
Summary

- We welcome a streamlined Research Excellence Framework (REF) providing that this protects valuable aspects of the assessment, such as the highly successful impact component which should be retained at its current weighting.
- Cost-savings might be found through merging institutional environment and impact statements, but a wider use of metrics may liberate fewer resources than expected.
- The delegation of researcher selection to institutions has created a range of perverse incentives, and may be driving behaviours such as 'tactical hiring' which do not foster long-term sustainability. We suggest the review explores alternative models such as fractional sampling of the entire research staff, or an institutional-level assessment.
- REF2014 provided a timely audit of UK science, building an evidence base which demonstrated the value of public research funding. The use of impact case studies, and greater acknowledgement of individual staff circumstances, successfully reflected the calibre of UK research outputs and the diverse workforce delivering them.
- Future exercises should capture greater detail on the international success of researchers, and provide a more flexible template for industry interactions.
- Legal concerns around the retention of REF data should be explored proactively, allowing this asset to be deployed for future analysis and evaluation exercises.
- The changing nature of research, particularly the rise of team science, will require a significant reappraisal of how outputs are attributed in future assessments. REF plays an important role in incentivising ways of working, and should take a lead in promoting interdisciplinarity and the recognition of large teams. The recent Academy report on Team Science sets out several relevant recommendations in this area.

Introduction

The Academy of Medical Sciences promotes advances in medical science, and campaigns to ensure these are translated into healthcare benefits for society. Our elected Fellowship includes the UK's foremost experts drawn from a diverse range of research areas.

We welcome the opportunity to respond to Lord Stern's review of the Research Excellence Framework (REF), which aims to examine how university research funding is allocated.¹ Our response has been informed by the expertise of our Fellows, many of whom were directly involved in the operation of the REF2014 exercise. Given the interest in the future of the REF process, we would welcome further opportunities to engage with the outputs of the review.

¹ www.gov.uk/government/consultations/research-excellence-framework-review-call-for-evidence

Q1. 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?

We welcome ongoing evaluation of the REF process, but any streamlining should seek to preserve the value delivered by the assessment. The criteria for REF2014 marked a significant and successful step forward to capturing the wider societal value of research, with the unprecedented scope of the impact component providing a substantial contribution. This success merits the retention of this new measure of excellence, which we feel is currently weighted at an appropriate level alongside the other criteria.

A reduction of burden might be derived from the merging of institutional environment and impact statements, and potentially through a greater role for metrics throughout the process. However, the limitations should be understood and a recent report noted that metrics are unlikely to 'provide a like-for-like replacement for REF peer review', although some of our Fellows felt that the growing prevalence of digital identifiers (e.g. ORCID: Open Researcher and Contributor ID), and detailed bibliometric data presented new opportunities for lessening the burden of peer review.² Overall, cost savings from metrics are likely to be smaller than hoped, with informal analysis suggesting savings of ~£45m when the additional costs of data management are taken into account.³

Other concerns were raised by our Fellows in relation to grade inflation and the steep funding differentials between grades, which limits the functionality of this four-tiered approach. Generating a useful degree of stratification at the highest end of the rankings may be facilitated by greater international benchmarking to enhance the meaning of REF classifications, and capture the wider status of UK science.

Q2. 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?

The granularity of REF2014, which coupled outputs to specific researchers, facilitated the creation of valuable resources to showcase excellence within individual sectors.⁴ Greater use of aggregated data might undermine this capacity, but continuing to sample at the level of individuals is accompanied by challenges including substantial administrative burden and the generation of perverse incentives. We would support the review exploring alternative models for assessment which may tackle these concerns. The Academy does not advocate a particular option, but two possible models were suggested by some of our Fellows and the principles behind these are subsequently outlined.

