Introduction

This document forms the University Alliance submission to the Stern Review of the Research Excellence Framework (REF). We respond to the nine questions in the call for evidence paper and make a number of recommendations on technical issues. Our overarching views about the REF and the potential to derive further value from it in the future are as follows:

The REF is a good use of time and money and further value should be driven from the results. The significant and granular data resource afforded through the REF should underpin other public funding decisions. We propose that the REF analysis team at HEFCE should be augmented and given a substantive advisory role in relation to Research UK.

The granularity of the REF enables the Government to fund excellence wherever it is found. The granularity of REF data allows us to identify and reward even small pockets of excellence. An assessment exercise that relied on aggregated responses at institutional – rather than individual unit – level would undermine the Government's principle of funding excellence wherever it is found.

The REF supports a dynamic research system by shining light on changes in research quality and emerging areas of research excellence, and therefore encourages forward-looking investment. As the Nurse Review recognised, high quality research occurs in many places and is often most innovative away from research intensive universities. [i]

The value of the REF is underpinned by peer review. This is globally recognised as the gold standard of research assessment. The shift towards a metrics-based system has been repeatedly investigated and found wanting. If metrics are to be incorporated there must a full and robust analysis of multiple metrics approaches which should underpin but not replace peer review.

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Summary of recommendations

Recommendation 1: REF must retain peer review as a basis for output assessment.

Recommendation 2: The Impact statement should be moved to the Environment section, retaining impact case studies separately.

Recommendation 3: Environment and Impact should be assessed at Panel level. This would allow universities to better describe and reflect challenge-based and interdisciplinary research and may allow the easier capture of cross-Panel activities.

Recommendation 4: Reduce the environment/impact narrative statement in length and supplement with quantitative data. This could include HE-BCI data, researcher development and experience-orientated indicators including knowledge exchange activities; and metrics on research productivity, i.e. the ratio of public funding inputs to research and impact outputs.

Recommendation 5: Policy makers should consult with the research community on common currencies and units in impact case study evidence, to enhance comparability and streamline processes for data collection.

Recommendation 6: To preserve granularity in the data, the next REF should retain at least the same number of Units of Assessment (UoAs) as REF 2014.

Recommendation 7: Whilst there are some benefits to aggregating staff submissions, particularly around accounting for staff with special circumstances, the REF must retain a selective staff approach. This will avoid contractual changes which would be to the detriment of the UK research ecosystem.

Recommendation 8: The advanced analytical function and expertise that has built up around the REF should form the nucleus of a national research analysis unit, which should in turn inform the whole UK research and innovation ecosystem through an advisory role to Research UK.

Recommendation 9: Policy makers should explore the development of a national research data infrastructure as a one-stop shop for information.

Recommendation 10: REF should reward and recognise dynamism through measures of productivity (research income input by research quality output) reflected in the environment statement.

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Question 1. What changes to existing processes could more efficiently or more accurately assess the outputs, impacts and contexts of research in order to allocate QR? Should the definition of impact be broadened or refined? Is there scope for more or different use of metrics in any areas?

1. We support the aim to reduce the burden of the REF. We recognise that one temptation may be to lighten the load by use of metrics in all three areas of research assessment: outputs, impact and environment. Our detailed position on metrics was set out in a submission to Independent review of the role of metrics in research assessment to HEFCE in 2014.

Outputs.

2. Peer review is globally recognised as a 'gold standard' underpinning the rigour and validity of results and should remain the keystone of UK research assessment in respect of outputs.

3. There is not a strong case for sole use of metrics across the whole system. Output metrics – usually citations-based/bibliometrics – have limitations.[ii] Publication patterns and citation culture vary across different disciplines, so no bibliometric analysis system can be universally applied. A mixed-method metrics system may risk creating silos between disciplines and work against multidisciplinarity. There are concerns that citation-based systems amplify existing prejudices and reinforce inherent conservatism, thereby restricting innovation in scholarship and working against diversity.[iii] It has also been shown how easy it is to manipulate certain metrics systems.[iv]

4. For these reasons, we have serious reservations about the use of a light-weight citations-based 'REF refresh' in between a full REF, as alluded to in the Green Paper, which would conflict with the principles and rigour of the peer review based system. However, we would welcome the opportunity to work with policy makers to consider how and integrated use of multiple metrics and review might lighten the load of research analysis through a technical consultation.

Recommendation 1: REF must retain peer-review as a basis for output assessment.

Impact and contexts of research (environment)

5. Impact must also remain a significant part of the research assessment process. The current definition is broadly understood by academics and staff and future systems should allow this to embed further. Universities have made significant

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investments to integrate the capture of impact evidence throughout the research process. As a result, the impact component of REF 2014 has helped shift academic culture towards communicating and considering the social value of research, thereby contributing to accountability for public investment in research.

