



# AUS-ACCESS4EU

AUS-ACCESS4EU - Supporting EU Access to Australian Research Programmes

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<b>Abstract</b>	This paper tests the concept of a metrics of openness and reciprocity developed by Matthews and Harris (2010): <i>Enhancing reciprocity in international cooperation in research: issues and metrics</i> (D.1.2 and D1.7) by development an analysis tool and using it to assess two Australian funding programmes. Recommendations for further development of the metrics follows.
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## Executive Summary

### 1. Introduction

This paper has been prepared as part of a set of inter-connected projects which aim to raise awareness amongst Europe-based researchers of the funding opportunities that support collaboration with colleagues in a range of non-European nations. Projects with this focus, funded by the European Commission, are now underway in Australia, Brazil, Canada, China, India, Mexico, New Zealand, Russia, South Africa, South Korea, and the USA. These projects target both research and innovation support programmes. They are known collectively as ACCESS4EU projects.<sup>2</sup>

These moves to develop a more coordinated relationship between the European Union and a range of non-EU countries may point the way toward more effective multilateral coordination over these matters in the future.

The Australian project is led by the *International Bureau of the German Federal Ministry of Education and Research* and also involves the *Forum for European- Australian Science and Technology cooperation (FEAST)*, the *Commonwealth Scientific and Industrial Research Organisation (CSIRO)* and the *British Council*.

The various national projects are cooperating over the development of a standard database architecture that aims to make it easier to understand and compare different nations' research funding arrangements. The projects are also collecting and disseminating data on:

- access opportunities for European researchers in each country;
- the distinctive research and innovation strengths and capacities of third countries;
- current levels of European participation in third country programmes;
- current third country policies on international collaboration as it may affect European participation;
- any obstacles to the participation of European researchers in third country programmes.

In addition to aligning efforts with those in the other participating countries, the Australian project is also carrying out some exploratory work on the potential for developing measures of openness and reciprocity in access to national research funding systems. This latter objective was the focus of the paper *Enhancing reciprocity in international cooperation in research: issues and metrics* (June 2010) by Mark Matthews and Paul Harris. This paper explores further the concept of a metrics of openness developed in that paper, develops a tool for testing the metrics and then uses the tool to analyse two Australian funding programmes.

## 2. A metrics of openness and reciprocity – the Three Cs

### 2.1. The case for a metrics of openness and reciprocity

Matthews & Harris (June 2010) made the case for openness and reciprocity in research funding programmes across nations, including the following points:[footnote to paper pp 1-4].

- the necessity of achieving an effective balance between national competition and international cooperation in global research to maximise the returns to all;

- the desirability for nations, particularly smaller ones, of operating as an ‘inter-operable’ partner in collective global multilateral research activities and bilateral arrangements;
- The importance of involvement in international research to national policy formulation;
- Openness and reciprocity in supporting international research cooperation does not require increases in funding or sending of funds offshore, but may require attention to transaction costs and mechanisms of cooperation.

If these kinds of arguments can be put to government policy makers, it would be useful for research funding programme owners to have an assessment tool which could assist in

- demonstrating gaps in openness policy and policy implementation;
- enabling comparative assessment with other countries and other programmes;
- tracking trends over time.

## 2.2. The design of the metric – developing the criteria

Starting with the proposal for metrics suggested in the Matthews and Harris paper, here we explore those suggestions further and incorporate them into a testing tool. Matthews and Harris proposed three main criteria for assessing the openness of funding programmes to international collaboration – Commitment, Capacity and Clarity – the Three Cs – defined as:

**Capacity:** the quantum of funding available [converted to €];

**Commitment:** the extent to which a funding mechanism allows for international access (measured on the scale  $C_1 0 < x < 1.0$ );

**Clarity:** the extent to which guidelines are easily grasped by an international researcher in a timely manner (measured on the scale  $C_2 0 < x < 1.0$ ).

Further, several suggestions were made for developing these criteria into a metric:

- 1) a. A formula whereby the funding open for international collaboration for any programme (€OPEN) could be calculated by multiplying a score for Commitment ( $C_1$ ) by a score for Clarity ( $C_2$ ) by the total amount of funding available (the Capacity), i.e.  $\text{€OPEN} = \text{€ available} \times C_1 \times C_2$ .  
 b. More simply, scoring Commitment and Clarity to assess openness of funding programmes, irrespective of funding available.
- 2) The development of a Gold Standard of openness and reciprocity in funding programmes as the benchmark against which the metric is set.

