Charles Sturt University

Submission to

Engagement and Impact Assessment Consultation Paper

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Charles Sturt University (CSU) appreciates the opportunity to provide input into the Government's development of a Research Engagement and Impact Assessment.

CSU is a university of the land and people of our regions. We develop holistic, far-sighted people who help their communities grow and flourish. Acknowledging the culture and insight of Indigenous Australians, CSU's ethos is clearly described by the Wiradjuri phrase 'yindyamarra winhanga-nha' ('the wisdom of respectfully knowing how to live well in a world worth living in'.) This is reflected in the research we pursue, the research partners we engage with and the Higher Degree by Research students we train.

CSU has a strong history of working with industry to deliver applied research that enhances business profitability and competitive advantage and in doing so, helps enrich the rural communities with whom we have enduring links. Where industry is willing to fund universities to undertake collaborative research, it is evident that the research is of considerable value to them and can help them deliver commercial outcomes. It is these sorts of collaborative relationships that are based on delivering industry value that should be encouraged. CSU has a proud tradition of delivering high-quality research that creates new knowledge, benefits people's lives, enhances the profitability of regional industries and helps communities grow and flourish.

This submission has been prepared through consultation with CSU research academics and with additional input from research collaborators. We trust our contribution will help shape this long overdue appraisal of Australian university research to ensure its true value is recognised and seen as a fundamental contributor to intellectual and economic growth and sustainability. Thank you for the opportunity to participate in this debate.

Key Recommendations:

- Engagement needs to be defined in terms of the product/s or benefit/s of being engaged and not just the activity of engaging
- It is important to identify the stage in the research process when engagement occurs and disciplinary differences need to be recognised
- It is of fundamental importance that the definition of impact is not inadvertently restricted to become the equivalent of "knowledge transfer and commercialisation"
- A definition of impact cannot exclude economic and social benefits derived from smaller and/or exploratory research activities, or the importance of impact at the local level
- The higher education sector alone is likely not best placed to determine the definition of impact or to assess impact. It is vital that broad representation from outside academe is included in the entire process
- The assessment must include within scope both qualitative and quantitative evidence of engagement and impact
- The environment of engagement and/or impact is of significant importance and success cannot be exclusively linked to the size or location of the industry which benefits or the level of investment
- All research activities are worthy of consideration, including those of Higher Degree by Research students
- Current and conventional indicators of research excellence and prestige including value of research income should not over-influence effective assessment
- The integrity of the assessment must be preserved as being the engagement and impact of <u>research</u> and not the broader expanse of universities within society

Definitions and scope

1. What definition of 'engagement' should be used for the purpose of assessment?

To define 'engagement' in a robust, inclusive and reproducible manner, a number of fundamental considerations are needed. Some of these are noted in the consultation paper where they have been used in other national evaluation exercises. We suggest below additional considerations including examples, garnered from across a number of different disciplines.

- Engagement is undertaken with the **intention of achieving impact** and there should be a line of sight between the definition of engagement and the definition of impact.

- Engagement needs to be defined in terms of the product/s or benefit/s of being engaged and **not just the activity of engaging** and this is an area where a proposed measurement of the 'process of engagement' carries real risk.

- The ATSE definition of engagement could be considered broad enough to capture the range of **meaningful engagement**. For example in the agricultural space the end-users (especially farmers) are a diverse group large in number and often are not well connected to the research community and so may not be aware of research outcomes until years later. Added to this is the complexity of what influences farmer decisions – often not based on economics alone.

- A well-recognised concept in agricultural research and extension is **the adoption curve** which groups end users as innovators/early adopters, early majority, late majority and 'laggards'. The first group are usually closely connected with researchers and are often prepared to take risks and experiment on farm; the early majority wait for the research to be well proven and the impacts on the whole farm system to be evaluated (i.e. any unintended consequences); the late majority will often want to see it working for the early adopters before they adopt an innovation; and the last group may never make changes. Agricultural research and extension commonly therefore refers to metrics such as **time to peak adoption** (which may be 10 years or more) and **percentage uptake** being the percentage of farmers that will eventually adopt the innovation. This model informed the whole public extension model, where the state agencies employed extension officers to be the conduit between the researchers and the farmers. While this model proved to be expensive for state agencies and has been replaced largely by private consultants, this also highlights a need to focus on **next-users** i.e. the conduits between researchers and end-users, in any assessment of engagement.

