidence that the mechanisms for translation have been incorporated into relevant parts of the research process within the UoA and/or that these are improving.
- Evidence that the research has had an identifiable impact beyond academia.

## Limited

- Little or no evidence that the university has taken an active role within the UoA to assist the translation of research into social, economic or environmental benefits.
- Little or no evidence that the mechanisms for translation were incorporated into the research process within the UoA are being developed.
- Little or no evidence that the research has had an identifiable impact beyond academia.

Pilot Findings—Overall Framework

## Introduction

Part 2 of this report discusses the findings that relate to the overarching methodology tested in the pilot. It is based on ARC analysis of pilot data, feedback from institutions and assessment panels, and advice from the review panel, Technical Working Group, Performance and Incentives Working Group and Steering Committee.

Overall, the ARC considers the pilot methodology for the assessment of engagement and impact suitable for the assessment of engagement and impact across all disciplines. However, modifications are required in the key areas of:

- rating scales for engagement and impact
- FoR 11 Medical and Health Sciences—its volume of data and unique publishing behaviour
- the suitability of the low-volume threshold for participation in the El Assessment
- the definitions of engagement, end-user and impact.

## Pilot findings—Key modifications to the overarching methodology

## The rating scales

The rating scales for engagement and impact used the same terminology (Mature, Emerging, Limited) but provided different descriptors in each rating point for engagement and impact.

Feedback on the ratings scales was mixed. However, one consistent view was that the terminology was problematic for both engagement and impact. There were concerns that the term 'emerging' suggested that a UoA was on a upward trend to 'mature' when, in fact, evidence may show that a UoA was actually on a downward trend to 'Limited'.

Noting the concerns with the rating scale for engagement and impact, El 2018 will maintain the three-point scale but the points on the scale will be modified to low, medium and high.

## EI 2018

The rating scales for engagement, approach to impact and impact will be three point scales—low, medium and high.

## Division of the UoA defined by FoR 11 Medical and Health Sciences

The pilot tested the two-digit FoR 11 Medical and Health Sciences as a single UoA. Feedback received during the course of the pilot review was that FoR code 11 should be divided into two categories—Biomedical and Clinical Sciences and Public and Allied Health Sciences, due to:

- its large size in terms of the volume of research it captures compared with other two-digit FoRs
- the diversity of research activity represented by the four-digit FoRs within the two-digit 11 FoR.

To address this for EI 2018, the ARC will divide FoR 11 using the four-digit FoRs shown in Table 1.

Table 1 Division of 11 Medical Health Sciences into Biomedical and Clinical Sciences, and Public and Allied Health Sciences

Biomedical and Clinical Sciences	Public and Allied Health Sciences
1101 Medical Biochemistry and Metabolomics	1104 Complementary and Alternative Medicine
1102 Cardiovascular Medicine and Haematology	1106 Human Movement and Sports Science
1103 Clinical Sciences	1110 Nursing
1105 Dentistry	1111 Nutrition and Dietetics
1107 Immunology	1117 Public Health and Health Services
1108 Medical Microbiology	1199 Other Medical and Health Sciences
1109 Neurosciences	
1112 Oncology and Carcinogenesis	
1113 Ophthalmology and Optometry	
1114 Paediatrics and Reproductive Medicine	
1115 Pharmacology and Pharmaceutical Sciences	
1116 Medical Physiology	

## EI 2018

11 Medical and Health Sciences will be divided to form the Biomedical and Clinical Sciences, and the Public and Allied Health Sciences.

## Low-volume threshold

The pilot tested the validity of a low-volume threshold for participation in the El Assessment. It was set at the ERA low-volume threshold of 50 weighted research outputs (with 1 book counting as 5 outputs).

In analysing data from the pilot, the ARC found that almost all UoAs submitted to the pilot had over 100 outputs. There were concerns raised in the review that UoAs close to the low-volume threshold may have too little data or evidence to present in either an engagement or impact assessment.

Consequently, in EI 2018 the low volume threshold will be raised to 150 outputs. If an institution considers that a UoA falling below the low-volume threshold has sufficient evidence to be assessed for engagement or impact, it can choose to opt-in.

## EI 2018

The low volume threshold will be raised to 150 outputs with the possibility for institutions to opt-in to either engagement or impact assessments if they do not meet this threshold.

## Definitions for EI 2018

Based on the findings from the pilot, the definitions for the key terms "engagement", "end-user", and "impact" have been updated.

## Definition of engagement

The review of the pilot found that modifications to the definition of engagement were required, as it was too complex. It also did not explicitly identify that the assessment aims to examine university research engagement with those outside of the academic sector. Therefore, the definition of engagement in El 2018 will be simplified to:

The interaction between researchers and research end-users outside of academia, for the mutually beneficial transfer of knowledge, technologies, methods or resources.

## Definition of end-user

The pilot did not define the term end-user. This presented a significant challenge for institutions in developing their submissions, especially in identifying specific data items. Therefore, the ARC developed the following definition of end-user for the assessment. It is designed to incorporate the principle that the assessment is examining engagement beyond the academic sector. End-user is defined as:

An individual, community or organisation external to academia that will directly use or directly benefit from the output, outcome or result of the research.

*Examples of end-users includes businesses, governments, non-governmental organisations, communities and community organisations.* 

Specific exclusions of research end-user are:

- publicly funded research organisations (CSIRO, AIMS, ANSTO, etc.)
- other higher education providers
- organisations that are affiliates, controlled entities or subsidiaries (such as Medical Research Institutes) of a higher education provider
- equivalents (international or domestic) of the above exclusions.

## Definition of impact

The definition of impact tested in the pilot (see Part 1) was designed to be sufficiently broad to capture all types of impact outside of academia. Feedback from the pilot suggested that the definition could be interpreted more narrowly than intended and as a result, could exclude some types of impact. In particular, there were concerns that cultural impacts might be seen as irrelevant to the assessment. Such an outcome would be contrary to the intent of the definition and the purpose of the assessment.

The definition of impact will be modified for EI 2018 to be:

*Research impact is the contribution that research makes to the economy, society, environment and culture beyond the contribution to academic research.* 

## EI 2018

The new definitions of engagement, end-user and impact outlined above will be used.

Pilot Findings—Engagement

## Introduction

Part 3 presents the Engagement findings, drawing on a range of evidence gathered in the pilot. This includes ARC analysis of pilot data, feedback from institutions and assessment panels, and advice from the review panel, Technical Working Group, Performance and Incentives Working Group and Steering Committee. It provides the evidence base for the engagement assessment methodology for El 2018.

Part 3 provides a summary methodology for El 2018, identifying what role each piloted engagement indicator will play. The following section, *El 2018 Engagement indicators*, presents each of the indicators that will be included in El 2018, detailing the relevant pilot findings. The final section, *El 2018 optional indicators*, presents the remaining piloted indicators, plus a longer list of optional engagement indicators.

## Summary methodology for EI 2018

The engagement assessment in EI 2018 will comprise three elements: engagement indicators, an engagement indicator explanatory statement and an engagement narrative.

## El 2018 engagement indicators

The following indicators will be included in EI 2018:

- cash support from end-users
- total HERDC income per FTE (specified schemes)
- end-user sponsored grants: proportion of HERDC Category 1
- research commercialisation income (selected FoR codes only).

Additionally, data on the co-supervision of HDR students by end-users will be collected in 2018 but not assessed. The ARC expects that future rounds will assess this indicator.

## Engagement indicator explanatory statement

An indicator explanatory statement of around 750 words will accompany the indicator data for each UoA. Institutions can use this statement to complement their indicator data by adding context or further explanation.

## El 2018 engagement narrative

An engagement narrative of around 1000 words will be included in El 2018. Institutions can use their narrative to describe their engagement activities, strategy and/or objectives. They can select evidence including, but not limited to, the other indicators that the pilot tested. These indicators will form part of an extensive list of optional engagement indicators. Institutions can draw on any qualitative or quantitative information for their narrative—not just indicators from the optional list. The following pilot indicators will be optional in 2018:

- co-authorship of research outputs with research end-users
- co-funding of research outputs with research end-users
- patents granted
- citations in patents
- in-kind support from research end-users
- outputs available via open access.

