

Consultation on the second Research Excellence Framework

This document sets out the proposals of the four UK higher education funding bodies for the second Research Excellence Framework (REF) for the assessment of research in UK higher education institutions.

The proposals seek to build on the first REF conducted in 2014, and to incorporate the principles identified in Lord Stern's Independent Review of the REF.



We invite responses from higher education institutions and other groups and organisations with an interest in the conduct, quality, funding or use of research. Please respond by **noon on Friday 17 March 2017** using the online form.



 www.hefce.ac.uk

 [Subscribe to email alerts](#)

 [@hefce](#)



Cyngor Cylldio Addysg
Uwch Cymru
Higher Education Funding
Council for Wales




Contents

Executive summary	2
Purpose.....	2
Key points	2
Action required.....	2
Introduction.....	3
Background.....	3
Aims and principles of research assessment.....	4
Responding to the consultation	4
Next steps	5
Proposals for consultation.....	6
Overall approach	6
Unit of assessment structure	6
Expert panels.....	7
Staff.....	10
Collaboration.....	15
Outputs	15
Impact	18
Environment.....	24
Institutional-level assessment.....	26
Outcomes and weighting	28
Proposed timetable for REF 2021	29
Annex A: Questions for consultation	31
Annex B: List of evaluation and wider evidence	35
Annex C: Open access and monographs	36

Consultation on the second Research Excellence Framework

To	Heads of higher education institutions in England, Scotland, Wales and Northern Ireland Organisations with an interest in commissioning and using academic research including businesses, public sector bodies, charities and other third sector organisations Individuals and organisations with an interest in research assessment in higher education
Of interest to those responsible for	Research, Planning
Reference	2016/36
Publication date	December 2016
Enquiries to	Anna Lang, tel 0117 931 7302, email researchpolicy@hefce.ac.uk

Executive summary

Purpose

1. This document sets out the proposals of the four UK higher education funding bodies for the second Research Excellence Framework (REF) for the assessment of research in UK higher education institutions. The proposals seek to build on the first REF conducted in 2014, and to incorporate the principles identified in Lord Stern's Independent Review of the REF.

Key points

2. The four UK higher education funding bodies are consulting on detailed arrangements for research assessment in a second Research Excellence Framework. We propose an overall approach based on REF 2014, incorporating the principles of Lord Stern's Independent Review, and subject to changes that may be made in responses to this consultation.
3. The full set of consultation questions is available at Annex A.
4. We invite responses from higher education institutions and other groups and organisations with an interest in the conduct, quality, funding or use of research. This includes businesses, government and public sector bodies, charities and other third sector organisations.

Action required

5. Responses to the consultation should be made using the online form provided available alongside this consultation at www.hefce.ac.uk/pubs/year/2016/201636/ by **noon on Friday 17 March 2017**.

Introduction

Background

6. The Research Excellence Framework (REF) was first conducted in 2014, following extensive development and consultation with the higher education (HE) sector and wider organisations with an interest in the use of research. The REF built on the well developed assessment process established in the UK by the Research Assessment Exercise (RAE), and added several major new features, including the assessment of research impact. Full details of the REF and its development are available on the REF website, www.ref.ac.uk.

7. In view of the significant changes introduced into REF after the RAE, the funding bodies undertook a comprehensive programme of evaluation activities. This approach included revisiting the question of whether metrics could provide a feasible alternative to peer review¹. The outcomes from our evaluation have highlighted the overall success of the exercise, as well as the areas where further refinements may be necessary. A list and details of the evaluation projects and wider set of evidence used to inform this consultation are available at Annex B.

8. In December 2015, Universities and Science Minister Jo Johnson launched a UK-wide review of the REF, chaired by Lord Nicholas Stern². The Independent Review of the REF reported in July 2016 and included recommendations setting out the principles that should shape future REF exercises. The review considered that a substantial reinvention of the REF would increase uncertainty, workload and burden at a challenging time for UK higher education. It agreed that the processes used to assess research excellence – including measures of output, impact and environment – are well understood by the community and have, broadly speaking, delivered well in their objective to improve quality.

9. We, the four UK higher education funding bodies³, have taken an open approach to considering the options for future research assessment that will most effectively meet our aims (see paragraph 11) and incorporate the recommendations of Lord Stern's Independent Review, while placing the minimum burden possible on submitting institutions. Through analysing the evaluation and wider evidence we have gathered, and in line with the findings of Lord Stern's Independent Review, the funding bodies conclude that the REF remains the most appropriate mechanism for continuing to support our world-class research base through selectively allocating funds and by providing robust reputational and accountability information.