- It is important to identify **the stage in the research process when engagement occurs.** A strong and encompassing definition should not make the assumption that engagement always occurs at the end of the research process once data are "in hand" or during dissemination. For example it may occur during project design; data collection and/or dissemination and may occur also with different end-users at different stages, for example practitioners or industry partners. Barker (2004)[1] suggests that [community] engagement activities consist of public scholarship, participatory research, community partnerships,

[1]Barker, D. (2004). The scholarship of engagement: A taxonomy of five emerging practices. Journal of Higher Education Outreach and Engagement 9(2), 123-137

public information networks, and civic literacy. In **participatory research projects**, for example, engagement will begin long before projects are even designed or funded and may continue for years after an initial project is completed.

- A successful definition of engagement needs to recognise the **diversity in engagement practices** which may be formal/structured or informal/unstructured. In some research project designs, engagement may be restricted by time period and/or to specific activities and so may not be one episode or type of engagement within a single project.

- Successful engagement should include **meaningful and evidenced partnerships** that develop **shared priorities**, and produce outcomes that are **mutually beneficial** for all partners and for society. The current meaningful connection of Australian universities with industry has much room for improvement, the main issue being the reliability of universities as part of the 'supply chain' and their capacity to deliver on projects that have direct relevance and translation to industry. This is in part due to the drivers (e.g. KPIs) of universities and industry being historically divergent, and any definition and assessment of 'engagement' should promote convergence of the two.

- We strongly support the articulation in the consultation paper of the importance of a definition which supports and recognises **disciplinary differences**. Engagement in STEM disciplines may look very different than in HASS disciplines. In some disciplines it may be relevant to define engagement as an indirect or broader relationship, but working toward a common goal and shared priorities should remain central.

2. What definition of 'impact' should be used for the purpose of assessment?

The current **ARC definition**, "the demonstrable contribution that research makes to the economy, society, culture, national security, public policy or services, health, the environment, or quality of life, beyond contributions to academia" has been widely referenced in the sector for a number of years as a proxy for defining impact in the absence of a national exercise. This is, we would suggest, a definition which is potentially well suited to the Australian context, and could realistically form the basis for the final definition. Below we have provided some additional considerations to strengthen and refine this working definition.

- It is of fundamental importance that the definition is **not inadvertently restricted** to become the equivalent of "Knowledge transfer and commercialisation".

- The ability of a body of research to achieve a recognised impact with the relevant industry and sector does not rely solely on the quality of the research as there are a number of **other forceful factors** which can influence impact. For example, a struggling sector may not be in a position to adopt innovative new practices which could increase profits or productivity in the longer term if there are prolonged economic hardships in the sector.

- An overly extended definition risks being meaningless, as does an excessively long reference period. However, a narrow definition that risks enabling behavioural shift to short term focus will be detrimental to the wider Australian innovation sector in the longer term.

- **Uptake of research** by government and non-government organisations, industries and professional associations, communities and individuals can be argued to be the first iteration of impact, or at least an identifiable link between engagement and first impact. Using terms such as "benefit to the economy, society, culture, public policy or services" suggests large, long-term effects whereas "benefit to community or industry end-users" implies a more direct and shorter-term effect.

- The consultation paper references the United Kingdom experience throughout, and there is merit in looking to other countries where impact has been assessed and/or measured. For example, in Canada and Europe there is a focus on '**social impact'** and '**societal impact'**, where as in the USA a term widely adopted is '**broader impact'**. Each of these have working definitions and can provide helpful insights to the broader international benchmarking of the Australian exercise.

- A definition needs to consider the economic generation and societal benefit from some **smaller and/or exploratory research** activities that do not necessarily align with what might traditionally be considered 'high impact'.

