IOP Institute of Physics

Institute of Physics submission to the four UK higher education funding bodies' consultation on the second Research Excellence Framework

17 March 2017

Question 1: Do you have any comments on the proposal to maintain an overall continuity of approach with REF 2014 as outlined in paragraphs 10 and 23?

The Institute of Physics is a leading scientific membership society working to advance physics for the benefit of all. We have a worldwide membership from enthusiastic amateurs to those at the top of their fields in academia, business, education and government. Our purpose is to gather, inspire, guide, represent and celebrate all who share a passion for physics. And, in our role as a charity, we're here to ensure that physics delivers on its exceptional potential to benefit society. Alongside professional support for our members, we engage with policymakers and the public to increase awareness and understanding of the value that physics holds for all of us. Our subsidiary company, IOP Publishing, is a world leader in scientific communications, publishing journals, ebooks, magazines and websites globally.

The Institute of Physics (IOP) welcomes the opportunity to respond to the consultation on the second Research Excellence Framework (REF).

The REF is a sensible method for allocating research funding, it provides accountability for public investment in research and supports departments to undertake a number of functions, not least benchmarking. The REF also provides a wealth of useful information about the strength of the UK's research system which is both useful for the sector and creates opportunities to explore and communicate the UK's research excellence.

We agree that it is essential to maintain continuity in the approach of REF 2021 from REF 2014. The higher education community and government are familiar with the process and any significant changes to how research is assessed would cause unnecessary disruption.

Key points:

- The retention of the primacy of peer review and acknowledgement of the limits of the role of metrics is welcome and essential to achieving the aims of the process. We also believe retaining the weightings for outputs (65), impacts (20) and environment (15) is sensible
- We believe that the proposals to increase the representativeness of panels, including those on equality and diversity should be broadened and strengthened

- The proposals for supporting the assessment of interdisciplinary research should be strengthened by introducing an interdisciplinary main panel to work with champions on sub-panels
- We do not agree that HESA cost centres should be used to map research-active staff to UoAs. This would not reflect the activities of cost centres and is contrary to the broader aim of supporting inter- and cross-disciplinary research
- We support full submission of all research active staff to REF 2021
- We agree that REF 2021 should aim to keep an average number of outputs per staff member of 2 per FTE, with a minimum of 1 output per FTE and a maximum of 6
- Ways to properly assess of outputs which are non-traditional in format and those with large numbers of authors should be explored
- To support researcher mobility while appropriately reflecting the contributions of different departments to outputs, both 'losing' and 'gaining' departments should be allowed to submit the same outputs, where justification can be given
- The definition of impact should be broadened and deepened, alongside providing more clarity on the usage of 'academic impact' and public engagement impact
- Examples of impact of research returned in REF 2014 should be allowed to be resubmitted to REF 2021 provided they demonstrate either additional or new impact
- Clear guidance should be offered to institutions and departments on the differentiation between institutional and UoA-level impact case studies and environment submissions

Finally, many of the proposed changes in this consultation are aimed at eliminating or reducing the 'game playing' approaches seen in past exercises. While this is welcome in terms of the credibility of the assessment, it is important to acknowledge that there are no measures that will remove all game-playing. Some proposals will merely change the nature of the game, rather than avoid game playing altogether. It is also important to acknowledge that there are times when game playing can be legitimately seen as optimisation.

Unit of Assessment structure

Question 2: What comments do you have about the Unit of Assessment structure in REF 2021?

Units of Assessment (UoA) in the REF should reflect the subject landscape in UK higher education institutions (HEIs) at as close a level of granularity as is practical. A 'physical sciences' UoA would be too broad, but a 'nuclear physics' UoA would be too granular. The UoA structure used in REF 2014 is appropriate and well understood and should be retained in REF 2021.

The proposed measures to deal with more challenging areas, such as interdisciplinary research, should address the few issues that this structure generated, though some of the proposals under these areas still need further strengthening themselves (see response to Q17).

Expert panels

Question 3a: Do you agree that the submissions guidance and panel criteria should be developed simultaneously?