These suggestions are taken forward below, firstly by exploring the criteria further in the pursuit of a possible Gold Standard by which to benchmark a metric, and secondly by developing a simple metric tool using the Three Cs by refining the suggestions for a formula in the light of the Gold Standard exercise.

## 2.3. Exploring the idea of a Gold Standard

Setting up a Gold Standard for openness and reciprocity requires developing benchmarks to contribute to an internationally agreed template. It may be useful to think of this exercise in the context of the constant and increasing impetus for global standards to be set in many aspects of research and innovation, whether technical, legal or regulatory. The CASRAI (Consortia Advancing Standards in Research Administration Information) initiative, which aims to enhance global research by establishing internationally agreed language definitions, is

a current example.<sup>1</sup> The challenges posed by the complexity within national systems and incompatibility across national systems is outweighed by the potential rewards of achieving workable methods of dealing with them.

To develop benchmarks requires first establishing the range of variables behind each of the Three Cs which could be considered necessary for a detailed assessment by programme owners and by policy makers of their own and others' funding programmes. Thus the exercise was to develop a comprehensive list of descriptors for each of the three criteria.

The following table of criteria descriptors was developed by considering in detail a number of Australian competitive grant programmes through the lens of the Three Cs, and reflects the complexity found there. While not an exhaustive list they indicate something of the range of variables that could be benchmarked in a Gold Standard.

**Table 1 – Assessment criteria descriptors**

Criteria	Criteria descriptors
<b>Capacity</b> Funding	<ul style="list-style-type: none"> <li>• Funding substantial overall and per researcher/project</li> <li>• Funding available regularly</li> <li>• Programmes exist over a substantial period</li> </ul>
<b>Commitment</b> a. level at which commitment is made  b. range and degree of commitment	<ul style="list-style-type: none"> <li>• Clear policy statement at political level of government underpinning individual programme policies</li> <li>• Clear policy statement in funding programme self description prominently placed e.g. on website</li> <li>• Open to internationally based researchers on a competitive basis equally with locally based researchers</li> <li>• Open regardless of citizenship status</li> <li>• Open with regard to eligible fields of research</li> <li>• Open with regard to where the research can be carried out (i.e. not restricted to within funding nation)</li> </ul>
<b>Clarity</b> a. Policy itself and open programmes positively and clearly marketed.	<ul style="list-style-type: none"> <li>• International researchers and research managers specifically targeted</li> </ul>

<sup>1</sup> See the discussion of the CASRAI initiative in FEAST Discussion Paper No 7/11 *From interoperability challenges to syncing opportunities: a pathway to global research*, pp4-5. <http://www.feast.org/index/document/7>

<p>b. Use of language appropriate to researchers outside the national system</p>	<ul style="list-style-type: none"> <li>• straightforward standard English</li> <li>• does not assume prior knowledge</li> <li>• sounds enthusiastic and welcoming to international involvement</li> <li>• makes follow up enquiries easy</li> </ul>
<p>c. Application process</p>	<ul style="list-style-type: none"> <li>• easily understood</li> <li>• easily accessible and user friendly application tools</li> <li>• timely for the needs of international researchers and their projects</li> <li>• efficient and fair processing</li> </ul>

Each of these descriptors can be further subdivided, and other descriptors could well be added. Some areas of concern fall across criteria boundaries: visa/immigration issues could form an important sub-section of both Commitment and Clarity criteria.

If our aim is to benchmark, will the descriptors need to be more specific? For instance, what does “substantial” Capacity mean? A particular minimum monetary amount, either for the whole fund or per researcher/project? A proportion of the total competitive research funding available through that provider, or through that country? How regular would regular funding need to be? More than a one-off funding grant, or at least biennially over a number of years? How long is long enough? Assuming that eventually a full list of descriptors could be agreed upon for the Gold Standard, how easily would it then be applied? The components of each of the Three Cs would need to be weighted to produce a score. How does one weight the various components of Clarity for instance?

Developing the list of descriptors has been useful in drilling down into the Three Criteria to explore the range of issues covered by each. However a metric is developed, it helps to have established the background for the criteria employed.