The higher education sector may not be the best placed to determine the definition of impact. There needs to be significant input from 'outside academia' to refine the definition of impact, potentially even more so than for the definition of engagement.
Similarly, the higher education sector may not be best placed to assess impact and membership of the assessment panels and deliberation groups must include broad representation from outside academia.

3. How should the scope of the assessment be defined?

In defining the scope of the assessment of both engagement and impact, we acknowledge the discussion in the consultation paper about the intent to minimise the burden of data collection. The sector has become increasingly sophisticated in data collection and analysis since the 2009 Excellence in Research for Australia Pilot and there was funding made available to support this capacity building. However, it is also worthy of note that the 'right data' for this assessment might not be within existing collections and the integrity and value of this assessment should not be overly influenced by current collections. Neither would the sector necessarily wish to create a cottage industry of case-study authors and editors.

There are a number of parameters which could be applied in defining the scope and we have explored some of these further below.

- The scope of the assessment needs to include two components: **evidence of engagement and evidence of impact**. These are two separate and distinct components, which will require different measures and/or sources of evidence.

- The scope of the assessment should allow for inclusion of both **quantitative** (e.g., number of patents) and **qualitative** (e.g., narrative testimonials from stakeholders) measures of engagement and impact.

- Although researchers (and institutions) may be aware of some engagement and impact data at present there is little doubt that **other highly relevant and informative data** will need to be gathered for the purposes of the assessment exercise. Many existing research funding models do not provide for ongoing data or information gathering on the impact of a body of work. This is a key point, as many impacts happen long after project completion and/or involve indirect uptake that is potentially unknown to the original research team. This could have significant value when assessing impact in the international arena.

- **Defining the end users/beneficiaries** will be critical as it is from their point of view that a research project must be deemed to have engaged with the appropriate sector and have had an impact. These should be varied and have a broad spread for both societal and economic benefit.

- In terms of benchmarking, it might be reasonable to consider **extending the scope** to other institutes and organisations undertaking research activities, within a more specifically defined framework. To assess engagement and impact of research generated only from within the higher education sector may promote, rather than limit, the existing gap in drivers, priorities and KPIs of universities and industry and provide an artificial frame of reference.

- The **environment** of engagement and/or impact is an essential parameter. For example, what is needed for a body of research to have a substantial, business-changing impact on an SME is potentially worlds apart from what it takes for a body of research to have a substantial, business-changing impact on a large multi-national. Successful impact cannot be intricately linked to the **size or location of the industry** which benefits: genuine regional impact and improvement can be incredibly powerful and oftentimes more powerful for that community than anything on the national stage.

- **Diversity** of engagement and/or impact needs to be valued, for a single body of research and for an institution as a whole.

- Successful engagement and impact is rarely achieved by the individual researcher or research team without institutional commitment and infrastructure. Whether this is in the form of student placements, innovation offices, outreach programs, media teams, internal funding, partnership coordinators etc. the **contribution needed from the non-research population** within the university is more pronounced than in an assessment of research quality. These contributions need to be captured within scope. However, the level of investment in these extra-curricular components is not a suitable metric.

We also propose exploration of a **nomination model** whereby a full suite of parameters are available but submissions nominate a minimum set of parameters against which they provide evidence. This model might better accommodate the diversity within the sector, the differences between disciplines and the type of evidence (within agreed guidelines) which could be put forward. To expect the development of a single set of indicators which could be representative of all types of research, all manifestations of impact and all benefits to the relevant stakeholders/end-users/industry risks being too generic to be of value. This model might also provide longevity across multiple rounds of assessment.

4. Would a selective approach using case studies or exemplars to assess impact provide benefits and incentives to universities?

A more focused case-study or exemplar approach could bring the following benefits, noting comments made in Question 3 above:

- Conducting an extensive, in-depth and comprehensive assessment in a defined number of areas is likely to be of greater value to universities, government, industries and communities than a broader, less detailed assessment.

- Case studies, once developed, can also be used for other purposes (e.g., to promote research to the community on university websites; to recruit students and potential collaborators to work with research teams); this would be "value-add" for the institution and is one of the positive outcomes seen in the UK's REF exercise.