Yes; it would be sensible to ensure these are developed in parallel to ensure that both panels and departments/higher education institutions submitting to the REF have a more coherent framework from which to work. Panels should be formed early enough so that the full sub-panel membership can contribute to forming the panel criteria and submissions guidance (see also response to Q3b), including liaising with their respective research communities, and so that this guidance can be known by institutions well in advance of REF 2021.

Question 3b: Do you support the later appointment of sub-panel members near to the start of the assessment year?

No; as with our response to Q3a, having a full (or even partial) complement of sub-panel members will be important in developing the criteria and submissions guidance for the REF as they will bring a greater diversity of views, experience, and have links to a broader range of subject areas. This will better inform the development of the guidance and criteria. In addition, it will be useful for research communities to have clarity as soon as possible on the composition of panels. As with our answer to Q4, there should be time for a robust review mechanism of panels' representativeness and experience, and a later appointment of sub-panels would make this more difficult.

Question 4: Do you agree with the proposed measures outlined at paragraph 35 for improving representativeness on the panels?

We welcome efforts to increase the diversity of panels and the robustness of their operation including by providing equality and diversity briefings and unconscious bias training to selection panels for main and sub-panel chairs and for the main and sub-panel chairs themselves in selecting panel members. However, training on unconscious bias and equality and diversity briefings should not be limited to the chairs of panels, but to all panel members. Although the chair should be well equipped to deal with such challenges on their panels, ensuring all panel members have the knowledge to challenge and address possible biases is vital.

In addition to efforts to increase the knowledge and awareness of panel members on equality and diversity issues, there is also a need to increase the representativeness of the panels themselves in a number of areas – particularly in terms of gender and nationality. To achieve this, guidance and advice should be provided to nominating bodies. Across the universities sector, around 28% of all research and teaching staff are international (including non-UK EU nationals). In physics, this proportion is even greater, at 43%. Panels should better reflect these demographics.

There is also a need for a robust mechanism at the end of the selection process for panels to ensure that there is sufficient expertise on the panel to ensure that all sub-disciplines can

be effectively considered. Learned societies should have a greater role here in ensuring the panel has the expertise to understand and assess all likely areas and sub-disciplines.

To ensure continuity and a flow of expertise, there should also be efforts to retain at least 25% of panel members from REF 2014 in REF 2021. The chairs of the sub-panels and main panels should also have had experience as panel members in REF 2014 and should not count towards the proportion of retained panel members.

Question 5a: Based on the options described at paragraphs 36 to 38, what approach do you think should be taken to nominating panel members?

The decision to appoint panel members should first and foremost be based on expertise. The process from REF 2014, using nominating bodies, should be maintained. Any changes, including those to increase nominations from underrepresented groups, should complement existing processes.

Question 5b: Do you agree with the proposal to require nominating bodies to provide equality and diversity information?

Yes; providing this information is useful to better judge how representative nominating bodies are of their respective communities.

Nominating bodies should be required to provide a short statement indicating their processes: how they advertised, shortlisted and confirmed their nominees. Advice should also be provided on encouraging nominations from individuals from underrepresented groups and demographics within the community.

Question 6: Please comment on any additions or amendments to the list of nominating bodies.

No comment.

Staff

Question 7: Do you have any comments on the proposal to use HESA cost centres to map research-active staff to UOAs and are there any alternative approaches that should be considered?

The proposed approach of automatically associating staff with a UOA based on the HESA cost centre with which they are associated (and so disallow institutions from selecting the UOA to which work is submitted) does not make sense, particularly given that one of the aims of the review is to make it easier for interdisciplinary research to be assessed. The proposal would force some researchers' outputs to be submitted to an inappropriate UOA and implies that departments are single discipline. Typical physics departments might carry out research in computer science, engineering, chemistry, biology, philosophy and more. It

is important that universities themselves should be allowed to choose the most relevant panels for their research.

Question 8: What comments do you have on the proposed definition of 'research-active' staff?

We support the proposal to submit all research-active staff to the REF.

The proposed definition of independent researchers, similar to that used in REF2014, is reasonable. A sensible metric could be staff qualified to submit research council proposals as a principal investigator. This would include those on, for example, independent fellowships, but not those regularly employed as fixed term research assistants supervised entirely by a principal investigator.