Before testing this large range of descriptors, the idea of the metric itself needs to be tested against existing funding programmes, for ease of use and usefulness of the results. In the next section a simple metric is laid out, in preparation for its application to programmes.

## 2.4. The metric tool

The formulae first suggested by Matthews and Harris were adapted into an assessment tool as follows:

- The scoring system is simplified so that each assessment calls for either 0, 0.5 or 1.0 (The intention of the scoring system is to lend itself to rapid allocation, once the user understands the standard upon which the scoring is benchmarked);
- The definition of each of the three criteria is a distillation of all their descriptors in the Gold Standard exercise;
- As well as, or instead of, the criterion of Capacity having a monetary value, it also has descriptors. The exploration of this criterion in the search for the Gold Standard showed that these descriptors are significant, and may also be used where exact funding figures are not available; (it may even be that on closer examination, declaring a particular

monetary amount as being open may have as many interpretative difficulties, and that a set of descriptors may be more useful to the assessment).

- The assessments across the Three Cs are added together, and then grouped into one of three outcomes – Not Open, Somewhat Open or Substantially Open.

This approach is summarized in Table 1.

**Table 2. The Three Cs – descriptors and scoring system**

Criteria	Descriptors	Score
Commitment	There is a policy commitment to openness to international applicants for funding under this programme	0, 0.5 or 1.0
Capacity	There are substantial funds regularly available committed to this programme	0, 0.5 or 1.0
Clarity	Information and the application process for engaging with this programme are available to international researchers in accessible, clear terms	0, 0.5 or 1.0

#### **Three Cs cumulative score**

Raw score total of 0, 0.5 or 1.0 = NOT OPEN

Raw score total of 1.5 or 2.0 = SOMEWHAT OPEN

Raw score total of 2.5 or 3.0 = SUBSTANTIALLY OPEN

Having set up this assessment tool, it was then applied to two Australian research funding programmes.

### **3. Applying the 3Cs to two Australian research funding programmes**

To test the Three Cs concept we take two current Australian competitive funding programmes that have in the last few years made a policy shift to open their programmes to international applicants. These are the Australian Research Council's National Competitive Grants Program (ARC) and the Commonwealth Scientific and Industrial Research Organisation's (CSIRO) Flagship Collaboration Fund (FCF).

#### **3.1. The Australian Research Council's National Competitive Grants Program**

The Australian Research Council administers the National Competitive Grants Program (NCGP), with major suites of programmes within it, notably Discovery and Linkage programmes, the latter specifically aimed at including industry and other non-academic partners. Together with the National Health and Medical Research Council (NHMRC) funding programmes, the NCGP is the most important source of competitive funding for Australian researchers.

As such, the most straightforward criterion with which to assess the NCGP is its Capacity.



### **3.1.1. ARC Capacity for Openness**

The funding for the NCGP is substantial – €590 million in the 2010-11 budget year. While changes take place in the detail of these programmes from year to year, they have been an important part of Australian research funding for many years and there is no reason to expect a change to that situation. The calls for most sub-programmes annual, some semi-annual. For these suites of programmes then, Capacity can be categorized as substantial in monetary terms, in regularity and duration. Score 1.0 for the ARC NCGP for Capacity.

### **3.1.2. ARC Commitment to Openness**

Evidence of commitment by research funding bodies to particular policies are expected to be found on their websites. Can evidence of commitment be found on the ARC website, and of what does it consist?

A web search for “ARC International Collaboration” immediately brings up a page from within the ARC website<sup>2</sup>, which clearly states that there has been a change of policy towards “Internationalisation of the National Competitive Grants Program” since early 2008. It goes on to list the major changes that have been made since 2008 to the Discovery Projects and Linkage Projects, together with additional schemes for Future Fellows and Australian Laureate Fellows, as internationalisation has been implemented.

The last section of the page, titled “International Strategy”, summarizes the role each of the funding programmes has within this strategy, and provides a link to a further substantial page<sup>3</sup> This page at some length outlines where the ARC’s international strategy sits in relationship to the ARC’s overall mission, and then lists objectives and actions to implement the strategy.

Judging by the content of these two pages, the ARC has a clear commitment to internationalisation of its programmes, has already taken various substantial practical steps in that direction, and has a strategy and planned actions to continue further in that direction. On this basis can we allot a full 1.0 to the ARC NCGP major programmes?