## EI 2018 engagement indicators

This section presents each of the indicators included for EI 2018. It summarises the findings, feedback and advice that underpins the decision to include them in EI 2018.

## Cash support from end-users

This indicator focuses on the amount of cash support that research end-users have provided to institutions for research. Funding of this type may point to engagement as it indicates an interaction between researchers and end-users for a mutually beneficial exchange of knowledge and resources. This indicator does not capture contributions from funding bodies such as the ARC or National Health and Medical Research Council (NHMRC), as these relationships do not represent engagement activity as defined in the pilot.

Institutions reported end-user cash amounts against the appropriate HERDC income category, according to the research and its funding sources. For HERDC Category 1 research funding, only specified schemes and grants were included. The specified schemes were a subset of items from the Australian Competitive Grants Register (ACGR), which determines income eligibility for each institution's Category 1 HERDC return. The specified schemes and grant types were those considered most likely to represent some level of engagement with end-users. See Appendix C for details of research income that was eligible for inclusion in this indicator.

The pilot indicator included total cash amounts over the six years of the reference period—2008 to 2013. The indicator also included a median end-user cash figure for each HERDC category for comparison (FoR-specific; median of institutions who submitted data to the pilot).

## El Pilot findings

The reported total income that institutions identified as cash support from end-users varied greatly across the four piloted FoR codes. Figure 2 shows the overall total cash support from end-users among institutions that participated in the pilot. Of the end-user cash support from institutions that submitted a UoA for assessment in FoR 03 Chemical Sciences, the total amount reported was approximately \$85 million dollars. FoR 11 Medical and Health Sciences had the highest amount of cash support from end-users at around \$2,160 million dollars. The HERDC category breakdown for each FoR is shown at the bottom of Figure 2. The pilot found the FoRs 21 and 22 had much lower levels of cash support from end users—around \$44 million in FoR 21 History and Archaeology, and \$10 million in FoR 22 Philosophy and Religious Studies.

While FoRs 21 and 22 had the lowest overall level of income identified in this indicator, further analysis suggests the indicator still offers a way to differentiate between UoAs. Median values were zero in some categories in FoRs 21 and 22, but were non-zero in categories 2 and 3(i)—the categories where the majority of end-user cash was reported. Category 2 is 'Other public sector' and category 3(i) is largely Australian industry and NGO income. A non-zero median provides assessors with a reference point that allows benchmarking of the indicator data. Despite low end-user cash figures in FoRs 21 and 22, there was still variation in end-user cash support among participating UoAs, especially in categories 2 and 3(i). The reference point could potentially improve if UoA distribution data was presented to assessors (in addition to the median).



Figure 2: Total income identified as cash support from end-users in FoR codes 03, 21 and 22 (top) and FoR 11 (bottom)

Notes—analysis includes income from institutions that participated in the pilot in each discipline. Cash support reported in FoR 11 is displayed separately as the total amount is considerably larger than in the other FoR codes. The number of participating UoAs for each FoR code was—03: n=20, 11: n=35, 21: n=22 and 22: n=17.

## Indicator evaluation

The pilot provided the ARC with a range of quantitative and qualitative data on the suitability of this indicator for assessing engagement. Overall, stakeholders were supportive of cash support from end-users being included as a measure of engagement. Some were concerned that the specified schemes for Category 1 were too narrow and excluded a number of schemes where institutions received cash support from end-users. Some found the definition of end-user was not clear and may have been interpreted differently among institutions. Feedback suggested many institutions had not previously collected this data and did not have systems in place to capture it accurately or efficiently.

Many of the concerns raised during the pilot can be addressed for El 2018. The definition of enduser provided in Part 2 of this report will reduce ambiguity and improve consistency between institutions. The ARC will also review the list of specified HERDC Category 1 schemes prior to El 2018. The capture of data retrospectively may challenge institutions in El 2018, but this should improve for future rounds.

#### Indicator decision

#### EI 2018

Cash support from end-users will be included as an engagement indicator

#### Note-policy developments relevant to cash support from end-users indicator

DET is making changes to the HERDC data collection such that each HERDC income category will rely on a self-assessment approach by submitting institutions, aligning with broad category definitions set by the department. Subsequently, HERDC Category 1 will not rely on the ACGR list, and the list will no longer be updated to reflect new grants. As the DET Category 1 changes will come into effect after the EI 2018 reference period has ended, the AGCR can still be used as a basis for eligible schemes for this indicator. For rounds beyond 2018, the indicator will be reviewed to accommodate the changes to the HERDC data collection methodology.

## Total HERDC research income (specified schemes)

This indicator expands on the previous indicator (cash support from end-users) to report all HERDC research income from the same specified schemes and sources (not just cash from end-users). It also provides context for the income reported by normalising it on a per FTE basis. In the pilot, the indicator used data from each institution's ERA 2015 and ERA 2012 submissions. Institutions did not provide any supplementary information. See Appendix C for details of what income was eligible.

The amount of income (\$) and income per FTE (\$) were shown for the specified schemes in Category 1; and for each of Categories 2, 3(i), 3(ii), 3(iii) and 4. The indicator included a comparison against the national median for each of these categories.

#### El Pilot findings

The reported total HERDC research income varied greatly across the four piloted FoR codes and between the different HERDC categories (Figure 3, page 26). The indicator returned non-zero medians for most of the HERDC categories in FoRs 03, 11 and 21, providing assessors with useful reference points for the indicator data. In FoR 22 categories 2 and 3(i) had non-zero medians and there was variation among UoAs in this income.

#### Indicator evaluation

Overall, stakeholders considered this a useful indicator for assessing engagement. They noted that institutions already report this income in ERA, so there was no need to collect or submit extra data. Stakeholders thought the indicator would be improved if institutions were able to provide context for the indicator by explaining the relationship between the income data and their engagement activities in an accompanying explanatory statement. Stakeholders were concerned that the total income figure was largely influenced by the scale of the institution, but advised that the use of income per FTE allowed for a fair comparison between small and large UoAs.

As was the case with the end-user cash support indicator, stakeholders thought the specified schemes for Category 1 should be expanded to include all grants and funding sources that are indicative of engagement with end-users. The ARC will review the specified HERDC Category 1 schemes.

Figure 3: Total HERDC research income (specified schemes) by category and by FoR code (03, 21 and 22 in top chart, FoR 11 below)



## Indicator Decision

## EI 2018

Total HERDC research income (specified schemes) will be included as an engagement indicator.

Note: the proposed change to the DET HERDC reporting process will affect this indicator in future years. See the note on this policy development on page 25 for information about the change. The ARC will review this indicator after EI 2018 to accommodate the new HERDC process.

## Ratio of ARC Linkage grants to ARC Discovery grants

This indicator focused on the mix of HERDC Category 1 funding arising from ARC Linkage grants and ARC Discovery grants. These grants have clear aims and scope regarding the types of research they fund. Grants awarded under the ARC Linkage Program aim to encourage and extend cooperative approaches to research, while grants awarded under the ARC Discovery Program aim to encourage and support fundamental research.

Only grants awarded under specified Linkage and Discovery funding schemes were eligible for inclusion in this indicator. The list of eligible Linkage funding schemes includes the following (with their equivalents going back through the reference period) plus some former schemes that have since ended:

- Linkage Projects
- Industrial Transformation Research Program
- ARC Centres of Excellence
- Special Research Initiatives
- Linkage International Scheme.

The list of eligible Discovery funding schemes includes the following (again, with their equivalents going back through the reference period):

- Discovery Projects
- Discovery Early Career Researcher Award
- Future Fellowships
- Australian Laureate Fellowships
- Discovery Indigenous.