6. Metrics for measuring impact (as it is currently defined) are not currently robust enough. The Australian government has invested considerably in this area and found no workable system to measure impact through the use of metrics and indeed the case study approach is widely agreed to be the best approach.
7. In its current form, the number of impact case studies required for a UoA can be a limiting factor for staff submissions and this has a knock-on effect for the ability of departments to grow and improve. Therefore we suggest lifting impact assessment to panel level to avoid the limiting effects on growth of departments.
8. Different institutions in the sector operate different research environments which bring unique challenges of their own. Aggregating these at institutional level would be unhelpful.

Recommendations for reducing burden and easing the limiting factors on growth and dynamism

9. We would support efforts to reduce the burden of impact and environment assessment, through the following recommendations.

Recommendation 2: The Impact statement should be moved to the Environment section, retaining impact case studies separately.

Recommendation 3: Environment and Impact should be assessed at Panel level. This would allow universities to better describe and reflect challenge-based and interdisciplinary research and may allow the easier capture of cross-Panel activities.

Recommendation 4: Reduce the environment/impact narrative statement in length and supplement with quantitative data. This could include HE-BCI data, researcher development and experience-orientated indicators including knowledge exchange; and metrics on research productivity, i.e. the ratio of public funding inputs to research and impact outputs.

Recommendation 5: Policy makers should consult with the research community on common currencies and units in impact case study evidence, to enhance comparability and streamline processes for data collection.

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Question 2. If REF is mainly a tool to allocate QR at institutional level, what is the benefit of organising an exercise over as many Units of Assessment as in REF 2014, or in having returns linking outputs to particular investigators? Would there be advantages in reporting on some dimensions of the REF (e.g. impact and/or environment) at a more aggregate or institutional level?

10. We reject the premise of this question. REF has three main objectives: funding allocation, accountability, and benchmarking. Further related benefits include performance management and behavioural change to keep the system responsive. As outlined elsewhere in this response we believe further value can be derived from the REF elsewhere in the research system.

The granularity of REF is its greatest strength and must be maintained

11. Current objectives are achieved precisely because the REF provides granular, subject-level information. This information underpins the dynamism of our research ecosystem, because:

    a. It helps universities make strategic investments within their institution.

    b. It helps foreign investors and potential collaborators identify where quality is, with an independent validated quality stamp.

    c. It provides a benchmark for global competitiveness (and even then it could be more granular - universities use sub-UOA profiles to promote where their research has had world leading impact in order to compete in the global market).

    d. It allows QR to recognise excellence wherever it is found. Funding according to other means, i.e. size and historic funding capture, have been shown to bring diminishing returns.[v] The Higher Education Commission's report *Too Good to Fail* highlighted the threat that concentration of funding makes to the dynamism of the research ecosystem.[vi]

12. Therefore in the interests of maintaining a usefully nuanced evidence base and a dynamic system we recommend no fewer UoAs in the next REF exercise than in REF 2014. We note that there are particular subject areas where separation and re-classification should be considered through a separate consultation.

Recommendation 6: To preserve granularity in the data, the next REF should retain at least the same number of Units of Assessment (UoAs) as REF 2014.

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Aggregation of assessment at institutional level would destroy dynamism and works against the principle of funding excellence

13. Many universities have invested strategically in areas of strength, and as a result have peaks of excellence within their institutions. Research communities develop around these peaks of excellence. Aggregating environment or impact at institutional level would flatten this picture and decrease the evidence base about research quality beyond a useful degree of detail. For resource allocation, this would undermine the Government's principle of funding excellence wherever it is found. However, we have suggested some impact and environment data could be presented at Panel level and results shared by contributing UoAs.

14. We also note that any new institutional-level submissions would bring extra cost through the creation of a new assessment panel.

Aggregation through a whole-staff approach would be expensive and would undermine research culture, career progression and research-informed teaching

15. Aggregating output submissions through adoption of a whole-staff approach risks undermining the identification of quality research, and could adversely affect career progression and the learning/research environment. It could also bring further costs.

    a. **Sampling undermines rigour.** A whole-staff approach would force panels to adopt sampling strategies in outputs assessment, which would be at odds with the principle of identifying excellent research and has the potential to undermine the confidence currently held for the assessment process.

    b. **Contractual changes.** A whole-staff approach would also introduce perverse incentives to change staff contracts and particularly disadvantage universities with large numbers of professional, applied, externally accredited courses, e.g. nursing, education, law and architecture. If staff on teaching-only contracts were excluded from REF, resultant contract changes would come at huge financial cost and may affect the career development and progression of many academic staff as well as the health of the sector.

    c. **Negative impact on research-informed teaching.** Contractual changes would risk reducing levels of research-informed teaching, with detrimental effects on the experience and learning benefits for undergraduate and postgraduate students.