- Case studies are of particular value in documenting engagement and impact as they allow for the inclusion of qualitative data alongside available quantitative data. Although they can be time-consuming and costly to develop, the quality and depth of reporting will provide a clearer picture of the value of Australian research to community stakeholders and will also allow universities to share that information with the community in meaningful, narrative forms. Qualitative case studies have the benefit of allowing institutions to uncover meaningful data about engagement and impact activities that they will not be identifying in other ways.

A selective approach might also present some particular challenges, including but not limited to:

- Broader national scale outcomes might be more difficult to determine if individual universities self-select the case studies presented.

- What defines the selection of exemplars/case studies and the context or framework used to assess them will be critical. For example, does a small number of strong case studies indicate that the institution overall is doing high impact research?

- Attribution was managed within ERA in part because every university was required to report all eligible research. If individual institutions can self-select case studies it will be potentially more difficult to determine what is unique and what is shared contribution to impact, without clear attribution rules, but also to build a national picture will be inherently more difficult.

However, attempting to measure the engagement and assess the impact of all research undertaken within universities could result in an imbalanced return on investment. This could be for any number of reasons, but might include some or all of the following:

- Whatever the reference periods used there will be instances where the impact remains intangible or unknown and this may result in false negatives. Not all research projects, particularly retrospectively, would have an estimation of impact as a deliverable.

- The value to be gained from the outcomes of the measurements and assessments should not be outweighed by the cost or burden of the exercise itself.

  If research areas are no longer actively pursued due to a change in university strategic direction or the national agenda and priorities for research since over a decade ago, even nationally the value of the results may be questionable/limited.

5. *If case studies or exemplars are used, should they focus on the outcomes of research or the steps taken by the institution to facilitate the outcomes?*

Notwithstanding comments made above about the need to define beyond just 'the activity of engaging' and the need to capture the contribution of the non-research population, we have carefully balanced the pros and cons of outcomes versus the facilitation of achieving outcomes. There was consensus across all disciplines that it needs to be both. There were some interesting points of discussion and these have been listed below.

- Facilitation should not be evaluated by level of investment or size of operation in isolation and may be susceptible to exaggeration.

- Outcomes and the facilitation are two very different activities and require separate attention in an assessment scheme. Although case studies on "outcomes" can measure the ability of a researcher to deliver impact outside of academe, case studies on "institutional facilitation" can measure the effectiveness of organisational and administrative structures in universities that support researchers to engage outside academe and deliver impact.

- Case studies on outcomes should focus on both engagement and impact activities as both of these activities are "outcomes" of research, with different (though often related) end goals. As engagement activities often serve as potential pathways to impact (e.g. exposing people to the potential value of research results, which they may then choose to take up in practice), documenting these activities as well as the actual impact (or change) that occurred is of value.

- The steps taken to facilitate outcomes could be used as a reasonable metric of engagement and its intent (i.e. to drive impact). In subsequent reporting rounds it may be possible to pick up on the outcomes as a result of steps taken.

- Exemplars would be useful to evidence that an intervention or translational outcome has resulted in a change from an original baseline level. However, depending on the timeframes to be assessed, it may be necessary to not only consider outcomes, but also to consider the steps taken, which may be only partially implemented at the time of assessment. Large or longitudinal studies may take years to produce strong translational outcomes of high societal benefit, but demonstrating steps are in place along the way would be appropriate.

6. What data is available to universities that could contribute to the engagement and impact assessment?

As noted above, it is essential that whatever data collections are used, there is both qualitative and quantitative data used and that collections from outside the higher education sector should be considered. It is highly likely there will be a difference between what universities have collected at an institutional level and what may have been collected by individual researchers or teams as they track uptake of their own research. There will need to be data verification processes used if new data collections are designed to support this assessment.

There is likely a wealth of information held by universities and individuals which is not currently identified within a specific single collection. Sources might include academic performance reviews, promotions applications, media databases and research grant progress/final reports.