To what extent though is the commitment to internationalisation the same as a commitment to openness? Does this policy commitment and the practical changes made in its name translate into openness at the level of programmes?

Looking at the list of measures that the ARC has taken within its programmes since 2008 in line with its policy of internationalisation, we have some evidence on which to draw a conclusion:

- For the NCGP overall, fellowships are now open to international candidates for all schemes; Non-Australia-based researchers and higher education organizations are now eligible to be Partner Investigators or Partner Organisations in Discovery and Linkage Programmes.
- On this basis, it would seem reasonable to allot a score of 1.0 to the ARC NCGP Discovery and Linkage programmes for Commitment. This leaves aside the question of to what extent the commitment has been implemented, but captures the policy commitment and the evidence of its implementation being in train.

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<sup>2</sup> [http://www.arc.gov.au/general/international\\_collaboration.htm](http://www.arc.gov.au/general/international_collaboration.htm) (accessed 6 January 2011)

<sup>3</sup> [http://www.arc.gov.au/general/international\\_strategy.htm](http://www.arc.gov.au/general/international_strategy.htm) (accessed 6 January 2011)

### **3.1.3. ARC Clarity about Openness**

The descriptor for Clarity given above is that *Information and the application process for engaging with this programme are available to international researchers in accessible, clear terms*. How does the ARC stack up measured against this criterion?

Say you are an international researcher or research manager, accessing the ARC site from outside Australia and with minimal prior knowledge of the Australian system. You may enter Information for Applicants from the home page or from the NGCP page or from either the Discovery or Linkage programme pages. The Information for Applicants page gives you a further set of links, including to “International Collaboration”, described above, from which you may be able to infer that these programmes may also in certain circumstances be open to you or your client researchers. Some information on the criteria for eligibility will be found on that page, but in addition the potential applicant is directed to the Funding Rules for each programme, where a chapter on “Roles and Eligibility for Researchers” outlines the possibilities. The ARC home page and the NCGP home page do not mention international collaboration as such. The policy commitment and the information for applicants is buried within the site.

Websites for large and complex organisations are designed for multiple purposes and multiple audiences – their colleagues in the policy realm of government, the general public as a repository of current purposes and policy, and their client groups, in this case researchers and particularly research managers. The ARC site has a particularly clearly defined client group – researchers and research managers, and from an Australia-based point of view the site seems clear and well-organised. Given that now all fellowships within the NCGP are open to international researchers, the website as a whole does not appear to advertise that fact. Given the pages discussed above which clearly outline the commitment to internationalisation, does the handling of the international component across the website constitute a limit of commitment, or a lack of clarity?

On the one hand the information is there, the application process is available on the site and online, inquiries are possible. On the other hand there is no sense of the ARC being a site of international research endeavour, or being particularly welcoming to international organizations or researchers to engage with. Its unannounced position is that the route to engagement with its programmes is via the connections international researchers may already have with Australian researchers and research organizations. On this basis we allot a score of 0.5 for Clarity.

### **3.1.4. ARC Final score and its ramifications**

With score of 1.0 for Commitment, 0.5 for Clarity, and 1.0 for Capacity, the raw score total for these ARC programmes is 2.5 – Substantially Open. Clearly this does not mean there is nothing further to be done – the ARC itself has a list of objectives and actions to further its internationalisation agenda yet to be achieved. It has however a clear policy position for greater openness, significant changes in place in the operation of major programmes with substantial funding, and more changes underway. A way of adding some value to the final score may be to say – ‘Substantially open, but with a need for greater Clarity to enable that openness to be fully realised.’

## **3.2. The CSIRO's Flagship Collaboration Fund**

In testing the metric tool against the CSIRO's Flagship Collaboration Fund, it seems first necessary to explain its policy context, so in this case the analysis starts with Commitment.

### ***3.2.1 CSIRO Flagship Collaboration Fund - Commitment***

In addition to the high general level of international collaboration engaged in by CSIRO throughout its history, the organisation also manages one specific programme which funds international collaboration. The Flagship Collaboration Fund was established in 2005 as part of the broader National Research Flagships programme, and funds collaborative research activity outside of CSIRO in four forms: three-year "clusters", shorter-term collaborative projects; visiting fellowships; and postgraduate scholarships. These funds are open to international applicants, both researchers and institutions, but not especially ear-marked for them.