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d. **Disincentive for multi-disciplinary working.** A whole staff approach might be problematic for a multi-disciplinary unit (e.g. General Engineering where computer scientists, mathematicians, chemists and physicists might contribute) when a correlation to the unit in which staff are submitted is made with HESA returns data. This may affect multidisciplinary research, by creating pressure to make separate discipline-specific submissions.

Recommendation 7: Whilst there are some benefits to aggregating staff submissions, particularly around accounting for staff with special circumstances, the REF must retain a selective staff approach. This will avoid contractual changes which would be to the detriment of the UK research ecosystem.

Decoupling staff from outputs

16. The coupling of outputs to their investigators has created an element of gaming in the sector through 'poaching' of portable outputs. Likewise some association of outputs to staff acts as an incentive to performance. Some churn in the sector is to be encouraged. However, a proportional attribution of outputs to previous host institutions may help recognise the investment where it was made. Likewise we would welcome more flexibility on the number of outputs per investigator to lighten the burden of calculation for staff circumstances.

Question 3. What use is made of the information gathered through REF in decision making and strategic planning in your organisation? What information could be more useful? Does REF information duplicate or take priority over other management information?

17. Although 95% of the cost of REF falls directly on universities,[vii] Alliance universities believe that the benefits significantly outweigh its costs. Alliance universities use the REF to drive performance, develop staff and to make strategic research investments in their institutions as well as for benchmarking – therefore there is no duplication of efforts. The information submitted to REF forms part of broader institutional assessments of research quality and impact, which underpin institutional research management strategies.

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Question 4. What data should REF collect to be of greater support to Government and research funders in driving research excellence and productivity?

Driving further value from the REF exercise through making it core to a national research analysis unit

18. The REF is the cheaper element of dual support. The cost of REF 2014 was £246 million over six years, amounting to 2.6% as a proportion of HEFCE's research budget.[viii] In comparison, the cost of allocating responsive mode project funding amounts to 12.6% of the Research Council budget spent in universities.[ix]

19. Nevertheless, as outlined above, the value of REF should not be calculated simply as a cost for allocating QR. Since universities carry out 75% of all UK research the REF brings benefits far beyond this function and further value could be added through the greater use of results and behavioural drivers.

> Recommendation 8: The advanced analytical function and expertise that has built up around the REF should form the nucleus of a national research analysis unit, which should in turn inform the whole UK research and innovation ecosystem, through an advisory role to Research UK.

20. We believe that far greater use should be made of the granular REF results and would achieve further efficiencies in the research system. Now – in the context of the reorganisation of Research UK – is the ideal time to design in a more widespread use of REF data, including for funding decisions. One example is Research Council block grant allocations (i.e. their non-responsive funding streams), many of which use algorithms based on historic Research Council funding data to determine investment. Funding on the basis of historic levels of funding works against a dynamic research system, and has been shown to deliver diminishing returns.[x] Some research councils already use REF GPA average scores as a quality threshold and more extensive use of the REF results to determine non-responsive allocations offers an efficient and competitive demand management mechanism.[xi]

21. Further efficiencies could follow from the operation of both sides of the dual support system by better integration, for example alignment and efficiencies on Open Access requirements. Moving the whole system to a preference for the Green route as required by REF would bring significant cost savings to the sector.

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22. We would also support the development of a national research data infrastructure alongside the proposed changes to REF. The creation of a national information management system will improve comparability and reduce burden where analysis can be automatically generated, for example via linked ORCHID and HESA information. This data is already being collected within universities for performance management and to underpin strategic investments.

Recommendation 9: Policy makers should explore the development of a national research data infrastructure as a one-stop shop for information.

Question 5. How might the REF be further refined or used by Government to incentivise constructive and creative behaviours such as promoting interdisciplinary research, collaboration between universities, and/or collaboration between universities and other public or private sector bodies?

23. Above we outline ways that collaborative and interdisciplinary activities could be better captured and reflected in Panel-level environment assessments. We also endorse the idea of interdisciplinary champions on sub-panels.

24. Considering the broader view of the scope and application of REF analysis and results, REF could be used to underpin and encourage collaborative activities elsewhere. Used smartly by researchers across the system and by funders outside of QR, REF results could and should be used to inform collaborative and multi-disciplinary bids. Research Councils have highlighted the challenges of interdisciplinary peer review and REF results may provide a useful measure of quality to inform these decisions.