6.1 Should the destination of Higher Degree Research students be included in the scope of the assessment?

CSU is supportive of efforts to foster entrepreneurial skills and knowledge of business needs in Higher Degree by Research (HDR) students. Addressing this issue is critical to ensuring greater integration and sustainable connections between the research sector and industry and to lift the numbers of researchers working within industry. It is also essential to ensuring that investment made now will produce a generation of future graduates that are industry-ready, industry-savvy and focused on careers across research and industry. Part time HDR students working in industry are already keenly aware of challenges facing their business and can apply that lens in choosing their research topic. They are also more likely to be aware of the business conditions facing their industry and are better placed to develop and apply the entrepreneurial skills that are needed to deliver successful commercialisation of research.

- Yes, the destination of HDR students should be included within the scope of assessment in at least some disciplines. This is an area in which there are likely to be discipline differences.

- The origin of the students should be considered also in particular where students are studying as part of a Partner Organisation co-funded or joint project and remain based within the industry/organisation for the duration of their studies.

- There is value in a metric which measures the number of HDR students embedded in industry-funded projects. Co-investment from industry is a measure of relevance to industry which fits within the realm of this assessment.

- Throughout the assessment, but in particular in this area, the definition of 'industry' is critical to the value of the data. Industry needs to be inclusive of all types of end-users and not just traditional industries.

- Measuring the facilitation of the outcomes of research could play a key role here. Documenting university activities in support of HDR training related to engagement and impact could form a valuable part of an engagement and impact measurement assessment.

There are, however, likely to be a number of variables in this metric including for example the average age of the HDR population, percentage of the HDR population already employed as staff within the university, and factors impacting on employment decisions which are beyond the realm of influence for the university.

A high number of HDR students undertaking research focussed positions in industry might help indicate the standard and impact of training, and their capacity to contribute to research beyond the university environment. However, is a graduate working in a related industry but in a position that does not utilise their research skills deemed to be of equal value?

6.2 Should other types of students be included or excluded from the scope of assessment (e.g. professional Masters level programmes, undergraduate students)?

If research is a key part of the degree program undertaken it is reasonable to include coursework Masters, Bachelor (Honours) within scope. Similar considerations to those outlined above would apply.

Key Issues

7. What are the key challenges for assessing engagement and impact and how can these be addressed?

Many challenges have been identified or speculated upon in recent years. We believe a number of the challenges can be addressed through resolving Questions 1-3 above. In addition to the points raised above, we suggest the following as additional challenges and where possible have suggested solutions.

- The importance of scale as distinct from scope: engagement and impact at a local level or within a small community can be as powerful as national uptakes. To address this the dollar value associated with the 'activity' should be a contributing factor but not a driving factor.

- Current and conventional indicators of research excellence and prestige including value of research income should not over-influence effective assessment of engagement and impact. There may be some overlap in evidence used but the intensity of engagement and sustainability of impact should be prioritised as driving factors.

- Shifting the indicators of success within academia to recognise the importance of engagement and impact which will influence the capacity and capability to capture it. As noted in the consultation paper the introduction of ERA has driven remarkable cultural change and a shift of comparable magnitude would be a highly beneficial outcome.

- Preserving the integrity of the assessment as being the engagement and impact of research. The expanse of university engagement and impact within society stretch far beyond those directly linked to research.

- There is no one size fits all solution and a suite of indicators or a nomination model as described above will be fundamental to the success of this assessment.

- Engagement and impact are vastly different concepts in a number of ways. Certainly there can be connectivity between them, but it is also possible to have engagement without impact and to have serendipitous impact without proactive engagement. The assessment needs to include two distinct measures.

- Defining if there was a baseline of activity/understanding or purpose that changed as a result of the research outcomes is a challenge. If this is not established or known prior to the measurement of impact, then the impact cannot sensibly be determined.

- Determining appropriate benchmarks and expectations. ERA utilises international benchmarking, which, based on economic modelling, is susceptible to change given that innovation can be driven by both economic prosperity (funds-driven) and economic instability/downturn (needs-driven). Therefore, the use of international benchmarking may drive an Australian research culture that follows, rather than sets, international standard.

