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REF Review
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18th March, 2016

Dear Colleague

Research Excellence Framework review: call for evidence

The Engineering Professors' Council (<http://epc.ac.uk>) represents the majority of academic engineers in the UK, with 81 university engineering faculty members comprising over 6,500 academic staff. It is a "nominating institution" for the purposes of the Research Excellence Framework (REF) and four panellists from REF2014 sit on its governing Committee, which also numbers a Vice President of the Royal Academy of Engineering, a President of the Institute of Measurement and Control and an immediate past President of the Institution of Civil Engineers, as well as four university pro Vice-Chancellors.

We enclose our input to Lord Stern's review of the Research Excellence Framework.

Section 1

The primary purpose of the REF is to inform the allocation of quality-related research funding (QR).

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?*

Please tell us your thoughts in no more than 500 words:

We would suggest that some thought is given to rethinking the impact and environment templates so that the panels can review, assess and consider the quality and quantity of outputs and impacts together relative to the size of teams and the resources available. This would allow some assessment of whether suitable use has been made of resources and commensurate scope and quality outputs generated. This would mean that account could be taken of the evolution of the unit/department being assessed. The number of papers required to be submitted could be adjusted depending on group size (rather like the current arrangements for impact case studies). The panel will use judgement on the outputs submitted relative to the team sizes, numbers of students associated with the department/unit and funds available.

Broader information about the environment could be considered, such as level of Athena Swan award and similar accreditations might be used to give a richer definition of what constitutes a good environment. This could also be used to drive behaviour in the sector. Taken together, these suggestions would markedly reduce any bias resulting from professionalism in the writing of the submission.

The scope of impact could additionally be broadened to include how research impacts the programme content and the teaching portfolio.

Markers of esteem such as external appointments, accolades, prizes and awards held/received could be used more extensively as a form of impact but would need to include specific information and descriptions of how such markers generate impact through external engagement in professional, national and international fora of relevance to the discipline.

We concur with the outcome of the report 'The Metric Tide' that metrics must be used carefully and in conjunction with discipline knowledge and peer assessment in order to gain an accurate picture. Metrics such as citations are highly discipline dependent and need to be considered at this level; their use would appear to conflict directly with any move to assessment at institutional level or with larger units of assessment.

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?

Please tell us your thoughts in no more than 500 words:

We would disagree with the presumption that REF is primarily a tool to enable allocation of funds at institutional level. While we recognise the importance and strongly support the principle that the current system provides funding to universities at institutional level to enable them to invest in research strategically, we also believe that there is substantial value to institutions in being able to identify which units have been responsible for generating it - which the current system provides. Evidence from our members supports the assertion that information on the performance of specific Units of Assessment (UoA) generated from REF outcomes is used to inform funding decisions relating to engineering units. A poll of members of the Engineering Professors' Council indicated that of those who are familiar with their institution's resource allocation model, the majority say it is returned, in whole or in part, to those departments that generated it. If Units of Assessment were removed or combined into much larger groupings, institutions would need to carry out a similar internal exercise to inform resource allocation.

Further, reducing the number of UoA would not in itself reduce the effort required by panels. The same number of sub-panel members would be needed to read the volume of outputs. Further aggregation would mean even greater challenges in assessing multi / inter disciplinary activities. Some structure is essential to be able to effectively draw on subject expert knowledge and facilitate discussion at a manageable scale.

That said, some thought does need to be given to the level at which impact is assessed. Examining the REF outcome, there is little differentiation in the top 20 positions for each of the units of assessment. Thus, not being able to submit an impact can mean the difference from being top or bottom of the list. Therefore, if a given institution wanted to open a new department and staffed it entirely with Nobel laureates, it would be 20 years before it could be recognized as being academically significant. That said, the converse is true for smaller or specialist institutions.

It would be beneficial to have a standard template for reporting on environment, with some quantitative measures e.g. funding per head per year (over the period since the last assessment) but also some additional indicators such as Athena Swan awards; policies on early career researchers etc. as outlined above. This could be used to encourage certain behaviours and again, these tend to be discipline/departmentally related rather than readily assessable at institutional level.

Section 2

While the primary purpose of REF is QR resource allocation, data collected through the REF and results of REF assessments can also inform disciplinary, institutional and UK-wide decision making.

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?*

Please tell us your thoughts in no more than 500 words:

All institutions will have their own policies and we are not responding on behalf of a specific institution but as a representative organisation. We do know, however, that REF information is generally used to understand the research profile within Schools and Faculties and is one of the inputs to investment strategy. It does not take priority over or duplicate management information but should inform it. We are aware of a range of very strong views on this, with individuals feeling that REF informs their organisation's performance management and HR policies. This is, however, not a fault of the REF *per se* but in how it might be used in some institutions

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

Please tell us your thoughts in no more than 500 words:

It seems that REF results are used as a "blunt instrument" outside the institution, with individual departmental outcomes combined to provide a single institutional "score". These are then often combined again with a range of other metrics and varying weightings to generate "league tables". Those outside academic research rarely understand how the assessment is carried out and what it is telling them.

REF seems to have evolved so that the outcome is driven largely by volume of outputs and numbers of PhD students rather than research excellence. There needs to be a way to normalise the data so as to ascertain the return on research investment to really discover embryonic research excellence. If Government and funders are looking for information to support the development of higher quality outcomes and productivity, then a greater emphasis on end of project reviews (from industrially, charitably and publicly funded projects) may be useful. Did the project deliver the specified outcomes, if not, why not? Did it deliver some unexpected positive outcomes? What were they? This would focus attention on the delivery from specific grants and show the value of the investment in those specific grants. This of course may increase the assessment burden. It should be remembered, however, that the REF and its predecessors were not intended to fund specific research projects but to help institutions to build research capacity and capability and to intervene in areas of "market failure" i.e. support areas of work that were not easily fundable elsewhere. QR funding is the only remaining source that performs this essential role, which is particularly important for engineering units given the infrastructure requirements of much of the discipline.