This indicator used data from each institution's ERA 2015 and ERA 2012 submissions. Institutions did not submit any supplementary information. For each year of the reference period (2008 to 2013), the indicator showed the ratio of the count of eligible Linkage grants to the count of eligible Discovery grants. To count as having a grant in a particular year, the institution must have been in receipt of funding from a particular eligible grant in that year, have included that funding in the applicable HERDC return and ERA submissions (2015 and 2012), and have assigned part or all of the funding to the FoR in question. They did not need to be the administering institution or to have employed the chief investigator.

## El Pilot findings

From a national perspective, the values for this indicator are low across most disciplines and years. For each piloted FoR code, Figure 4 shows the average ratio of Linkage to Discovery among the 39 institutions that participated in the pilot, across each year of the reference period. Nationally the ratio is low (< 0.5) in FoR codes 03, 21 and 22, across all six years of the reference period. In FoR code 11, the average ratio is around 1 in the years 2008, 2009 and 2010, but then declines over the remaining period. The ratio also declines from 2008 to 2013 in FoR codes 03 and 22.



Figure 4: Average ARC Linkage to ARC Discovery ratio 2008–2013 by year and FoR code

Note—average ratio is total count of ARC Linkage grants over total count of ARC Discovery grants, for all 39 institutions that participated in the pilot.

The indicator data provided to assessors reflects the generally low average values for this indicator shown above. The median values provided as a point of comparison were zero or very low in the Humanities, Arts and Social Sciences (HASS) disciplines—21 and 22—in each year of the reference period (Table 2). These disciplines had a high number of institutions with a zero ratio in each year. FoR 03 had slightly higher median values, but still had significant numbers of institutions with zeros. FoR 11 had higher median ratios (around 1 in most years) and fewer zero values.

		2008	2009	2010	2011	2012	2013
FoR 03	Pilot median	0.33	0.38	0.25	0.13	0.17	0.11
	No. zero ratios	14	14	14	17	17	18
FoR 11	Pilot median	1.00	1.00	1.00	1.00	0.78	0.60
	No. zero ratios	7	7	7	7	4	6
FoR 21	Pilot median	0.00	0.00	0.00	0.10	0.09	0.09
	No. zero ratios	23	23	24	19	17	18
FoR 22	Pilot median	0.00	0.00	0.00	0.00	0.00	0.00
	No. zero ratios	29	33	31	32	31	33

Table 2: Median values and count of zero values for ratio of Linkage grants to Discovery grants by year and FoR code

Note—pilot median values are among the 39 institutions that participated in the pilot. The ARC provided pilot assessors with the median (FoR code- and year-specific) and the number of institutions with a zero value, for each year of the reference period.

#### Indicator evaluation

Stakeholders saw value in the inclusion of an indicator that focuses on competitive grants that are end-user focussed, sponsored or funded. However, multiple lines of evidence from the pilot suggest this indicator is unsuitable for measuring engagement in its current form. Institutions, assessment panels and the review panel all thought the indicator was too narrow in its focus on grants from ARC Linkage schemes. They thought the indicator should include all sponsored grant income instead of being restricted to Linkage grants. Stakeholders pointed to many other grants and schemes that are end-user funded or sponsored, including from Rural Research and Development Corporations, the NHMRC and various government agencies. They similarly found that the denominator should be expanded from ARC Discovery grants to a more comprehensive set of funding.

From a data perspective, the pilot found the average Linkage to Discovery ratio was low across most disciplines and the median was frequently low or zero. Stakeholders noted that Linkage grants are uncommon in FoR 22, making a Linkage-focussed indicator unsuitable for that discipline. Findings from the pilot also raise a number of methodological questions relating to this indicator. These include:

- Should the indicator use counts of grants or funding amounts (\$)?
- If counts are used, how should the methodology treat grants that are spread over a number of years and across more than one FoR code?

## Indicator decision

EI 2018 will include an indicator that captures end-user sponsored or focussed grants. The ARC will develop an improved methodology that captures a broader range of grants in the numerator and identifies a correspondingly broader pool of funding in the denominator. It will also review the grant count methodology.

## EI 2018

An engagement indicator capturing end-user sponsored grants will be developed and included.

## Research commercialisation income

Research commercialisation income indicates a mutually beneficial arrangement between an institution and a research end-user. In the pilot, the indicator used data from each institution's ERA 2015 and ERA 2012 submissions. Institutions did not submit any supplementary information. Research commercialisation income for ERA purposes is income from licences, options and assignments (LOAs), including running royalties, cashed-in equity and other types of income. Institutional intellectual propert LOAs negotiated on full commercial terms, granting access to institutional intellectual property (patented or otherwise) in return for royalties or licence fees. Research commercialisation income earned by institution-owned subsidiaries and spin-off companies was eligible for inclusion in ERA if the institution could account for this income in its audited financial statements. It does not include commercial income from other sources such as research contracts and consultancies, commissioned works, student fees, the renting of space at universities or any other source.

## El Pilot findings

Research commercialisation income was low across three of the four piloted FoR codes. Figure 5 shows the sum total of research commercialisation income reported in ERA 2015 and ERA 2012 across the four piloted FoR codes, covering the years 2008 to 2013. FoR 11 Medical and Health Sciences had the highest amount of research commercialisation income among the piloted FoRs. FoR codes 21 and 22 each had less than \$50,000 total research commercialisation income (not visible relative to FoR 11 in Figure 5).



Figure 5: Total research commercialisation income 2008–2013 in piloted FoR codes

Figure 6 extends the indicator analysis to include the non-piloted two-digit FoR codes, with the exception of FoR 11, which has a much greater scale than other FoRs (as shown in Figure 5), and FoR 18, where research commercialisation income is not collected in ERA. The numbers in brackets at the end of each bar show the number of institutions that reported research commercialisation income for the period. The remaining institutions reported zero.

Figure 6 identifies a number of FoRs for which the amount of research commercialisation income is extremely low. FoR codes 16, 20, 21 and 22 each have a six-year national total of less than \$70,000. The remaining FoRs range from nearly \$200,000 in FoR 12 Built Environment and Design, to nearly \$70 million in FoR 07 Agriculture and Veterinary Sciences (Figure 6) and \$200 million FoR 11 Medical and Health Sciences (Figure 5).

Note—analysis includes all 41 institutions that submitted data in ERA 2015 and ERA 2012.



Figure 6: Total research commercialisation income 2008–2013, all FoR codes (excluding FoR 11 and FoR 18)

Notes—analysis includes all 41 institutions that participated in ERA 2015 and ERA 2012. The number in brackets at the end of each bar represents the number of institutions that had a non-zero value for research commercialisation income. FoR 11 has a much higher level of research commercialisation income (see Figure 5), so it cannot be shown on this figure. FoR 11 had 17 institutions with a non-zero value. ERA does not collect this data in FoR 18.

Among the Science, Technology, Engineering and Mathematics (STEM) disciplines (FoRs 01 through 11, plus 17), the average number of institutions with data in this indicator is 12, with the highest being 22 in FoR 09. Among the relevant HASS disciplines (12–16 and 19–22), the average number of institutions reporting research commercialisation income is five, with the highest being 11. Further analysis shows the median value among all institutions is zero in all FoR codes except 09 Engineering, where it is around \$12,000 for the six-year period (Table 3).

The same data was used to model a new median that includes only those UoAs that met the low volume threshold of 50 or more outputs. Switching to such a restricted median results in UoAs being compared only to others that have a meaningful level of output activity in the discipline—assessable UoAs are compared to other assessable UoAs. Table 3 shows that the use of a restricted median— calculated only among assessable UoAs—results in a non-zero median for five FoR codes. A non-zero median provides assessors with a meaningful point of reference for assessing indicator data. The codes with non-zero medians under this model are 03, 06, 08, 09 and 10. Further codes where this indicator may provide useful information to assessors are 02, 07, 11 and 13. These codes each have a minimum of 10 institutions that reported research commercialisation income for the reference period (Figure 6). The reference point might be improved in these codes if UoA distribution data was presented to assessors (in addition to the median).