- The multi-disciplinary nature of research combined with the multi-factorial aspects of engagement and impact may provide a significant complexity challenge. However, adoption of a census date approach such as that used in ERA may solve some attribution challenges in terms of which university can make claim to an engagement or impact outcome.

8. Is it worthwhile to seek to attribute specific impacts to specific research and, if so, how should impact be attributed (especially in regard to a possible methodology that uses case studies or exemplars)?

In some cases yes, in other cases no, and the delineation is not necessarily discipline specific.

There will be scenarios where a specific impact can be attributed to a specific research project, or where an initial engagement is a direct result of a particular research outcome but these may be the exception rather than the rule. It is more likely that in the mainstream engagement and impact are cumulative effects.

Referring back to our previous comments about industry being involved in determining impact or what constitutes impact; in industry it is more common to consider multiple factors before making a significant change than to change based on one piece of evidence and so it can be more effective to ask 'to what extent did project x influence your decision to change?'. This illustrates the difficulty with trying to establish direct attribution.

Even where research and practice change are closely linked, many organisations are unwilling or unable to attribute a change to only one specific research activity. An organisation may be working with several researchers, for example, and the critical mass of knowledge leads to a change – but where no one specific link can be drawn. The UK's REF and the previous impact trials held in Australia have demonstrated the challenges involved in drawing specific links to specific research, particularly in the HASS disciplines, where multiple social factors may be involved in leading to practice change.

9. To what level of granularity and classification (e.g. ANZSRC Fields of Research) should measures be aggregated?

Granularity and classification such as FoR codes and the successful inclusion of patents and research commercialisation income in ERA were driven by a direct link back to the originating research. As noted above, direct attribution may not be as easily achievable in this assessment. However, there needs to be a reliable unit of reference and/or classification. Threshold levels in any given 'category' which will need to be determined in a cumulative manner.

If FoR codes are used, measures should be aggregated at the 4-digit FoR code level. If the goal is for ERA to include evidence of impact and engagement, alongside publication evidence, then the classification codes should, as much as possible, be aligned across these three indicators of research excellence.

10. What timeframes should be considered for the engagement activities under assessment?

Question 10 and 11 could be interpreted to imply that engagement and impact might have separate timeframes within the assessment. ERA successfully used different timeframes for different metrics and likewise this may be appropriate here too.

As noted above, we would strongly suggest that engagement needs to be measured both during and after the lifetime of a project. It would then follow that the timeframe should therefore begin at the start of the research project and so timeframes be defined to include 'grants commencing within the reference period'.

Engagement does not necessarily end when a project ceases and successful engagement is often heavily influenced by reputation. A reasonable period post project would be up to 5 years. This is likely within the lifetime of relevance of much research particularly in rapidly moving fields. This would extend the timeframe definition to 'grants commencing within the reference period or ending less than 5 years before the end of the reference period'.

Engagement in advance of a research project commencing is likely harder to verify except where it results in industry-funded research outside the competitive process.

Assessing the practices used for engagement and how these are designed to maximise impact (rather than just fulfilling obligations) seems a reasonable approach. There is currently little incentive to continue such engagement processes beyond the life of a research project, but if more emphasis is placed on reporting impact, this may create a greater incentive to continue engagement.

11. What timeframes should be considered for the impact activities under assessment?

Many discussions on measuring the impact of research assume a reference period minimum of 10-15 years. There can be very distinct disciplinary differences. The adoption of innovative improvements can often be rapid, in particular where the research has been commissioned or sponsored by a relevant stakeholder. In other disciplines the research itself needs to be conducted over multiple years, for example seasonal agricultural studies, or if there are long lead-times for impact following project completion.

However, given the changes in the higher education sector in the last 15 years, or longer, the relevance of assessing the impact of research from 15 years ago on the future from now may be limited.

The UK's REF used a 15-year timeframe, which may be appropriate for Australia, as well. However, any timeframe chosen will exclude some research impacts for specific projects. In the end, this will be an arbitrary choice intended to limit the scope of the assessment. The goal will be to select a "reasonable" timeframe that will capture "some" impacts linked to "some" projects.