We acknowledge that full submission of research-active staff may create an incentive for institutions to change the contract status of staff (to, for example, teaching-only contracts) ahead of the REF and to 'game play'. It may be appropriate to base the eligibility of staff at a point in time well before the REF submission period. Eligible staff could be based on either existing publications of staff status, or asking universities to provide a submission of staff at a certain point(s), for example a year or two before the assessment period. A number of years of submissions could be required to increase transparency. This would make it more difficult to make changes to staff contract status just for short periods, and there would be greater clarity on whether staff contract statuses have changed over time.

Question 9: With regard to the issues raised in relation to decoupling staff and outputs, what comments do you have on:

a. The proposal to require an average of two outputs per full-time equivalent staff returned?

b. The maximum number of outputs for each staff member?

c. Setting a minimum requirement of one for each staff member?

It is important to preface our response to this question as we have with regards to Q1: that it is almost impossible to eliminate all forms of 'game-playing'.

Decoupling staff and outputs and limiting the average number of outputs per FTE to 2 may go some way to solve the problem of the increased burden from requiring that all research-active staff are submitted, at least from the point of view of panels, and is sensible.

We recommend a minimum of 1 output per FTE and a maximum of 6 per FTE, as this would ensure that the contribution of all staff is reflected in a department's output. This would have to be combined with greater guidance and measures to avoid departments having incentives to change staff contract status, such as those mentioned in our response to Q8.

Question 10: What are your comments on the issues described in relation to portability of outputs, specifically:

a. Is acceptance for publication a suitable marker to identify outputs that an institution can submit and how would this apply across different output types?

b. What challenges would your institution face in verifying the eligibility of outputs?

c. Would non-portability have a negative impact on certain groups and how might this be mitigated?

Disallowing the portability of outputs could lead to a number of negative consequences. For example, it may create challenges for early career researchers and those researchers who leave academia for long periods of time and so don't have a recent or current body of research (such as those who are returning from periods of parental leave or from time in industry). If research cannot travel with a researcher then there may be less incentive to take a researcher with a short, but strong, research record, compared to one whose reputation is stronger, stymieing career progression or efforts to return.

One solution would be to allow both 'losing' departments and 'gaining' departments to be able to submit the same research output. It may be necessary under such a system to require all institutions looking to submit an output to provide a statement explaining, with evidence, their contribution or justification for including the output in question. For example, whether the institution previously supported the researcher and the research, whether the output was published while the research was taking place at their institution, or whether they currently employ the researcher involved in the research. There may also be a case for limiting the number of outputs that a given researcher is able to 'share' in this manner.

This approach would place less pressure on researchers: their work could move and their previous department could get the same credit for supporting them as the new department in currently employing them. This solution would also mitigate the negative impacts of a non-portability policy on new or growing departments and new research areas who will be recruiting high numbers of new researchers. If outputs cannot be shared, there would be a need to provide some guidance to such departments and an ability to flag them in returns as they will be at a disadvantage purely due to having recruited many new members of staff.

Question 11: Do you support the introduction of a mandatory requirement for the Open Researcher and Contributor ID to be used as the staff identifier in the event that information about individual staff members continues to be collected in REF 2021?

No comment.

Question 12: What comments do you have on the proposal to remove Category C as a category of eligible staff?

Although the proposal to remove Category C staff will affect very few staff members, and even fewer still within physics, it seems difficult to justify doing so. With the proposal that eligible staff within HEIs should be submitted to REF 2021, there will be a significant

increase in the number of staff who may be assessed. The reduction in number by removing Category C staff will pale in comparison to this increase, while sending the negative message to a number of staff outside of higher education that their work is of less importance and should not be assessed. Any small cost savings made by doing so seem likely to undermine the message that HEIs should be collaborating outside of the sector.

Question 13: What comments do you have on the definition of research assistants?

We go into more detail on this question in our response to Q8.

Question 14: What comments do you have on the proposal for staff on fractional contracts and is a minimum of 0.2 FTE appropriate?

We agree with maintaining the minimum of 0.2 FTE for eligibility for submission.