	Among all 41 E	<b>RA institutions</b>	;	А	mong assessal	ole UoAs only
FoR	Number with	Number with	Median	FoR	Number with	Median
Code	RC income	zero	(from 41)	Code	zero	(restricted)
01	6	35	0	01	21	0
02	10	31	0	02	14	0
03	15	26	0	03	11	\$19K
04	6	35	0	04	15	0
05	5	36	0	05	30	0
06	19	22	0	06	14	\$12K
07	11	30	0	07	14	0
08	18	23	0	08	16	\$5K
09	22	19	\$12K	09	12	\$67K
10	8	33	0	10	4	\$9K
11	17	24	0	11	23	0
12	4	37	0	12	19	0
13	11	30	0	13	28	0
14	4	37	0	14	31	0
15	7	34	0	15	31	0
16	4	37	0	16	36	0
17	8	33	0	17	26	0
19	7	34	0	19	25	0
20	4	37	0	20	33	0
21	< 4	> 37	0	21	31	0
22	< 4	> 37	0	22	28	0

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Note–analysis covers the 21 FoR codes that have research commercialisation (RC) income collected during ERA rounds (FoR 18 does not report research commercialisation income in ERA).

## Indicator evaluation

Stakeholder views regarding this indicator's suitability for measuring engagement were mixed. In the HASS disciplines, stakeholders suggested that research commercialisation income is largely unsuitable. However, they noted that in some STEM disciplines research commercialisation income does exist and is significant for the evaluation of engagement. Stakeholders offered support for the use of this indicator in select disciplines where a meaningful set of data exists. Several stakeholders thought the indicator data would be enhanced if institutions could provide additional or supporting information in text form, explaining how the data relates to their engagement activities.

Stakeholders noted that institutions can include this indicator in the EI Assessment without extra work, as they already collect the data for ERA.

#### Indicator decision

Several lines of evidence from the pilot point to research commercialisation income being a useful indicator in select disciplines where there is a meaningful level of data.

#### EI 2018

Research commercialisation income will be included as an engagement indicator in select FoRs.

## Co-supervision of HDR students with end-users

This indicator captures the co-supervision of HDR students where at least one supervisor is a research end-user. Co-supervision of HDR students with end-users represents a relationship between institutions and end-users. For the pilot, the number of co-supervised HDR students was calculated on the number of students enrolled on the census date (31 March) in each year of the reference period. Each institution supplied new data to the pilot for this indicator.

## EI Pilot findings

The overall level of co-supervision of HDR students varied across the four piloted FoR codes, from 2.1 per cent in FoR 21 to 9.9 per cent in FoR 11 (Figure 7). Co-supervision rates varied greatly between UoAs in FoRs 03 and 11, which had medians around 8 per cent. UoAs in FoRs 21 and 22 generally had lower rates, with most institutions reporting no co-supervised HDR students. Both HASS codes had medians of 0 per cent.





Note—analysis only includes institutions that participated in the pilot in each discipline.

## Indicator evaluation

Overall, stakeholders were supportive of this indicator as a measure of engagement. They noted that many end-users might not meet the strict qualification requirements set by institutions for formal HDR supervisors. However, stakeholders thought end-users were often engaged in the research training process even when they could not be formal supervisors. Several lines of feedback suggested the indicator could be expanded in future to include other forms of end-user support for research training, such as internships with end-users or end-user funded scholarships.

A methodological issue raised in the pilot was the potential for double counting of co-supervised HDR students where they are enrolled across multiple FoRs. This issue can be addressed with an update to the indicator methodology. Stakeholders also raised concerns regarding the collection of the data. While numbers of HDR students are already collected and reported to DET each year at the census date, the number of HDR students co-supervised by research end-users is not. Identifying the status (end-user or not) of supervisors retrospectively proved a challenge for many institutions. Stakeholders observed that as the data is very difficult to collect, the figures submitted may present an incomplete view of HDR co-supervision.

#### Indicator decision

The ARC sees long-term value in this indicator, noting that co-supervision of HDR students by end-users is a form of engagement. Given the challenges institutions may face collating the data retrospectively, and noting the policy developments outlined below, co-supervision of HDR students by end-users will be collected for EI 2018 but will not be assessed. The intention is that this indicator will be included and assessed in future EI rounds beyond 2018.

## EI 2018

Co-supervision of HDR students with end-users will be collected but not assessed.

Institutions may choose to report on this and other end-user support for research training in the engagement narrative.

#### *Note—policy developments relevant to this indicator*

DET has recently developed a set of research end-user engagement indicators relating to HDR students. Information about these indicators is available from <u>www.education.gov.au</u> > News > <u>New</u> indicators for reporting higher degree by research students or

https://www.education.gov.au/news/new-indicators-reporting-higher-degree-research-students

As the DET indicators are collected in the coming years, data could potentially be sourced from the DET data collection for subsequent EI rounds.

## El 2018 engagement narrative

In the pilot, a statement of up to approximately 500 words provided context for the quantitative engagement indicators and enabled institutions to describe their engagement activities to assessors. Institutions could also provide additional indicator information separately, for consideration by assessors and by the ARC as potential future engagement indicators.

## EI Pilot findings

A narrative statement accompanied all 94 engagement UoAs. Of these, 35 included additional quantitative information.

Assessment panel members used the narrative to support and supplement the information shown in the indicators, focussing on the narrative where the data was absent for some of the indicators.

## Narrative evaluation

Feedback focussed on three main issues—the length of the narrative statement, its purpose and its structure.

Stakeholders generally considered that the character count for the engagement narrative was too short to effectively describe the activities of the UoA and provide context to the indicators. Many stakeholders thought institutions should be allowed space to address their indicator data, and additional space in which to describe their engagement activities, strategies and objectives. On the structure of the narrative template, the prevailing view was that indicator explanatory text should be separate from the description of other engagement activities.

## Engagement narrative decision

Based on the pilot findings, two changes will be made in EI 2018 to the narrative component of the engagement assessment:

- An engagement indicator explanatory statement will be included. The statement will be around 750 words and will enable institutions to provide further information about the relationship between their indicator data and UoA engagement with end-users.
- 2. An engagement narrative will also be included. The engagement narrative will increase from 500 words to around 1000 words. The engagement narrative may be used to explain engagement activities not covered by the engagement indicators. It may also include additional indicators the institution considers relevant to the engagement of the UoA. Assessment panels will be able to place more focus on the engagement narrative for disciplines, such as those in HASS, for which the metric indicators may be less relevant.

## EI 2018

Two narrative-based statements will be included:

- an engagement indicator explanatory statement
- an engagement narrative.

## EI 2018 optional indicators

The following indicators were tested in the pilot but will not be included as indicators for EI 2018. Institutions may choose to include any of these, as appropriate, in their engagement narrative, as well as any other quantitative indicators they consider to be relevant and appropriate. The end of this section also includes a list of indicators proposed through sector consultation but not tested in the pilot. Any of these may also be included in the narrative—institutions can include the evidence they deem most relevant and compelling.

## Co-authorship of research outputs with research end-users

This indicator identifies published research outputs that have at least one author from the submitting institution and one or more co-authors who are research end-users (recognising that the end-user may have multiple affiliations). The indicator attempts to capture the extent to which institutions are collaborating with end-users on research outputs.

In the pilot, the raw data for this indicator was ERA 2015 submitted research outputs (covering the six-year reference period, 2008 to 2013), with supplementary data provided by institutions. For their pilot submission, each participating institution identified which outputs in the reference period were co-authored with an end-user.