Question 6. In your view how does the REF process influence, positively or negatively, the choices of individual researchers and / or higher education institutions? What are the reasons for this and what are the effects? How do such effects of the REF compare with effects of other drivers in the system (e.g. success for individuals in international career markets, or for universities in global rankings)? What suggestions would you have to restrict gaming the system?

25. Throughout this response we have outlined how REF is used by universities for performance management and strategic research investment. Submission to REF also provides incentives for researchers and can drive behaviours such as impact and evidence capture. Perverse incentives such as poaching, citations gaming and staff selection are addressed in turn.

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Question 7. In your view how does the REF process influence the development of academic disciplines or impact upon other areas of scholarly activity relative to other factors? What changes would create or sustain positive influences in the future?

26. See point 23 for how the REF should further encourage interdisciplinarity.

Question 8. How can the REF better address the future plans of institutions and how they will utilise QR funding obtained through the exercise?

27. REF must remain an output based assessment of quality in the UK research system, balancing the project-based element of dual support. We would have concerns about the REF forming a restrictive monitoring exercise, with QR funding being contingent on meeting 'deliverables' as listed in a REF submission.

28. The lever to reward and recognise future planning should be the allocation of funding, rather than the assessment process. Therefore it is the *use* of REF results, via QR, which recognises improvement and growth and recognise value for money spend on previous QR. Continuing to provide QR as infrastructure funding gives institution the flexibility to define priorities, which will continue to provide maximum agility and dynamism.

Recommendation 10: REF should reward and recognise dynamism through measures of productivity (research income input by research quality output) reflected in the environment statement.

Question 9. Are there additional issues you would like to bring to the attention of the Review?

29. We would particularly draw the Review's attention to our answers at Question 4 and the proposal for REF results to form the core of an advanced analytical capability for the UK research and innovation ecosystem.

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Endnotes

[i] Sir Paul Nurse, *Ensuring a successful research endeavour: review of the UK research councils*, p. 6.

[ii] James Wilsdon (July 2015). The Metric Tide. Report of the Independent Review of the Role of Metrics in Research Assessment and Management.

[iii] Daniel Maliniak, Ryan Powers and Barbara F. Walter (2013). The Gender Citation Gap in International Relations. International Organization, 67, pp 889-922. doi:10.1017/S0020818313000209; Ilana Yurkiewicz, (2012) 'Study Shows Gender Bias in Science is Real. Here's Why It Matters', Scientific American: http://blogs.scientificamerican.com/unofficial-prognosis/2012/09/23/study-shows-gender-bias-in-science-is-real-heres-why-it-matters/; April Corrice (2009) 'Unconscious Bias in Faculty and Leadership Recruitment: A Literature Review', Association of American Medical Colleges: http://www.hopkinsmedicine.org/diversity_cultural_competence/pdf/Unconscious%20Bias%20in%

[iv] Phil Davis, (2012), 'Gaming Google Scholars Citations: Made Simple and Easy', *Scholarly Kitchen* blog. Available at: http://scholarlykitchen.sspnet.org/2012/12/12/gaming-google-scholar-citations-made-simple-and-easy/

[v] Data from the US National Institutes of Health (NIH) showed that average 'impact factor' declined discernibly at higher funding levels publication levels: Meredith Wadman, "Study Says Middle Sized Labs Do Best.," Nature, 468 (2010), 356–57 <http://dx.doi.org/10.1038/468356a>. Likewise, a Canadian study noted that citation impact was generally a decelerating function of funding, that impact per dollar was lower for larger grant-holders, and that the citation impact of researchers who received increases in funding did not predictably increase: Jean-Michel Fortin and David J Currie, "Big Science vs. Little Science: How Scientific Impact Scales with Funding.," *PloS one*, 8 (2013) <http://dx.doi.org/10.1371/journal.pone.0065263>. [check refs]

[vi] Higher Education Commission, *Too Good to Fail. The Financial Sustainability of Higher Education in England*, 2014.

[vii] Technopolis (2015). *REF Accountability Review: Costs, benefits and burden*. Report to the four UK higher education funding bodies.

[viii] Technopolis (2015). REF Accountability Review.

[ix] RCUK (October 2006). Report of the Research Councils UK Efficiency and Effectiveness of Peer Review Project.

[x] Fortin and Currie (2013) Big Science vs. Little Science.

[xi] For example, the ESRC requires a REF score of 3.0 GPA or above for a research unit to qualify for application into the Doctoral Training Partnership scheme.

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