Section 3

The incentive effects of the REF shape academic behaviour, such as through the introduction of the impact criteria.

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?*

Please tell us your thoughts in no more than 500 words:

Continuing to encourage UK HEIs to collaborate to compete in the global environment, rather than with each other is essential and there are some great examples of this already that were highlighted in the previous REF submissions.

Ensuring there is clarity in differentiating the purpose of funding resulting from the REF from that of the Research Councils and other grant funders would be helpful. Rewarding collaboration between universities and other bodies to develop research capability, competence and infrastructure would seem to be a suitable differentiator of the REF compared with other funding streams, together with a rigorous review of how the funds have helped deliver improvements in these areas, would be helpful.

Section 4

Previous studies have focused on the costs of REF with respect to the time and resources needed for the submission and assessment processes. The Review is also interested in views and any associated evidence that the REF influences, positively or negatively, the research and career choices of individuals, or the development of academic disciplines. It is also interested in views on how it might encourage institutions to 'game-play' and thereby limit the aggregate value of the exercise.

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?*

Please tell us your thoughts in no more than 500 words:

There are clearly going to be positive and negative behaviour drivers within any assessment exercise with funding and/or reputation attached to the outcome.

On the positive side it seems to be encouraging a smaller number of higher quality papers to be written rather than many short papers of less significance. That said, this can impact the development of earlier career researchers who previously gained experience of writing for publication through shorter, less significant papers.

A negative effect for students and staff seems to be the growing separation of research and teaching in many institutions, with staff not being submitted to the REF being moved to teaching only contracts so that they are not counted within the baseline number of active researchers when calculating the percentage of research active staff submitted (this metric is used in the "league tables"). It is good for students (and the UK) to be taught state-of-the-art material by research-active staff but drivers are against this continuing into the future. From a staff perspective, it is increasingly difficult to move the

balance backwards and forwards between concentration on research and teaching over the course of a career.

A further negative effect for smaller institutions is the “transfer market” driven every few years by larger and more research intensive institutions “buying” staff to boost their submissions. The obvious response to this would be to require that only work carried out by the member of staff during their time at the submitting institution (as is the case for impact) is submitted, although, it is accepted, very difficult to assess and implement. Arrangements would need to be made for early career staff, for example, who, by their very nature, may have served a number of short term contracts and whose body of work may have been conducted in a number of institutions. Ways to avoid negative impacts on career progression for staff who may need to move locality for family reasons would also need to be found.

Generic and anonymised feedback from those who have served as REF panellists or mock reviewers are of the opinion that gaming the REF process itself is a less serious issue than is generally thought. That said, institutions clearly “polish” their submissions in a variety of ways which are allowable within the letter, if not the spirit, of the rules, for example, appointing high performing staff from other institutions on 0.2 contracts. The small differences in score that this drives can have quite large effects in “league table” position, particularly for submissions with small numbers of staff. While this has a significant reputational impact (with the attendant ability to attract other sources of funding), it does not significantly affect QR income distribution owing to the fact that this is partially driven by headcount. In reality, the key drivers are income, high quality outputs from high numbers of staff and PhD student numbers. Institutions doing best on these will do best in their financial settlement from REF.

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?

Please tell us your thoughts in no more than 500 words:

There is a negative effect on the discipline of Engineering in recruitment and selection insofar as very few staff would be appointed from a professional background in industry as they are unlikely to have sufficient “REF submittable” papers. Conversely, many physicists, mathematicians and chemists populate engineering departments because publications are more likely to be around fundamental (“blue skies”) research and hence have a higher ‘originality’ score. This has some negative impact on the teaching of engineering as a professional discipline.

Section 5

Much of REF focuses on the retrospective analysis of success achieved by institutions either through output or impact. Yet the resources provided anticipate continued success based on that track record. Are there means of better addressing forward-looking institutional plans and priorities, and how these might feed in to national policy?

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

Please tell us your thoughts in no more than 500 words:

Strategies are requested in current REF templates but seem to be rarely reviewed retrospectively in the light of funds allocated by REF (or indeed other sources).

Quality-related funding, as a separate source from grants for specific projects, is intended to set the foundations for the more innovative research in institutions and the research infrastructure. As outlined in responding to question 5, rewarding collaboration between universities and other bodies to develop future research capability, competence and infrastructure would seem to be a suitable differentiator of the REF compared with other funding streams. To this end, it would be beneficial if the institution submitted an overall statement on its strategies and plans that set the context and then supplemented this by submissions in the impact section of each unit of assessment.

Basing funding on future plans rather than solid performance, however, would be highly subjective so it is suggested that some information on track record in developing capability would still be required.

Final thoughts

The Review is keen to hear of creative ideas and insights and to be open in its approach.

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

Please tell us your thoughts in no more than 500 words:

The impact and environment templates could usefully be merged into one structured document, with clear sections for explaining the overall plans and achievements in external impact, research impact and the academic research.

More generalists as well as specialists could be involved in panels, offering external perspective and moderation. Incentives and opportunities for people from outside academia to be involved in REF panels have been limited and consideration needs to be given as to how to attract and involve suitable panel members from industry, business, charities and the public sector.

Care needs to be exercised to ensure that the REF does not “set the sector in aspic” and find ways of rewarding nascent research excellence and innovation.

Yours sincerely



Professor Stephanie Haywood

President