## El Pilot findings

The proportion of total outputs that institutions identified as co-authored varied greatly across the four piloted FoR codes and between participating institutions. Figure 8 shows the overall proportion of co-authorship among institutions that participated in the pilot. Of the total outputs from institutions that submitted a UoA for assessment in FoR 03 Chemical Sciences, 16 per cent were co-authored. FoR 11 Medical and Health Sciences had a much higher rate of co-authorship at 47 per cent. The pilot found FoRs 21 and 22 had lower rates of co-authorship—7 per cent in FoR 21 History and Archaeology, and 2 per cent in FoR 22 Philosophy and Religious Studies.



Figure 8 Overall proportion of co-authorship among outputs from the participating UoAs by FoR code

Note—analysis only includes outputs from institutions that participated in the pilot in each discipline.

## Indicator evaluation

Many stakeholders offered in-principle support for this indicator while noting that it captures only a subset of outputs that result from research engagement. They noted that research involving significant engagement with end-users might lead instead to outputs that identify end-users in the acknowledgements section, or do not formally identify them at all. Stakeholders thought that engagement might lead to publications in 'grey literature' rather than ERA-eligible research outputs. Further, they suggested that co-authorship would be unusual in certain disciplines, especially where single-author outputs were common. Where co-authorship does occur, stakeholders suggested that

this indicator would be more meaningful if institutions could add context to the data, explaining the engagement activities that lead to the outputs.

Stakeholders found that this data was difficult to collect retrospectively and on a large scale. They noted that the task differed greatly between STEM and HASS disciplines—FoRs 03 and 11 generally have their outputs indexed by citation providers along with affiliation data, while outputs in FoRs 21 and 22 have much lower levels of indexation, forcing institutions to rely on manual checking.

## Indicator decision

Feedback from a range of stakeholders suggests that co-authorship may be a useful indicator for measuring engagement in some disciplines. However, the data is time consuming to collate and formal co-authorship may be rare or hard to identify in some disciplines. Consequently, in El 2018 co-authorship will not be included as an indicator. Instead, institutions may choose to provide co-authorship data as part of the engagement narrative.

## EI 2018

Co-authorship of research outputs with end-users can be reported in the engagement narrative where applicable to the UoA.

## Co-funding of research outputs with end-users

This indicator identified published research outputs that end-users funded in partnership with institutions. The indicator aimed to capture the extent institutions were able to gain end-user support for the production of research outputs.

In the pilot, the raw data for this indicator were ERA 2015 submitted research outputs (covering the six-year reference period, 2008 to 2013), with supplementary data provided by institutions. For their pilot submission, each participating institution identified which outputs in the reference period resulted from research that was co-funded by an end-user.

## El Pilot findings

The proportion of total outputs that institutions identified as co-funded by end-users varied greatly across the four piloted FoR codes and between participating institutions. Figure 9 shows the overall rate of co-funding identified by institutions in the pilot. Of the total outputs from institutions that submitted a UoA in FoR 03 Chemical Sciences, 15 per cent were co-funded. FoR 11 Medical and Health Sciences had a higher rate of co-funding at 20 per cent. FoR 21 and 22 had much lower rates of co-funding—5 per cent in FoR 21 History and Archaeology, and just 2 per cent in FoR 22 Philosophy and Religious Studies.



#### Figure 9: Overall proportion of output co-funding among the participating UoAs by FoR code

Note—analysis only includes outputs from institutions that participated in the pilot in each discipline.

## Indicator evaluation

Views were mixed on this indicator. While many considered it a suitable indicator in principal, key concerns included:

- Difficulty collecting the data, as outputs had to be matched back to projects and their funding sources. Process was manual and time-consuming. Also, uncertainties about what support counts as co-funding. Was co-funding cash contributions only, or did the definition extend to inkind support or the funding of one of the co-authors on the output?
- Concerns that the indicator was collecting information that was already covered in the cash from end-users indicator.

#### Indicator decision

Given the feedback from stakeholders, co-funding will not be included as an indicator in 2018. Institutions that choose to include co-funding of research outputs for a UoA can do so in the engagement narrative.

## EI 2018

Co-funding of research outputs with end-users can be reported as an indicator in the engagement narrative where applicable to the UoA.

## Patents granted

The data for this indicator covered patents granted to an institution, its eligible researcher/s, or an institution subsidiary/spinoff company, during the reference period 2008 to 2013, inclusive. The count of patents granted to each institution came from the 2015 and 2012 ERA datasets. The assignment of FoR codes was according to each institution's 2015 and 2012 ERA submissions.

## EI Pilot findings

In the pilot, this indicator presented whole counts of patents granted by year and by granting jurisdiction. While ERA patent numbers were apportioned among FoR codes, the EI pilot methodology used whole counts. Patent families (where an institution has patented a single invention in multiple jurisdictions) were reported separately. The indicator included FoR-specific national median counts for patents granted and patent families. The indicator was piloted in FoRs—03, 11 and 21. No patent data was collected in FoR 22 during previous ERA rounds.

The following analysis includes patent granted counts only, not patent families. A separate analysis showed that this restriction still provides sufficient information for the evaluation of the indicator. Additional information about patent families yielded no new information.

Figure 10 shows the total patent granted numbers over the reference period 2008 to 2013, across all the two-digit FoR codes where patent data was collected during ERA 2015 and ERA 2012 (FoRs 01 through 12, plus 19 and 21). Of the piloted engagement disciplines, FoR 03 had 234 patents granted over the period and FoR 11 had 527. There were no patents reported in FoR 21 for any year in the reference period.

Figure 10 identifies a number of FoRs in which the total number of patents is very low. FoR codes 01, 04, 05, 12, 19 and 21 each have a six-year national total of ten patents or less. Figure 10 also identifies how many institutions had a non-zero number of patents in each FoR code (the number at the end of each bar). For example, in FoR 09 Engineering, 29 institutions had one or more patents.





Notes—analysis includes all 41 institutions that participated in ERA 2015 and ERA 2012. The number in brackets at the end of each bar is the number of institutions that have a non-zero value for this indicator.

Further analysis of ERA 2015 and ERA 2012 data shows that the median patent value among all institutions is non-zero in only four out of 14 FoR codes where patent data is collected (Table 4). For the other 10 FoR codes, the majority of institutions do not hold patents granted in 2008–2013.

FoR	Number of institutions with	Number of institutions with	Median number of
Code	patents	zero patents	patents
01	3	38	0
02	13	28	0
03	23	18	2
04	3	38	0
05	6	35	0
06	22	19	1
07	12	29	0
08	13	28	0
09	29	12	3
10	10	31	0
11	24	17	3
12	0	41	0
19	0	41	0
21	0	41	0

#### Table 4: Modelling of patents granted indicator

Note-analysis includes the 14 FoR codes that have patent data collected during ERA rounds.

#### Indicator evaluation

Stakeholder feedback indicates that patents granted is not considered a universal indicator for engagement. Some stakeholders questioned the relationship between patenting activity and engagement. They suggested that patent numbers might simply reflect institution-wide intellectual property (IP) policies, rather than engagement activities at the discipline level. Others offered in-principal support for the indicator, but ultimately found it was not useful for assessing engagement, because most values were zero or very low.

#### Indicator decision

Feedback from a range of stakeholders suggests that patents granted should not be included as an engagement indicator in El 2018. Patent data may provide a useful demonstration of engagement in some disciplines and for some institutions. Therefore, El 2018 will use patents as an optional indicator of engagement.

## EI 2018

Patents granted may be reported as an indicator in the engagement narrative where applicable to the UoA.

## Citations in patents to traditional research outputs

This indicator relates to traditional research outputs produced by an institution that have been cited in a granted patent and its associated literature. The indicator used data from ERA 2015, as well as custom data on citations in patents from an external data-provider.

The indicator was piloted in FoR codes 03, 11 and 21. It included all traditional research outputs (journal articles, conference papers, books or book chapters) published in the reference period 2008 to 2013 and submitted by an institution to ERA 2015. The assignment of FoR codes follows the institution's ERA 2015 submission. An external data provider searched a database of patents and identified all instances where a granted patent cites an output from a particular UoA.