Collaboration

Question 15: What are your comments on better supporting collaboration between academia and organisations beyond higher education in REF 2021?

Collaboration between academia and organisations beyond higher education should be welcomed and supported where possible. Guidance should certainly be provided for submitting departments in REF 2021 to ensure that this kind of work and behaviour is encouraged rather than discouraged. However, beyond this, further measures are unnecessary. Such collaboration is certainly a positive feature of the REF, but it is not its purpose.

Outputs

Question 16: Do you agree with the proposal to allow the submission of a reserve output in cases where the publication of the preferred output will postdate the submission deadline?

In addition to the situation detailed in this question, reserve submissions should be allowed in all cases where an output is rejected based on a technicality. For example, an output might be rejected because confusion over a date had led to it being ruled ineligible. The ‘research excellence’ of a department should not be undermined or defined by something unrelated to its research outputs, research environment, or the impacts of its research.

Question 17: What are your comments on the assessment of interdisciplinary research in REF 2021?

The consultation proposals relating to interdisciplinary research are welcome but do not go far enough. Further structural support is needed to increase confidence that interdisciplinary research will be properly recognised and evaluated. While HEFCE itself suggests that work identified as interdisciplinary research in REF 2014 was scored similarly to work relating to a

single discipline, many researchers and departments were and are uneasy at submitting interdisciplinary research to the REF believing that it would be more difficult to achieve a 4* rating.

REF 2021 should ensure both effective assessment of interdisciplinary research and provide assurance that interdisciplinary research will be assessed on a level playing-field with single discipline research. This could be achieved through a combination of interdisciplinary flags, champions on sub-panels, and an interdisciplinary main panel. This main panel could work with the champions on sub-panels to provide oversight and scrutiny, through formal communication channels, to ensure that interdisciplinary research is being effectively assessed by each panel. Such an approach would avoid the problems that either a panel or champions approach would have on their own – such as a lack of all-round expertise on interdisciplinary research – as their job will not be to assess in and of itself, but to provide scrutiny of the process. The champions could then be an ordinary member of the sub-panel with some expertise in interdisciplinary research, but would not need to have an awareness of a wide range of interdisciplinary approaches.

In practice, outputs which institutions have flagged as interdisciplinary would be assessed in the same way as other outputs by the sub-panels, but with two additional levels of oversight. Firstly, the interdisciplinary champion could work with the interdisciplinary main panel to communicate any concerns they had identified in how interdisciplinary outputs are being assessed to other panel members, for example the extent to which outputs are being assessed based on their quality as an output for a single discipline or their overall quality. Secondly, the interdisciplinary main panel could review a small sample of the outputs assessed by each sub-panel to verify and support their approach. They could also be given an adjudicating role in deciding by which panel flagged research is assessed.

Question 18: Do you agree with the proposal for using quantitative data to inform the assessment of outputs where considered appropriate for the discipline? If you agree have you any suggestions for data that could be provided to the panels at output and aggregate level?

Yes; this seems a sensible suggestion. The REF should primarily be driven by peer review, however, as *The Metric Tide* recommended, “carefully selected and applied quantitative indicators can be a useful complement to other forms of evaluation and decision-making”[1]. So long as this information, such as citation counts, is not used to lead the assessment of outputs, its inclusion would be welcome.

[1] The Metric Tide: Report of the Independent Review of the Role of Metrics in Research Assessment and Management, HEFCE (2015) http://www.hefce.ac.uk/pubs/rereports/year/2015/metrictide/

Impact

Question 19: Do you agree with the proposal to maintain consistency where possible with the REF 2014 impact assessment process?

The proposal to maintain consistency where possible with the 2014 REF impact assessment process is welcome. The process is now well established, and while improvements and refinements can be made and clearer guidance provided, departments are very likely to have been working on capturing impact since the last REF.

One area which we would recommend HEFCE/UKRI explore in the development of REF 2021 is the potential gender (and age) bias of the impact agenda. From anecdotal evidence, there appears to be a tendency for those focusing on impact to be men rather than women and older rather than younger researchers. We recommend that the extent of this effect, and potential mitigation actions if necessary, should be explored.