> ***12. How can the assessment balance the need to minimise reporting burden with robust requirements for data collection and verification?***

A number of our responses above have already referred to the return on investment for the assessment, including:

- Using case studies to minimise the number of submissions per university by focusing on the best examples in a sampling approach and/or specific disciplines (of course research).
- As far as is reasonable, using existing data collections.
- Focusing on proven evidence of engagement and impact and not estimated outcomes or proxies and use a suite of possible indicators so universities can provide evidence against a minimum number of indicators (nomination model) to reduce collection of extensive new datasets.
- Maximising the additional benefits to universities from participation in the assessment e.g. using case studies provides universities with material which can be used as the basis for future engagement activities or profiling.

In an initial assessment, this may be highly challenging as in many disciplines this is a significant shift in how research is reported and assessed. Exemplary disciplines in which there is existing assessment or acknowledgement of engagement and/or impact would provide potential models to be implemented in other areas.

> ***13. What approaches or measures can be used to manage the disciplinary differences in research engagement and impact?***

And

> ***14. What measures or approaches to evaluation used for the assessment can appropriately account for interdisciplinary and multidisciplinary engagement and impact?***

A disciplinary-based approach may not be the sole model for this assessment. Responses to questions 8 and 9 above refer to the potential challenges related to attribution and FoR or other classifications which have strong disciplinary bias. In addition these may also present challenges to industry-based assessors of engagement and impact who are less familiar with FoR codes for example than those within the higher education sector.

An assessment based on the method, type, quality and relevance to industry/end-user/community of the engagement and impact could potentially lift the assessment above the trappings of disciplinary differences. This would be far better as a case study approach than a data-driven assessment which can also provide context.

The ideal model may be a combination of both. Quantitative and qualitative assessment will help to ameliorate disciplinary differences in reporting. It is probably best left up to institutions to decide on what mix they want to report – some will be on a disciplinary basis, while others may be an aggregation of activities on engagement and impact that have resulted in measurable outcomes.

It is important to note that within disciplines there can be great variety in terms of epistemology, research design, methods/methodologies. There is no single approach to research – and therefore no single approach to engaging outside academe or influencing change. Any assessment strategy must account for this variability between disciplines and between the methodological approaches used within those disciplines.

The capacity to benchmark the results of the assessment may not necessarily need to draw it back to disciplinary lines either but benchmarking needs to be considered as part of choosing the final model.

An additional dimension which could encompass cross, multi and inter-disciplinary research would be to have broad categories of cumulative activities, perhaps relevant to economic or social boundaries.

Types of engagement and impact indicators

15. What types of engagement indicators should be used?

In addition to Appendices B and C there are other activities which need to be captured. A significant amount of industry-driven and industry-relevant research is funded through the Research Development Corporations (RDCs) in Australia. Levies contribute to the RDC budget and the RDC acts as an industry body in many ways to identify the best research for the advancement of the sector. In order to apply for funding researchers will often have to engage with an industry body (the RDC) to convince them of the worth of a proposal. In many cases this will also require engagement with industry, often indirectly (e.g. the RDC may consult with the relevant Peak Industry Council, or they may have other panel mechanisms to ensure the research is of relevance to end users). Researchers will also often consult with end users, via networks such as an Industry Advisory Committee, to test concepts and get buy-in before submitting a proposal. Often these proposals will be collaborations with such grower groups, ensuring their engagement. When it comes to extending the results, we may rely on some of these networks, or use our own forums (e.g. Graham Centre Beef forum) or other field days (e.g. GRDC grower updates) to engage next and end users. These sorts of activities need to be captured in any indicators of engagement, along with the ones listed in the document.

Engagement activities are very diverse and will change, over time, particularly with the development of new media and other mechanisms for sharing knowledge with the community at large. This should not be a "closed" list but should be provided as the types of indicators that could be mentioned – while allowing for other types to be mentioned, at the point of submission to an assessment scheme.