## El Pilot findings

An analysis of the citations in patent data shows that a very small proportion of outputs from Australian institutions have been cited in patents (Figure 11). In FoR 21, citation of outputs in patents is extremely rare. Even in FoR 11 patents have cited only 2.3 per cent of outputs. Further analysis shows that these citations are spread irregularly among institutions, with many having zero.



Figure 11: Proportion of traditional outputs that have been cited by a patent by FoR code

Note—analysis includes outputs from the 39 institutions that participated in the pilot. The pilot did not include this indicator in FoR 22.

## Indicator evaluation

The pilot has provided the ARC with a range of quantitative and qualitative data on the suitability of this indicator for assessing engagement.

Several lines of evidence gathered in the pilot suggest this indicator is not a useful measure of engagement. Many stakeholders questioned the relationship between patent citations and engagement. Further, they found that the very low numbers for most UoAs rendered the indicator meaningless. However, some stakeholders still considered that if a research paper is being referenced by patents then it is a sign of engagement.

#### Indicator decision

Given the feedback from stakeholders, citations in patents will not be included as an indicator in 2018. Institutions that choose to include citations in patents for a UoA can do so in the Narrative.

## EI 2018

Citations in patents may be reported as an indicator in the engagement narrative where applicable to the UoA.

## In-kind support from end-users

This indicator focuses on any in-kind research support that end-users have provided to institutions. Funding of this type may point to engagement in that it indicates an interaction between researchers and end-users for a mutually beneficial exchange of knowledge and resources.

The ARC asked institutions to identify in-kind contributions from end-users that supported research, and to report in-kind support in monetised form. Institutions reported the in-kind amounts against the appropriate HERDC income category, according to the research and its funding sources. Only specified schemes and sources of funding were included in this indicator. The specified schemes and categories were those that are most likely to represent some level of engagement with end-users. See Appendix C for details of which income was eligible.

The indicator presented the total in-kind amounts over the six-year reference period, 2008 to 2013. The indicator included an FoR-specific national median for each HERDC category.

#### El Pilot findings

The reported total income that institutions identified as in-kind support from end users varied greatly across the four piloted FoR codes and between participating institutions. Figure 12 shows the overall total in-kind support from end-users among institutions that participated in the pilot (FoR codes 03 and 11). Of the in-kind support to institutions in FoR 03 Chemical Sciences, the total amount reported was \$30 million dollars. In FoR 11 Medical and Health Sciences it was \$56 million. The pilot found the FoR codes 21 and 22 had much lower in-kind support from end-users—\$4 million in FoR 21 History and Archaeology, and just under \$600,000 in FoR 22 Philosophy and Religious Studies (Figure 13).





Note—analysis includes in-kind data only from institutions that participated in the pilot in each discipline

Figure 13: Total income identified as in-kind support from end-users, participating UoAs, HASS FoR codes





#### Indicator evaluation

The majority of stakeholders did not support in-kind support as an engagement indicator. There were a number of reasons put forward including the difficulty of data collection, lack of clarity on what counted as in-kind support and issues with verifying the data. Stakeholders questioned whether the data would be comparable between institutions where different methodologies were applied to converting the in-kind support into monetised form.

#### Indicator decision

Given the issues identified with the in-kind support indicator, it will not be used in EI 2018. If institutions wish to include in-kind support they may do so in the engagement narrative.

## EI 2018

In-kind support from end-users can be reported as an indicator in the engagement narrative where applicable to the UoA.

## Proportion of outputs available via open access

The data for this indicator was published research outputs available via open access. Open access to research outputs may facilitate engagement with end-users by ensuring outputs are free to access and easily discoverable. The pilot used data institutions submitted in ERA 2015 and did not require any additional information from institutions. In ERA 2015, an output was open access if at least one version was available in an openly accessible repository.

## El Pilot findings

Overall levels of open access did not vary greatly across the four piloted FoR codes. Figure 14 shows the overall proportion of outputs available via open access among institutions participating in the pilot. Of the total outputs from institutions that submitted a Chemical Sciences UoA (FoR 03) for

assessment, 18 per cent were available via open access. The other STEM FoR—11 Medical and Health Sciences—had a slightly higher rate of open access at 21 per cent. The two HASS disciplines had similar rates of open access—around 15 per cent in FoR 21 History and Archaeology, and 14 per cent in FoR 22 Philosophy and Religious Studies.



Figure 14: Proportion of outputs available via open access from participating UoAs, by FoR code

Note—analysis only includes outputs from institutions that participated in the pilot in each discipline.

#### Indicator evaluation

Multiple stakeholder groups thought open access rates were a reflection of institution policies and funding capacity—not of engagement. This led them to question the relationship between open access rates and engagement at the discipline level. Many stakeholders could not see how open access met the definition of engagement, which is defined in part as 'the interaction between researchers and research end-users'. There were occasional dissenting views though, with some stakeholders offering support for open access as an indicator of a willingness to engage.

## Indicator decision

Feedback from a range of stakeholders suggests this indicator offers little insight into the engagement activities of institutions. Therefore, open access will not be used as an indicator for assessing engagement in El 2018. However, the ERA exercise will continue to collect the data for reporting purposes.

## EI 2018

Open access can be reported in the engagement narrative where applicable to the UoA.

## Optional indictors

Institutions can use their EI 2018 engagement narrative to describe their engagement activities, strategies and/or objectives. They can draw on evidence of their choosing, including, but not limited to, the following optional indicators. Institutions can draw on any qualitative or quantitative information for their narrative—not just indicators from the optional list.

## Potential indicators for optional use in the engagement narrative

- Co-authorship of research outputs with research end-users
- Co-funding of research outputs with research end-users
- Patents granted, PCT applications, triadic patents
- Citations in patents to traditional research outputs
- In-kind support from end-users
- Licencing agreements
- Confidentiality agreements
- Number of contracts for research, consulting, expert witness and testing
- Number of licences, assignments and options
- Number of different clients with contracts worth greater than a threshold value
- Philanthropy linked to research support and in-kind support
- Book sales
- Repeat business with industry
- Start-up/spin-out companies
- Serving on external advisory boards
- Consultations with community groups, professional/practice organisations, government bodies
- Consultation with/advice to Government
- Expert witness in court cases
- Contributions/submissions to public enquiries on industry-research related issues
- Public lectures, seminars, open days, school visits
- Presentations to practitioner communities
- Connections to cultural institutions, seminars/workshops, internships and engagement with the public
- HDR students in internships/placements
- HDR student destinations
- Support for cultural events/institutions—e.g. Writers' Festivals, Film Festivals, Vivid Sydney, etc.
- Evidence of significant institutional partnerships—e.g. Sydney Health Partners; various global research consortia, OECD, World Bank, World Health Organisation, UN, UNESCO
- Co-designing and collaborating on performances and exhibitions
- Mobility of researchers (i.e. researchers employed or placed outside academia, for example embedded with research end-user partners, and/or research end-user employees that are employed or placed within academia)
- Mentoring external research partners
- Established networks and relationships with research users
- Involving users at all stages of the research, including working with user stakeholder and participatory groups
- Memoranda of Understanding (MOU)/Agreements

- Collect data around performance and the different types of public activities in which researchers generally report their work to the community or use their research capacity to further the work of community organisations
- Event participation statistics (public lectures, cultural events, exhibitions, etc.)
- Outreach activities (public lectures, policy engagements, media engagements, community events)
- Media coverage of exhibitions and new works
- Modification of traditional 'commercialisation' metrics such as 'spin-offs' to capture arts entrepreneurship such as setting up galleries, ensembles, groups and other professional practice entities
- Metrics which capture social media activity

Pilot Findings—Impact

## Impact pilot findings

Part 4 sets out the findings of the impact component of the pilot and the impact methodology for EI 2018. It is based on ARC analysis of feedback from institutions and assessment panels, and advice from the review panel, Technical Working Group, Performance and Incentives Working Group and Steering Committee.