Additionally, consideration should be given to the differentiation and pattern of impact demonstrated across UoAs. While it is likely that the main kinds of impact that each subject has will tend to differ, the process should acknowledge that all subjects can possibly lead to all kinds of impact. It is important that guidance is provided to both institutions and panels to show that all forms of impact are equally valid, as long as they can be well-demonstrated and are underpinned with evidence and quality (see our response to Q32). This also relates to how public engagement is treated in the REF (see our response to Q23).

Question 20: What comments do you have on the recommendation to broaden and deepen the definition of impact?

Proposals to broaden and deepen the definition of impact to include both academic and wider impacts are welcome. However more clarity is needed to define what is meant by ‘academic’ impact, particularly how this will differ from the academic ‘impact’ captured under the output criteria and we would caution against the dilution of the non-academic impact awareness that REF has generated. There needs to be clear guidance on what constitutes academic impact, for example how impact could be demonstrated through teaching methods and pedagogy.

Question 21: Do you agree with the proposal for the funding bodies and Research Councils UK to align their definitions of academic and wider impact? If yes what comments do you have on the proposed definitions?

Yes; but, as with our response to Q20, these definitions should be spelled out in more detail, and the differentiation between academic impacts defined under output and academic impacts defined under impact made clearer.

Question 22: What comments do you have on the criteria of reach and significance?

No comment.

Question 23: What do you think about having further guidance for public engagement

impacts and what do you think would be helpful?

As we responded to Q19, public engagement and other impacts should be treated equally. There was some confusion in REF 2014 among institutions as to what constitutes public engagement impact, and what is relevant or eligible. There was also a feeling among some that public engagement impact was not valued as highly as other forms of impact. Analysis by the National Co-Ordinating Centre for Public Engagement suggests that this wasn't the case and that case studies with a significant focus on public engagement received a relatively similar proportion of 3* and 4* ratings compared to the average for all case studies. HEFCE/UKRI should provide guidance to reassure submitting institutions, and clarify to panels, that public engagement case studies should be as capable as any other form of impact of receiving 4*. This should be made clear across all UoAs.

Enhanced guidance on evidence for all impacts, including advice on standardised units for the evidence of various kinds of impact (as in our answer to Q32), could also help to level this playing field. It will also be important to clarify that what matters is not that the person who performs the public engagement has to have themselves conducted the research, but that their public engagement is informed by research performed within their own institution.

Question 24: Do you agree with the proposal that impacts should remain eligible for submission by the institution or institutions in which the associated research has been conducted?

Yes; this continues to make the most sense. Impact generation often (but not always) requires more input from the respective institution than the research output itself.

Question 25: Do you agree that the approach to supporting and enabling impact should be captured as an explicit section of the environment element of the assessment?

Yes; institutions provide an environment to create collaborative and cross/inter-disciplinary environments, provide funding to develop impact, and employ staff with a specific focus on impact-related areas such as outreach offices, technology transfer, stakeholder-engagement, patents and intellectual property. As such, the extent to which an institution (and a department) does this should be reflected in the environment element of the assessment, and some weight should be given to this within the assessment.

Question 26: What comments do you have on the suggested approaches to determining the required number of case studies? Are there alternative approaches that merit consideration?

We support the aim of keeping the number of case studies at around the same level as REF 2014. Increasing the number would introduce increased burden on assessment panels.

The problem of creating cliff edges in thresholds (e.g. submitting 4.9 FTE staff not 5) was a significant concern to many in REF 2014 and so the inclusion of all-research active staff goes a long way to mitigate this. Guidance on how the number of staff submitted can affect the number of case studies would be useful as departments may still have incentives to

change contracts to avoid hitting thresholds. Some consideration should also be given to the requirements for new departments to provide impact case studies, for example lowering the minimum number of case studies that they are required to submit.

Question 27: Do you agree with the proposal to include mandatory fields (paragraph 96) in the impact case study template to support the assessment and audit process better?