10. The evaluation evidence has also informed the development of our proposals for consultation, as set out in this document. A theme we have identified emerging from the evidence is a desire for continuity with REF 2014 in the next exercise where possible, and for any changes to be incremental, in recognition of the additional burden when new processes are introduced. This desire has been expressed in relation to the arrangements for assessing impact in particular, given that the process was a new feature of REF 2014 and a significant amount of

¹ See 'The Metric Tide: Report of the Independent Review of the Role of Metrics in Research Assessment and Management' (2015), available at www.hefce.ac.uk/pubs/rereports/Year/2015/metric tide/.

² Available at www.gov.uk/government/publications/research-excellence-framework-review.

³ The four UK higher education funding bodies are the Department for the Economy (Northern Ireland), the Higher Education Funding Council for England, the Higher Education Funding Council for Wales and the Scottish Funding Council.

time was invested by institutions in staff training on this aspect⁴. Therefore, we have taken the framework as implemented in 2014 as our starting position for this consultation, with proposals made only in those areas where our evidence suggests a need or desire for change, or where Lord Stern's Independent Review recommends change. In developing our proposals, we have been mindful of the level of burden indicated, and have identified where certain options may offer a more deregulated approach than in the previous framework. We do not intend to introduce new aspects to the assessment framework that will increase burden.

Aims and principles of research assessment

11. The funding bodies' shared policy aim for research assessment is to secure the continuation of a world-class, dynamic and responsive research base across the full academic spectrum within UK higher education. We expect that this will continue to be achieved through the threefold purpose of a future REF:

- to provide accountability for public investment in research and produce evidence of the benefits of this investment
- to provide benchmarking information and establish reputational yardsticks, for use within the HE sector and for public information.
- to inform the selective allocation of funding for research.

12. The conduct of a future exercise will continue to be governed by the following principles:

- **Equity:** the fair and equal assessment of all types of research and forms of research output
- **Equality:** promoting equality and diversity in all aspects of the assessment
- **Transparency:** the clear and open process through which decisions are made and information about the assessment process is shared.

13. The funding bodies consider that all UK higher education institutions (HEIs) should be eligible to participate in the REF⁵.

Responding to the consultation

14. The following sections set out issues and proposals relating to particular aspects of a future REF exercise. We are seeking views on aspects of the following features of the assessment framework:

- overall approach
- Unit of Assessment structure
- expert panels
- staff
- collaboration
- outputs
- impact
- environment

⁴ See RAND Europe, 'Preparing impact submissions for REF 2014: An evaluation (findings and observations)' (March 2015), available at www.hefce.ac.uk/pubs/rereports/Year/2015/REFimpacteval/, p.xiv; 'Evaluating the 2014 REF: Feedback from participating institutions' (March 2015), available at www.hefce.ac.uk/rsrch/REFreview/feedback/, p.15.

⁵ In England only this includes HEIs' connected institutions.

- institutional-level assessment
- outcomes and weighting
- proposed timetable.

15. We invite views in response to the questions posed throughout the sections listed in paragraph 14. A summary of the questions is available at Annex A. Responses to this consultation are invited from any organisation, group or individual with an interest in the conduct, quality, funding or use of research. Responses to the consultation should be made using the online form provided available alongside this consultation at www.hefce.ac.uk/pubs/year/2016/201636/ by **noon on Friday 17 March 2017**.

16. Only responses received through the online form will be reviewed and included in our analysis. All responses made through the online form by the deadline will be considered. To facilitate the internal development of responses a downloadable MS Word version of the response form is also available alongside this consultation at www.hefce.ac.uk/pubs/year/2016/201636/, but this should not be submitted directly.

17. Following the deadline, HEFCE will copy responses to the Scottish Funding Council, the Higher Education Funding Council for Wales and the Department for the Economy in Northern Ireland.

18. The funding bodies will be holding consultation events for HEIs during the consultation period. The events will outline the questions and proposals, and will provide an opportunity for institutions to raise any issues for clarification and discussion. HEIs across the UK may register up to two delegates each across all of the events.

Next steps

19. The responses to this consultation will be considered by the boards (or equivalent) of the funding bodies in mid-2017. Initial decisions on the next REF will be announced in summer 2017.