In building the policy framework for the impact assessment, the goal was to identify the benefits outside of academia that university research produced. It was also important to provide incentives for institutions to continue supporting the translation of research into impact.

The pilot tested impact through the assessment of narrative based studies that included details of the approach to research impact, impact that occurred and the associated research of a UoA. Although the assessment panels made judgements based on all the information provided, the emphasis of the assessment was on the approach to impact, as set out in the impact rating scale (see Part 1 of this report).

The pilot found that the general method of assessing impact is suitable for EI 2018. However, it also found that some modifications are required, with the key issues including:

- balancing the focus of the assessment between the approach to impact and the impact that occurred
- number of impact studies per UoA
- the institutional interdisciplinary impact study
- Indigenous research impact studies
- definition of Indigenous research for the impact assessment.

## Balancing the focus of the assessment

The focus of the impact assessment in the pilot was the approach to impact, although there was no specific weighting between the sections of the impact study template. The approach to impact refers to the actions through which an institution, its faculties, schools, and research groups, assist in the realisation of impact. The impact studies were required to show a clear link between the approach to impact, the impact that occurred and the associated research.

The rationale for focussing on the approach to impact was to reduce some difficulties with assessing impact caused by the time delays between research and impact, attribution of impact and other known issues.

Key issues noted in the pilot were:

- Approach to impact sections—many were considered generic or representing business as usual processes.
- Impact sections—many did not clearly articulate the link between the approach to impact and the impact that occurred.
- Impact studies generally focussed too heavily on the research and the impact that occurred, rather than the approach to impact.
- Many impact studies focussed too much on an individual researcher or research group.
- Some impact studies showed strong examples of impact with poor information on the approach to impact (or vice-versa).

Feedback on the assessment methodology was varied:

- Some stakeholders thought the focus on approach to impact was appropriate—noting the need to focus on improving institution behaviour.
- Others considered that a balance between the approach to impact and impact was best highlighting both the contribution of the institution and the actual impact.
- A few considered the focus should be on impact only.

Given these issues, EI 2018 will assess and rate approach to impact and impact separately. The rating scale will be modified appropriately.

## EI 2018

There will be separate ratings for the approach to impact and the impact example submitted within the UoA, and the rating scale will be modified appropriately.

## Number of impact studies per UoA

One of the key considerations when developing the El Assessment was minimising the burden on universities while also ensuring the assessment was robust. For this reason, the pilot tested one impact study per two-digit FoR.

It was generally accepted that the two-digit FoR was suitable for assessment. However, feedback was mixed on the number of impact studies per UoA. Some considered one per UoA to be sufficient. Others considered that one impact study was too few to assess a two-digit FoR at an institution, particularly if it was a large two-digit FoR. There were concerns that only one example might represent a 'one-off' within a two-digit FoR. Proposals suggesting there should be more impact studies varied but tended to suggest up to a maximum of three to five, based on a reference number of ERA research outputs.

Conversely, concerns were expressed regarding the additional burden on universities, should the number of impact studies be increased beyond one per two-digit FoR, particularly given the short timeframe until El 2018. Therefore, the ARC considers it prudent to assess one impact study per UoA across the full spectrum of two-digit FoRs in 2018. This means there would be a maximum of 25 impact studies per institution (including the divided FoR code 11, the interdisciplinary and Indigenous research impact studies). The ARC may revisit the number of impact studies per UoA ahead of future rounds.

#### EI 2018

One impact study per UoA for all two-digit FoRs meeting the ERA low volume threshold.

## Institutional interdisciplinary impact study

The pilot tested the submission and assessment of one interdisciplinary impact study per institution. The aim was to address the concern that defining units of assessment (UoAs) by the fields of research (FoR) at an institution could unintentionally discourage interdisciplinary research.

Some feedback received during the pilot was that the interdisciplinary impact study was not necessary. It was noted that the interdisciplinary impact studies were similar to the FoR based impact studies—especially as the FoR based impact studies allowed institutions to identify additional disciplines where relevant. There were also concerns that a number of the interdisciplinary impact studies were not truly interdisciplinary and could have been assessed within a two-digit FoR. The feedback suggested that these issues could be addressed through clearer guidance to universities about what is required of interdisciplinary impact studies.

The ARC will proceed with the interdisciplinary impact study for EI 2018 and will provide clearer advice on what is expected in submissions.

#### EI 2018

Institutional interdisciplinary impact study to remain for EI 2018. The ARC will provide clearer guidance on submitting an institutional interdisciplinary impact study.

## Indigenous research impact assessment

To improve the recognition of Indigenous research conducted in Australian universities, Indigenous Australian research was tested as a separate UoA for the impact pilot. The aim was to collect and analyse information, to inform consultation with the Indigenous research community and to develop a suitable approach for EI 2018.

The ANZSRC 2008 does not represent Indigenous research at the two-digit or four-digit FoRs. It is spread across the classification structure at the six-digit FoR level. The ANZSRC advises that Aboriginal and Torres Strait Islander Studies six-digit FoRs can be grouped as a separate discipline in the FoR structure, to facilitate greater understanding of cultural perspectives unique to Australia and New Zealand. The ARC tested this in the pilot. Institutions were also able to 'flag' Indigenous content in an impact study submitted to any other impact UoA tested in the pilot.

The ARC formed a specialist panel to assess the Indigenous research impact studies.

The pilot method was largely successful with 19 institutions providing an impact study on Indigenous research. Feedback on the Indigenous impact study was generally supportive of the approach taken. Therefore, this method will be used again in 2018.

## Definition of Aboriginal and Torres Strait Islander research

There is no established definition of Indigenous research or Aboriginal and Torres Strait Islander research as a discipline. Other definitions used by funding bodies and schemes focus on the individual researcher, including New Zealand's Performance Based Research Fund. The pilot did not provide a definition for Indigenous research but did provide the guidance as below—

The impact study must be associated with Indigenous research, that is, where either the impact is associated with Australian Indigenous peoples, nations or communities, or issues that affect the lives of Indigenous Australians, or the research is associated with Indigenous research content.

Taking into account that the term 'research' is defined by the ARC and the feedback from the Indigenous research assessment panel, it was proposed that a new definition be used—

Aboriginal and Torres Strait Islander research means that the research significantly relates to Aboriginal and Torres Strait Islander peoples, nations, communities, place, culture or knowledge.

The ARC plans to consult further with Aboriginal and Torres Strait Islander stakeholders regarding any modifications to the definition prior to the release of the final EI 2018 Submission Guidelines. Consistent with the change in definition outlined above, this UoA will be referred to as Aboriginal and Torres Strait Islander research impact studies.

## EI 2018

An Aboriginal and Torres Strait Islander impact study will be included. Consultation will continue with Aboriginal and Torres Strait Islander stakeholders regarding any modification to the definition of Aboriginal and Torres Strait Islander research prior to EI 2018.

# Appendix A—Feedback from stakeholders

This appendix lists the various stakeholder groups that provided the ARC with advice and feedback on the pilot.

## Participating institutions

The ARC sought feedback from participating institutions using feedback surveys and assessment panel members using both feedback surveys and a dedicated feedback discussion session.

The ARC surveyed participating institutions following submission and, once again, following assessment. The aim of the surveys was to understand the perspectives on the pilot of participating institutions, including:

- engagement indicators and narrative
- approach to impact and impact
- rating scale
- granularity of the assessment
- overall perception
- effectiveness in achieving the purpose of the assessment.

## Assessment panel members

The ARC surveyed assessment panel members following the assessment of submissions. The aim of the survey was to understand the members' perspectives on the pilot, including:

- how well the assessment process worked
- the suitability of the engagement indicators and narrative and the impact studies to the assessment of engagement and impact
- their view of whether the assessment achieved the purpose of the El Assessment.

The panel members also provided valuable feedback through a dedicated feedback discussion session.

## **Review panel**

A key component of the pilot methodology was the establishment of a review panel comprising a mix of academics and end-users of research. The ARC drew membership from the assessment panels and other sources.