When the Fund was established, only the visiting fellowships component was open to international participation. However CSIRO sought and received government approval in 2008 to open up the other components of the Fund to participation by not-for-profit research institutions worldwide. Fifty-three separate institutions have received financial support from the Fund – of these 24 are from outside of Australia and 11 are from EU member states (46%). Funding to date to European researchers and institutions accounts for approximately 33% of all funding to international partners, and for almost 2% of total funding under the programme. In the 2009-10 budget year the Fund overall was allocated €10.3 million.

On the basis of this knowledge, it may be reasonable to allocate to the FCF a score of 1.0 for policy Commitment.

### ***3.2.2 CSIRO Flagship Collaboration Fund - Capacity***

At the level of the funding that may be applied for, international applicants can access for Fellowships, an amount of €75,000 for six months full-time, or 12 months part time; for projects, up to €75,000 per year for up to two years. The Capacity of the Fund overall is large, the overall amounts available per researcher/institution at a level valuable to their involvement and also giving them access to the activities and resources of the Flagship they are engaging with, leveraging potentially a great deal more value for themselves, their organisations as well as the Flagship. It seems reasonable therefore to allocate a Score of 1.0 for Capacity to the FCF.

### ***3.2.3 CSIRO Flagship Collaboration Fund - Clarity***

There is no question that there is a commitment by CSIRO to openness to international access to research funding through the FCF. How clear is it that the commitment exists? How would any researcher or research manager outside of Australia not already connected with the Flagships or with CSIRO a. learn of these opportunities and b. engage with them?

While we know that the FCF has openness as an integral part of its funding, i.e. its Capacity, it is difficult to find any evidence of the policy Commitment behind that Capacity on the CSIRO website at a level higher than the detail of the Funding Guidelines for each component programme of the Fund. While the policy commitment was first made in 2005, and then expanded in 2008, it is not visible on CSIRO home page, and it is implied rather than explicit on the FCF home page.

A site search by ‘international activities’ brings up a page of links, including the document *Report on CSIRO international engagement 2008/09*. Within it the section on strategy mentions neither a policy on openness of CSIRO funding to international researchers nor the FCF itself.

#### CSIRO INTERNATIONAL STRATEGY 2007-11

CSIRO is a member of the global research community and strives to further increase its global impact. The organisation’s vision is to be among the most respected research and development institutions in the world. Australia’s geographic isolation from the traditional research “hubs” of the United States, European Union and East Asia requires proactive and deliberate engagement on a bilateral and multilateral basis. This ensures connectivity to the 98% of innovation conducted outside Australia’s borders.

The CSIRO Strategic Plan 2007-2011 highlights the importance to CSIRO of global engagement. Aligned with the Strategic Plan, CSIRO has developed a four year International Strategy approved by the CSIRO Board in October 2007.

The strategy is built around three key pillars that aim to provide a coherent framework for the benefits of the full range of CSIRO’s international activity:

- **Talent:** development opportunities for our staff outside Australia, and opportunities to attract, retain and engage staff from the global talent pool;
- **Impact:** internationally significant projects aligned with, and supporting, national needs; and
- **Networks:** participation in global networks to share research infrastructure and relevant knowledge and intellectual property.

Within this framework, the strategy also identifies five focal areas; China, India, Research for Development, North America and Europe.

CSIRO’s Government and International Engagement group are custodians of the strategy and work within the specific focus areas to support and build CSIRO’s international engagement profile.<sup>4</sup>

In the case of the Flagship Visiting Fellowships, which have allowed for international researcher applicants from the inception of the Flagship programme in 2005, the strong intention to encourage suitable international candidates is conveyed on the Fellowships front page:

Flagship Visiting Fellowships are available for distinguished researchers to work for a period of time (generally up to six months) in a Flagship to enhance the intellectual leadership of a Flagship or a major component of a Flagship (for example, a Theme).

Fellowships are valued at A\$100 000 and are designed to allow Australian or overseas based researchers to be seconded from their home university.

In the case of overseas based researchers, the Fellowship may be used to fund a living allowance during the term of their Fellowship as well as economy class international air travel and minor operating costs.<sup>5</sup>

Turning to another programme within the FCF, the document *Flagship Postgraduate Scholarships – Guiding Principles* makes no mention in its opening pages of international collaboration or of the availability of any of the scholarship funding to international students.