² The Metric Tide: Report of the Independent Review of the Role of Metrics in Research Assessment and Management (2015)

³ Move to metrics may not bring significant savings to REF bill (2016) Times Higher Education

⁴ Health of the Nation (2015) Medical Schools Council

Fractional sampling

A significant amount of the burden within Universities was associated with the internal selection of candidates.⁵ The delegation of this responsibility to Universities may have distorted outcomes, and has led to claims of 'tactical hiring' of high-profile staff, an allegation which is discussed further under question six. A random sampling of research-active staff would remove this incentive – with Universities listing all research-active staff, and REF panels requesting full assessment materials for a random sample. This sample would need to be stratified to ensure appropriate coverage of departments, and there might be concerns about appropriate levels of statistical power for smaller institutes. Benefits might include reduced administrative burden, particularly for large institutions, and the removal of perverse incentives for short-term hiring. However, this might simply shift the selection burden onto REF panels, or lead to the manipulation of job titles in order to cultivate an optimal selection of research-active staff.

Institutional-level assessment

As funding allocations occur at the level of the institution, there may be merit in considering an assessment model in which institutions, rather than individuals, are the denominator. The binary nature of being returned or not is a strong driver for career advancement, and conducting the assessment at a departmental or institutional level may help protect those at vulnerable career stages, including Early Career Researchers (ECRs). Rather than submitting individuals for assessment, institutional units (e.g. departments) would be asked to provide outputs in an aggregated form. The scale of the request would likely be proportional to the size of each department or unit, and the merits and drawbacks of different measures for this (e.g. number of staff, research income) would need to be appraised. Assessing the best research, rather than the best people, may reduce the administrative burden of research selection on Universities, reduce the burdens of attributing papers to individuals by REF panels, and provide greater support for collaboration and team attribution.

The Academy does not advocate for either model, but would welcome an exploration of the potential benefits and challenges. Resources, including our recent report on Team Science, may support this process.⁶ Both models can still accommodate weighting for individual staff circumstances, and might remove some of the assessment artefacts created by the REF2014 eligibility criteria. However, new models can generate perverse incentives and these should be thoroughly considered in dialogue with the community.

Q3. 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?

REF2014 provided a timely audit of the UK research base, highlighting examples of excellence and impact which have been a vital asset for the Academy, and wider sector, to demonstrate the return on research investment to the public and decision-makers. The greater emphasis placed on individual staff circumstances captured valuable data on the profile of the modern research workforce, and raised the profile of ECRs, part-time workers and those who have had career breaks. This data can inform strategic decision-

⁵ REF Accountability Review: Costs, benefits and burden (2015) Technopolis

⁶ www.acmedsci.ac.uk/policy/policy-projects/team-science/

making on careers support and structures at a disciplinary, institutional and UK-wide level. For greatest impact, the positive drivers created by REF should be coordinated with programmes such as ATHENA SWAN to incentivise the creation of a more equitable workforce in Universities.

Q4. What data should REF collect to be of greater support to Government and research funders in driving research excellence and productivity?

Alongside data collection, data retention represents an important factor in driving further excellence. We would urge proactive efforts to address the legal concerns that led to the deletion of the REF2014 raw data, as this represented a significant missed opportunity for longer-term analysis of this asset, including for evaluations such as this one.

Future exercises may wish to explore synergies with existing data collected by Universities, including on research students and their career paths. Greater efforts should be made to capture data on international visibility (e.g. awards, co-appointments, and election to foreign Academies), international collaborations, and a broader definition of entrepreneurship. Commercial activities should be better accounted for, by capturing industry interactions beyond grant income and impact alone.

The format of impact case studies should be revisited, to explore opportunities for the creation of a searchable data source for calculating return-on-investment figures. The qualitative nature of these case studies, which underpinned their richness, might be developed in such a way that greater data mining is possible without compromising content. The use of common measures of impact (e.g. Quality Assured Life Years) has been raised as an example of a possible change.⁷

Q5. 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?