The role of the panel was to review the outcomes of the panel assessments and the overall methodology for the pilot. The panel considered feedback on the methodology provided by assessment panels and feedback on submissions from participating institutions. The panel then provided advice to the ARC.

## Pilot Steering Committee and Working Groups

## **Steering Committee**

- Professor Sue Thomas, CEO, Australian Research Council (co-Chair)
- Mr David Learmonth, Deputy Secretary, Higher Education, Research and International, Department of Education and Training (co-Chair)
- Professor Aidan Byrne, Provost, The University of Queensland
- Professor Shearer West, Deputy Vice-Chancellor, University of Sheffield
- Ms Ditta Zizi, A/Branch Manager, Research and Economic Group, Department of Education and Training
- Dr Alan Finkel, Chief Scientist
- Mr Mark Cully, Chief Economist, Department of Industry, Innovation and Science
- Professor Scott Bowman, Vice-Chancellor and President, Central Queensland University Australia
- Mr Graeme Whickman, President and CEO, Ford Motor Company Australia
- Dr Shanny Dyer, Managing Director, Wavefront Biometric Technologies
- Mr Ken Boal, Vice-President, Cisco Australia and New Zealand
- Emeritus Professor Lesley Johnson, University of Technology Sydney and Griffith University
- Professor Ian Jacobs, President and Vice-Chancellor, University of New South Wales
- Ms Belinda Robinson, CEO, Universities Australia
- Professor Anne Kelso, CEO, National Health and Medical Research Council

## Technical Working Group

- Ms Leanne Harvey, Executive General Manager, Australian Research Council (co-Chair)
- Mr Harold Lomas, Manager, Research Funding and Policy, Department of Education and Training (co-Chair)
- Dr Eric Archambault, President, Science-Metrix (Canada)
- Emeritus Professor Graeme Turner, Institute for Advanced Studies in the Humanities, University of Queensland
- Professor Andy Pitman, Director, ARC Centre for Climate System Science, University of New South Wales
- Mr Tony Sheil, Deputy Director, Research Policy, Griffith University
- Dr Sybille Hinze, Deputy Director, Research System and Research Dynamics, Deutsches Zentrum für Hochscul und Wissenschaftsforschung (Germany)
- Dr Diana Hicks, Professor of Public Policy, Georgia Tech (USA)
- Mr Andrew Calder, Director of Research Services, Bond University
- Ms Sue Mikilewicz, Director, Business Intelligence and Planning, University of South Australia
- Dr Marcus Nicol, Director, Research Excellence Branch, Australian Research Council

## Performance and Incentives Working Group

- Ms Leanne Harvey, Executive General Manager, Australian Research Council (co-Chair)
- Mr Harold Lomas, Manager, Research Funding and Policy, Department of Education and Training (Co-Chair)
- Mr Conor King, Executive Director, IRU (Innovative Universities Australia)
- Professor Julie Owens, A/Deputy Vice-Chancellor and Vice-President (Research), The University of Adelaide (Group of Eight)
- Professor Kevin Hall, Deputy Vice-Chancellor (Research and Innovation), The University of Newcastle
- Professor Robyn Owens, Deputy Vice-Chancellor (Research), The University of Western Australia, (Universities Australia)
- Professor Arun Sharma, Deputy Vice-Chancellor (Research and Commercialisation), Queensland University of Technology (Australian Technology Network)
- Dr Bronwyn Evans, CEO, Standards Australia
- Professor Attila Brungs, Vice-Chancellor and President, University of Technology Sydney
- Professor Mark Harvey Deputy Vice-Chancellor Research and Innovation, University of Southern Queensland (Regional Universities Network)
- Professor Andrew Reeves, Senior Research Adviser to The Vice-Chancellor, Deakin University
- Dr Anne-Maree Dowd, Executive Manager, Planning, Performance and Evaluation, CSIRO
- Dr Andrew Wilkinson, Director of Domestic Policy and Legislation, IP Australia
- Professor Duncan Ivison, FAHA, Deputy Vice Chancellor Research, University of Sydney
- Professor Margaret Sheil, Director, Australian Academy of Technology and Engineering
- Professor David Day, FAA, former Deputy Vice-Chancellor (Research) at Flinders University
- Professor Glenn Withers, President, Academy of the Social Sciences in Australia (ASSA)

# Appendix B—Indicator principles

The following ten indicator principles, agreed on by the Steering Committee, were used to guide the development of the pilot methodology and set the framework for the El 2018 assessment methodology:

- **Robust and objective**—objective measures that meet a defined methodology that will reliably produce the same result, regardless of when and by whom the principles are applied.
- Internationally recognised—while not all indicators will allow for direct international comparability, they must be internationally recognised measures of research engagement and impact. Indicators must be sensitive to a range of research types, including research relevant to different audiences.
- **Comparability across disciplines**—indicators will take into account disciplinary differences and be capable of identifying comparable levels of research engagement and impact.
- Not discourage interdisciplinary and multidisciplinary research—indicators will not discourage institutions from pursuing interdisciplinary and multidisciplinary research engagement and impact.
- **Research relevant**—indicators must be relevant to the research component of any discipline.
- **Repeatable and verifiable**—indicators must be repeatable and based on transparent and publicly available methodologies.
- **Time-bound**—indicators must be specific to a particular period, as defined by the reference period.
- **Transparent**—it should be possible for all data submitted against each indicator to be made publicly available, to ensure the transparency and integrity of the process and outcomes.
- **Behavioural impact**—indicators should drive responses in a desirable direction and not result in perverse unintended consequences. They should also limit the scope for special interest groups or individuals to manipulate the system to their advantage.
- Adaptable—recognising that the measurement of engagement, and the assessment of impact over time, require adjustment of indicators for subsequent exercises.

# Appendix C—Relevant HERDC categories and schemes

This appendix sets out the criteria used in the pilot for the eligible HERDC categories and schemes relevant to the research income-related engagement indicators (cash support from end-users, total HERDC income and in-kind support from end-users).

## HERDC Category 1—Australian Competitive Grants

Note—all of the following guidance refers to the ACGR list of eligible grant types for HERDC Category 1.

For the 'Commonwealth' part of the list, ONLY the following was considered research end-user funding:

- ARC—Linkage Projects
- NHMRC—Development grants
- NHMRC—Partnership Projects
- ARENA—R&D projects
- ARENA Australia—Germany Collaboration R&D Funding Round

For the 'Rural R and D' part of the ACGR list, all grant types listed under the 'Rural R and D' heading were considered to be research end-user funding.

For the 'non-Commonwealth' part of the ACGR list, the following grant types were considered research end-user grants:

- Australian Coal Research Limited—Australian Coal Association Research Program
- Australian National Low Emissions Coal Research and Development Limited—Alternatives & Fundamentals Program.

## All income from HERDC Categories 2, 3 (i, ii, iii), 4 with the following exceptions:

HERDC Category 3(i)—subcategory of 'Australian' income: HDR fees for domestic students are not considered to be research income or end-user funding for the purpose of the pilot

HERDC Category 3—subcategory 'International C: HDR fees for international students' are not considered to be research income or end-user funding for the purpose of the pilot.

# Appendix D—Pilot participation

Panels/Disciplines	Number of UoAs	UoAs with Indigenous flag
Α	55	
03—Chemical Sciences	20	
11—Medical and Health Sciences	35	
В	39	
21—History and Archaeology	22	
22—Philosophy and Religious Studies	17	
c	88	5
05—Environmental Sciences	24	2
07—Agricultural and Veterinary Sciences	18	0
09—Engineering	29	0
ID—Interdisciplinary	17	3
D	93	25
13—Education	31	7
19—Studies In Creative Arts and Writing	27	7
20—Language, Communication and Culture	26	8
ID—Interdisciplinary	9	3
Indigenous	19	
IN—Indigenous	19	
Total	294	30

## Number of UoAs per assessment panel