Further down in the same document, under Funding Rules, is the following:

International students are eligible to apply for Flagship scholarships but they must be able to show evidence of admission to an Australian university, as well as evidence that either their living costs or international student tuition fees are being covered by another scholarship (such as a university scholarship) or from private funds.<sup>6</sup>

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<sup>4</sup> <http://www.csiro.au/files/files/pupi.pdf>, p.3 (accessed 10/1/11)

<sup>5</sup> <http://www.csiro.org/org/Flagship-Visiting-Fellowships.html>. Accessed 10/1/2011

<sup>6</sup> <http://www.csiro.au/resources/Flagship-postgrad-scholarship-guidelines.html>, p.3. Accessed 10/1/11

In the case of postgraduate scholarships, the CSIRO is constrained by the policies for the entire Australian higher education sphere, and a policy debate still continues about the degree to which Australian funded PhD scholarships should be open to international candidates. This background is not something an international aspiring researcher is likely to appreciate. It appears as though it will be difficult and unlikely route for an international student to become a PhD student working in some way within the Flagship Fund arena and being at least partly funded by the Fund.

How do we score this first aspect of the Clarity dimension? Score 0.0 for the top level, 0.5 for the programme level, and 1.0 for the guidelines level, which are clear and unambiguous. Average score of 0.5 for this area.

Once the international researcher or Research manager has learnt of the opportunity to collaborate and to obtain funding to do so, how clear is the application process?

Is the invisibility of the openness to international collaboration dimension of the FCF a function of clarity, or an indication of shortcomings in commitment? Is the degree of implicitness a sign of ambivalence towards the international dimension? Or is it a concern about advertising the availability of funds for international researchers in an organisation which needs to be seen to be delivering tangible outcomes for the nation primarily? A matter for the image of the organisation?

Taking the Flagship Fund overall then, we would have a score of 2.5, and so the scoring would seem to justify the description Substantially Open. However it could be argued that the lack of Clarity severely compromises the Commitment and Capacity otherwise present, and that it casts doubt on the degree of actual rather than theoretical Commitment to Openness, triggering a reassessment of the score for Commitment. If Commitment is reassessed at 0.5 rather than at 1.0, the score for the Flagship Programme then becomes 2.0 overall, which means it is assessed as Somewhat Open, not Substantially Open.

## **4. How useful is the metric?**

Applying the metric tool to the two programmes above produced some interesting ways of thinking about their current status in relation to openness and reciprocity. In the case of both, the communication of their policies to an international audience is sub-optimal, which a policy maker in those government funded agencies could be helped to see has various effects, including:

- The stated policy of enhancing international collaboration and the commitment through funding and application mechanisms to make that concrete is undermined by the relative invisibility of those opportunities in the international research space.
- What you might call the PR value internationally of the openness of both programmes is not utilised.

Further issues arise: Do we give equal weighting to each of the Three Cs? Does Clarity matter as much as policy commitment and funding to match? Does Policy Commitment and Clarity matter at all if the amount of funding is paltry?

## **5. Conclusions and recommendations**

A metric of openness and reciprocity was able to be applied to two Australian research funding systems in such a way that it highlighted their profiles in relation to these matters, and identified areas of implementation where these two quite open funds could make further improvements. At the same time it clearly demonstrates the degree to which both funds have moved in the direction of openness and reciprocity.

Attempting to define a gold standard has been a useful exercise in helping to explicate those qualities of a funding programme that make it open to international participation.

Further work on determining a standard benchmark may not be of benefit given the wide diversity in size, timing and focus of funding programmes.

The Three Cs – Capacity, Commitment and Clarity – appear to cover sufficient aspects of funding programmes to give a useful measure of openness.

It would be useful now to investigate other national research funding systems using the tools developed here in order to work towards an internationally standard set of descriptors. It would be expected that more descriptors would be identified, or the ones listed here further refined, to remove those elements that may be peculiar to the Australian system, and develop universally applicable descriptors.

The obvious way forward would be to explain and demonstrate the application of metrics to partners in other Access4EU projects to gain their support for extending the exploratory exercise to their projects, and then to use the finding from the wider exercise to refine the methodology and make recommendations for its broader implementation.

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