It is increasingly important to view the REF as a driver of positive behaviour change within Universities. The attribution process of REF2014 represented progress against previous exercises, but future assessments will need to better capture, and therefore promote, inter-disciplinary, inter-institutional and 'Team Science' endeavours. Many points relevant to this debate are discussed in the Academy's recent report on Team Science.⁸

Already, 87% of case studies cited two or three Field of Research codes, demonstrating the interdisciplinary nature of modern science.⁹ The wider assessment criteria must keep pace with this change, with particular concerns raised around the valuing of roles such as computational biologists, which may generate a large number of mid-author

⁷ The nature, scale and beneficiaries of research impact (2015) King's College London & Digital Science

⁸ www.acmedsci.ac.uk/policy/policy-projects/team-science/

⁹ The nature, scale and beneficiaries of research impact (2015) King's College London & Digital Science

publications. Appropriate weighting is required to ensure that such positions are ranked comparably to senior group leaders at equivalent stages of the career path.

The profile of ECRs has been raised by appropriate score weighting, and we would welcome exploration of the affect of this on the composition of teams over time. We would welcome ongoing evaluation of the Units of Assessment, to accommodate emerging research areas, support interdisciplinary outputs, and to ensure appropriate alignment with clinical specialities for clinical researchers.

Q6. 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?

Some of our Fellows feel that REF rankings do influence the attractiveness of an institution to researchers by offering a single comparable measure of excellence, and that there may be a role for greater international benchmarking, particularly in relation to certain specialist institutes which often lacked direct comparators within the UK.

It is important that the periodic nature of REF does not drive cyclical, detrimental behaviours in Universities. The demand for impact in the short-term must not be allowed to compromise the operation of research across longer-term horizons – analysis has demonstrated an average lead time of 3-9 years before research delivers societal impact.¹⁰

Concerns have been expressed that institutions may have engaged in ‘tactical hiring’ immediately prior to the REF – employing high-performing researchers on fractional contracts in order to boost results.¹¹ This ‘poaching’ of staff does not foster stability nor long-term success for the UK science base, and future exercises should consider ways to not only remove incentives for such detrimental behaviours, but penalise them. Consideration could be given to a ‘cooling off’ period of ~12 months before newly recruited staff can be assessed, or a more proportional way to divide an individual’s outputs between joint appointments.

Q7. 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? 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?

¹⁰ The nature, scale and beneficiaries of research impact (2015) King’s College London & Digital Science

¹¹ Overview report by Main Panel A and Sub-panels 1 to 6 (2015)

The REF process is driving a variety of positive developments within academia, including the rewarding of excellence, the recognition of societal impact, and a greater acknowledgement of diversity within the modern workforce. However, the process should continue to evolve to eliminate inadvertent incentives for detrimental behaviour, and to coordinate positive drivers into the future fabric of the higher education sector. In particular, the development of a comparable Teaching Excellence Framework offers opportunities to increase recognition of the synergistic link between research and teaching quality.

Q8. How can the REF better address the future plans of institutions and how they will utilise QR funding obtained through the exercise?

The retrospective nature of the REF is designed to complement the forward-looking agenda of competitively-awarded grants, and any changes should not lose sight of this objective. We believe the strategic freedom created by this balance of dual-funding underpins the demonstrable success of the UK research base. Data on intended uses may be beneficial, but should not create undue burden or direct internal processes.

Q9. Are there additional issues you would like to bring to the attention of the Review?

The total cost of REF2014 was approximately £246m, comprising £232m of cost to the higher education community, and £14m to the four devolved QR funding bodies. This represents ~2.4% of the total funds disbursed on the basis of REF outcomes, which compares favourably to the ~6% figure for Research Council-disbursed funds (acknowledging differences in periodicity).¹² Whilst we would welcome appropriate streamlining, we feel a figure of this magnitude continues to offer value for money for an audit that has helped preserve high-levels of efficiency across the UK research base.

This response was prepared by Dr Ben Bleasdale (Policy Officer) and informed by the Academy's Fellowship. For further information, contact: ben.bleasdale@acmedsci.ac.uk; +44(0)20 3176 2158.

Academy of Medical Sciences

41 Portland Place

London, W1B 1QH

+44(0)20 3176 2150

info@acmedsci.ac.uk

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¹² Report of the Research Councils UK Efficiency and Effectiveness of Peer Review Project (2006).