Yes; looking at just the physics case studies in REF 2014, there was a wide variation between departments, and even within departments, in how they approached impact case studies and how they provided their information. We welcome efforts to provide more standardisation in the impact case study template, both through mandatory fields and standard optional fields. This will help to reduce the burden on panels and assessors and make it easier for all departments to complete their returns and make the assessment process more efficient, fairer, and more transparent both between and within UoAs.

Question 28: What comments do you have on the inclusion of further optional fields in the impact case study template (paragraph 97)?

See our answer to Q27.

Question 29: What comments do you have on the inclusion of examples of impact arising from research activity and bodies of work as well as from specific research outputs?

As with the broadening and deepening of the definition of impact, we would support the inclusion of impact arising from research activity and bodies of work as well as specific research outputs.

Question 30: Do you agree with the proposed timeframe for the underpinning research activity (1 January 2000 to 31 December 2020)?

The underpinning nature research in subjects such as physics can mean that there can be a longer time gap between original output and impact than in other disciplines. We agree with the recommendation of the original physics impact pilot panel that "for physics, the eligibility period for the underlying research should be extended to 25 years" as long as the HEI has continued with research in the relevant area.[2]

Question 31: What are your views on the suggestion that the threshold criterion for underpinning research activity or a body of work should be based on standards of

[2] Research Excellence Framework impact pilot exercise: Findings of the expert panels. HEFCE, November 2010
http://www.res.org.uk/SpringboardWebApp/userfiles/res/file/CHUDE%20Minutes/Consultation%20&%20Survey/re01_10_REF_Findings_Nov_2010.pdf
(Annex G Physics panel: additional feedback
http://www.ref.ac.uk/media/ref/content/pub/researchexcellenceframeworkimpactpilotexercisefindingsoftheexpertpanels/re01_10f.pdf)

rigour? Do you have suggestions for how rigour could be assessed?

No comment.

Question 32: Evaluation of REF 2014 found that provision of impact evidence was challenging for HEIs and panels. Do you have any comments on the following:

a. The suggestion to provide audit evidence to the panels?

b. The development of guidelines for the use and standard of quantitative data as evidence for impact?

c. Do you have any other comments on evidencing impacts in REF 2021?

As with the welcome proposal to provide more standardisation of case study templates, impact case studies will be more valuable if they are stand-alone documents and require, as far as possible, no further question or investigation for panel members to be confident in their veracity and their quality. As such, guidance to institutions and departments should include the need for submissions to ensure they show evidence, quality and are self-audited. This should include requiring departments to supply all supporting evidence necessary to determine the veracity of the claims made in their case studies – for example statements from companies confirming the claims they make with regard to turnover.

Guidelines on the use of quantitative data, including where possible standardised units for various kinds of impact, would also be useful in both easing the burden on departments and ensuring consistency between similar case studies.

The impact criteria is now well-established and it would be wise to issue advice to departments and institutions as early as possible ahead of REF 2021 to encourage them to collect and maintain as much audit evidence as possible over time to help inform their submissions.

Question 33: What are your views on the issues and rules around submitting examples of impact in REF 2021 that were returned in REF 2014?

Case studies that were submitted to REF 2014 should be able to be resubmitted provided that either additional or new impacts for that work can be identified. The definition of what is new or additional will differ depending on the kind of impact in question, and clear guidance should be provided by HEFCE/UKRI to determine this for different kinds of impact.

Case studies should be flagged if they are based on similar work submitted in REF 2014 to better help panels determine eligibility.

Environment

Question 34a: Do you agree with the proposal to improve the structure of the environment template and introduce more quantitative data into this aspect of the assessment?

Yes; there should be a move away from providing a narrative response. This will allow for more consistency between environment statements, and reduce the burden on both panels and institutions submitting.

Question 34b: Do you have suggestions of data already held by institutions that would provide panels with a valuable insight into the research environment?

Data could include more granular detail on the demographic make-up of a department, the number of PhD students, technical staff, and the number of industrial research partnerships, start-ups, and spinout companies coming from the department.

Information on departments' initiatives to increase equality and diversity within their department and to tackle issues of discrimination should also be taken into account. This could include participation in schemes such as Athena SWAN and subject-specific initiatives such as the IOP's Juno Programme.

Question 35: Do you have any comment on the ways in which the environment element can give more recognition to universities' collaboration beyond higher education?