20. We will commit to read, record and analyse responses to this consultation in a consistent manner. For reasons of practicality, usually a fair and balanced summary of responses rather than the individual responses themselves will inform any decision made. In most cases the merit of the arguments made is likely to be given more weight than the number of times the same point is made. Responses from organisations or representative bodies with high interest in the area under consultation, or likelihood of being affected most by the proposals, are likely to carry more weight than those with little or none.

21. We will publish an analysis of the consultation responses and an explanation of how they were considered in our subsequent decision. We may publish individual responses to the consultation in the summary. Where we have not been able to respond to a significant material issue, we will usually explain the reasons for this.

22. Additionally, all responses may be disclosed on request, under the terms of the relevant Freedom of Information Acts across the UK. The Acts give a public right of access to any information held by a public authority, in this case the four UK funding bodies. This includes information provided in response to a consultation. We have a responsibility to decide whether any responses, including information about your identity, should be made public or treated as confidential. We can refuse to disclose information only in exceptional circumstances. This means that responses to this consultation are unlikely to be treated as confidential except in very

particular circumstances. For further information about the Acts see the Information Commissioner's Office website, www.ico.gov.uk or, in Scotland, the website of the Scottish Information Commissioner www.itspublicknowledge.info/home/.

Proposals for consultation

Overall approach

23. As outlined in paragraph 10, the funding bodies propose an overall approach to research assessment in a future exercise based on the framework implemented in REF 2014, subject to changes that may be made as a result of responses to this consultation. The overall approach will therefore include the assessment of research outputs, impact and environment by expert panels using peer review, informed by appropriate metrics where applicable.

24. The Government's 2015 Higher Education White Paper 'Fulfilling our potential: teaching excellence, social mobility and student choice'⁶ committed to holding the next REF by 2021. To meet this timescale, Lord Stern's Independent Review recommended that the decisions arising from this consultation should be published in the summer of 2017, with submissions to be made in 2020 and the assessment phase to take place in 2021.

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?

Unit of Assessment structure

25. The revised Unit of Assessment (UOA) structure in REF 2014 introduced fewer, broader UOAs across which the panels operated more consistently; some of the revised UOAs delivered a range of strategic and administrative benefits for submitting institutions and advantages for the panels during the assessment. The evidence we have gathered to date has shown a general preference for continuity over radical change in the next REF. However, we are seeking views on whether issues encountered with the UOA structure in 2014 warrant revisions to the structure for REF 2021.

26. Some issues were identified with a small number of areas in the revised structure, including reduced visibility of individual disciplines and disciplinary differences in panel working methods. For example, there was an inconsistency of approach across institutions submitting to the four UOAs covering the engineering disciplines, which affected the comparability of outcomes in some areas and distributed workloads unevenly across the engineering sub-panels. Sub-panel 17: Geography and Archaeology raised specific concerns about the structure of its UOA in the panel overview report produced at the end of the assessment⁷, and we have received correspondence suggesting particular consideration should be given to some subject areas, including forensic science, criminology and film and media studies.

27. There are advantages in retaining the structure as it was in REF 2014, including continuity and comparability of outcomes. Additionally, it will be important not to lose the decrease of burden on HEIs provided by the greater alignment of HESA cost centres to the REF UOAs that

⁶ Available at <https://www.gov.uk/government/consultations/higher-education-teaching-excellence-social-mobility-and-student-choice>.

⁷ 'Overview report by Main Panel C and Sub-panels 16 to 26' (2015), available at www.ref.ac.uk/panels/paneloverviewreports/, p.30.

was introduced during the previous assessment period⁸. Some of the REF 2014 UOAs received very high volumes of submissions, and covered a wide range of disciplinary areas, for example, UOA 1: Clinical Medicine and UOA 3: Allied Health Professions, Dentistry, Nursing and Pharmacy. However, some of the advantages arising from the configuration of these UOAs, as well as the ability to make multiple submissions in UOA 3, provided a balance to some of the challenges associated with size.

28. We still aim in REF 2021 to support consistency across the panels, to encourage further the submission of interdisciplinary research (see paragraphs 71 to 72), to continue to minimise the fluidity between the UOA boundaries, and to give regard to the distribution of workload across panels.