Appendix B is as the title suggests focused on industry links for commercialisation purposes. These do not reflect the types of indicators that are appropriate for many disciplines and research methodologies, especially those in HASS. Many other engagement indicators could be included – such as those listed below – where evidence of successful engagement can be provided.

- Media exposure (including traditional print/radio/TV news items and new media – such as social media engagement)
- Non-academic events (e.g., industry seminars/workshops; practice-based conference presentations)
- Consultations (informal and formal; funded and non-funded) with community groups, professional/practice organisations, government bodies, etc.
- Research contracts that involve academics and industry partners, whether these contracts are with industry, government, non-government organisations, professional associations, philanthropic organisations, or other funding bodies, and outputs of these contracts, including:
- research reports for/with industry authored by academics
- professional resources and other materials produced for/with industry by academics
- knowledge transfer activities with industry partners, including invitations to speak at professional conferences or directly to industry, or to submit articles for professional publications, or to produce resources and materials
- status indicators that are directly linked to industry research bodies, such as invitations to sit on advisory committees or to participate in 'round tables'
- contributions/submissions to public inquiries, such as the Productivity Commission, on industry-research related issues
- other forms of formal and informal engagement with industry partners, noting the frequency of contact, size of the audience, venue etc. Personal contact in a specific site can have as much, or more impact, as speaking to large conference audiences.

16. What types of impact indicators should be used?

A focus on reporting at the expense of justifying impact is problematic, even given that case studies can be resource hungry and open to some degree of exploitation.

In large agricultural (ag) projects however, there is often a requirement to measure/estimate impact, which often rely on case studies. Often in ag extension, KASA practice change are used as indicators of impact – i.e. change in Knowledge, Attitude, Skills and Aspirations. If changes are recorded in these then there is a reasonable chance of practice change on farm leading to economic, environmental or social impacts.
http://qualdata.net.au/wp-content/uploads/2011/09/QualDATA_FactSheet_Determining-KASA.pdf
This is also important when dealing with next users (consultants etc.), as these are the people who will be advising many of the end users (farmers) who will make the changes leading to impact.

As with engagement, various indicators should be available to researchers to provide evidence of impact. Indicators of impact that account for demonstrable change include:

- Qualitative, narrative accounts from research end-users outlining impact (i.e., gathered through appropriate qualitative methodologies).

- Quantitative reports of research impact (e.g., gathered through surveys of research users);
- Economic indicators (e.g., money saved by a practice change).
- Citations in policy and practice literature that attribute change / proposed changes to the influence of the research.

Contributions to new knowledge, changes to policy/legislation or similar documentation, economic benefit, community/society benefit, extent of reach (regional, national, international) may all be suitable indicators, but ensuring there has been a clear change from the original baseline in defining whether impact has occurred and/or is substantial is vital.

Further conversations are needed with industry partners to consider what forms of evidence are collected or could be collected to demonstrate impact on end-users.

The document called on better ways to measure research impact. Specifically it seemed to suggest that H indexes and publication rates are not always the best ways to measure impact and update, and they are certainly not the best way to influence management and policy. Quite often a good way to influence management and policy outcomes is to physically meet with managers and policy makers. It is not often the science itself, or the paper that leads to uptake. It is the one on one discussions with decision makers that translate the information into something useful which can be used to draft a new piece of legislation or change a management practice.

17. Are there any additional comments you wish to make?

Prof Lisa Given (School of Information Studies & RIPPLE) completed a research project for the Department of Education following the government's last consultation period on research impact. The report explored the viability of the case study as a mechanism for reporting research impact and explored potential indicators for tracking research engagement and impact, with a focus on qualitative measures. The research report is available at: http://www.csu.edu.au/research/ripple/qualimpact. *Given, Lisa M, Denise Winkler, and Rebekah Willson. 2014. "Qualitative Research Practice: Implications for the Design & Implementation of a Research Impact Assessment Exercise in Australia." Wagga Wagga: Research Institute for Professional Practice, Learning and Education. ISBN: 978-0-9874288-1-3.*