Efforts to enable universities to demonstrate their collaboration beyond higher education are welcome. Advice should be provided on the kinds of collaboration universities' should identify and demonstrate.

Question 36: Do you agree with the proposals for awarding additional credit to units for open access?

No comment.

Question 37: What comments do you have on ways to incentivise units to share and manage their research data more effectively?

No comment.

Institutional-level assessment

Question 38: What are your views on the introduction of institutional-level assessment of impact and environment?

We cautiously welcome the introduction of institutional-level assessment of environment and impact. Greater assessment of the environment criteria at the level of the institution is sensible. The line can often be blurred between whether decisions on for example investments come from the institution themselves or the department. It is also welcome that the proposal is not to completely displace the existing department assessment of environment and impact. If such institutional-level assessment is to be introduced then the proposed split of weightings (5% for impact and 7.5% for environment) seems appropriate.

Some dispensation and flexibility should be considered for small institutions as the institutional case studies could take up a higher number in these compared to larger institutions. For example, if a small institution had to submit two case studies under the proposals one would have to be an institutional case study.

Efforts to provide more standardisation in the environment template are welcome, but the split between institutional and UoA-specific environment submissions risks creating unnecessary bureaucracy if the same information is duplicated. What should and should not be included within each should be clearly communicated to institutions to avoid duplication and get the most out of the institutional environment statement.

Question 39: Do you have any comments on the factors that should be considered when piloting an institutional-level assessment?

There should be clear guidance so that institutions are able to set out their particular impact or contribution as distinct from that of individual departments – such as efforts towards an organisation-wide strategy, or initiatives to improve equality and diversity within the institution. The pilot should aim to understand what information is best captured at department level and what at institutional level.

Outcomes and weighting

Question 40: What comments do you have on the proposed approach to creating the overall quality profile for each submission?

The overall approach set out is sensible.

Question 41: Given the proposal that the weighting for outputs remain at 65 per cent, do you agree that the overall weighting for impact should remain at 20 per cent?

Yes; the weightings from REF 2014 are now well embedded within the research community.

Question 42: Do you agree with the proposed split of the weightings between the

institutional and submission-level elements of impact and environment?

Yes; as with our answer to Q38, if institutional-level assessment is to be instituted then the proposed split of weightings (5% for impact and 7.5% for environment) seems appropriate.

Proposed timetable for REF 2021

Question 43: What comments do you have on the proposed timetable for REF 2021?

The proposed timetable is sensible, but needs to take account of the following:

- The need for earlier appointment of sub-panel members than suggested (Q3b);
- The need to provide clarity on process as soon as possible to ensure that institutions and departments can adapt and update their processes to effectively prepare for REF 2021, including by capturing the right information;
- The impact of changes to the UK's research architecture from the Higher Education and Research Bill, including the passing of the responsibility for the REF from HEFCE.

If the passing of responsibility for the REF results in a significant change of direction, or significantly altered proposals subsequent to those that result from this consultation, the timetable must also be redrawn to ensure that institutions, departments, and panels will be able to prepare.

Other comments

Question 44: Are there proposals not referred to above or captured in your response so far that you feel should be considered? If so what are they and what is the rationale for their inclusion?

Non-traditional research outputs

With high-quality, single research outputs remaining the primary model of REF outputs, there are concerns within some areas of the physics community over how areas such as instrumentation, theory and methods, and measurement science (work that often does not produce its primary output within any given REF window, and may extend over several REF periods) can be properly assessed. If the very nature of, for example 25-year experimental development, means that it is perceived as less likely to be awarded high scores in the REF, then this may have an effect on how this kind of research is supported within institutions. Some exploration of how REF can develop to avoid disadvantaging these areas of physics would be welcome.

Multiple-author papers

There remains a need to deal with the challenges of recognising the individual contribution within large, multiple author papers, particularly common within physics as well as many other fields, for example genomics and chemistry. One potential solution would be to introduce a threshold which requires a statement of contribution from authors in order for a

paper for proceed for assessment. This should be the case for all UoAs where large, multiple author papers exist.

For further information, please contact
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