29. One approach to the assessment could include allowing sub-panels⁹ to determine at the criteria-setting stage whether a separate sub-profile for outputs should be provided for the distinct areas they cover. This would have the advantage of combining visibility for distinct disciplinary areas in terms of research output quality, with the benefits derived from the broader sub-panels, such as increased consistency of assessment and streamlined processes for assessing interdisciplinary research.

30. In cases where it is felt revisions should be made, we are seeking views on the most appropriate alternative configuration. We will only consider alternative approaches to the configuration of UOAs that will address issues encountered previously and in accordance with the wider aims outlined in paragraph 28. Where a convincing case is made for revisions to the UOA structure, these will be made within the existing two-tiered panel structure and according to our intention to retain fewer, broader UOAs. We also welcome views on the points raised at paragraph 26.

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

Expert panels

Development of criteria

31. As described in paragraph 9, we propose that the exercise continues to be based on expert review. For this purpose, the appointed panels will include leading experts in their fields – both those working in UK HEIs and, on the main panels, international members – and individuals with experience in commissioning and using research. We propose to retain the two-tiered structure, in which groups of sub-panels work together under the oversight and guidance of main panels, to build further consistency in processes and standards of assessment across the sub-panels.

32. Experience of REF 2014 indicates that there may be scope for further improvements to consistency through simultaneously developing the submissions guidance and assessment criteria, in collaboration with the main panels. This would include appointing only main panels for the development of panel criteria (including main and sub-panel chairs, as well as international

⁸ See www.ref.ac.uk/results/analysis/.

⁹ Or main panels if submissions guidance and assessment criteria are developed simultaneously.

and research-user main panel members). The sub-panel members and assessors would be appointed at a later point in the exercise, near to the start of the assessment year¹⁰.

33. Adopting this approach would have advantages and disadvantages, on which we would like your views. The simultaneous development of the submissions guidance and assessment criteria would offer a more coherent and straightforward set of guidelines for institutions. Sub-panel chairs could consult their subject communities on the criteria, which would be a more efficient approach than appointing full sub-panels. However, there may be concerns that broad sub-panels would require more than one individual to provide sufficient breadth to represent their coverage. The later recruitment of sub-panel members may affect the sense of involvement in and ownership of the criteria-development process that sub-panels have expressed. There may also be a practical difficulty for individuals in taking on such a significant role with only a short time between appointment and the role beginning.

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

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

Representativeness of the expert panels

34. Analysis of the REF 2014 panel membership highlighted that some limited progress had been made in improving the representativeness of the membership since the RAE. Demographic information was not collected at the point of nomination, thereby preventing analysis of the appointed members in the context of the wider pool of nominees. In considering this issue, the Equality and Diversity Advisory Panel recommended that in a future exercise the funding bodies should identify ways of more effectively mainstreaming equality and diversity (E&D) considerations among all participants, at all stages of the appointment process¹¹.

35. In response to these findings and recommendations, we propose the following measures to improve the representativeness of the panels for REF 2021:

- a. The appointment of main and sub-panel chairs should continue to be made through an open application process. Members of the selection panels will receive equality and diversity briefings and unconscious bias training. Demographic information will be collected from all applicants to enable subsequent monitoring.
- b. Other main panel members (including international members) and sub-panel members and assessors will continue to be appointed via a nominations process, in recognition of the scale of appointments, for which an application process would not be feasible.
- c. All nominations will be made via an online form, which will require mandatory demographic information to be provided for each nominee. This information will be used solely for monitoring, and not for selection purposes.

¹⁰ 'REF Manager's Report' (2015) available at www.ref.ac.uk/pubs/refmanagersreport/, p.28.

¹¹ 'Equality and diversity in the 2014 REF: A report by the Equality and Diversity Advisory Panel (EDAP)' (2015), available at www.ref.ac.uk/equality/edapreport/, p.12.

d. All main and sub-panel chairs will receive equality and diversity briefings and unconscious bias training before selecting panel members.

36. We have followed an approach in previous exercises of inviting nominations from academic associations and other bodies with an interest in research – excluding, for reasons of conflict of interest, mission groups, individual UK HEIs and groups within or subsidiaries of individual UK HEIs. Self-nomination was also excluded. We welcome views on whether this approach is still appropriate, or whether nominations could be opened up to all organisations and individuals.

37. If we continue to follow the nominations approach used for REF 2014, we are likely to receive a pool of candidates endorsed by the subject communities and professional bodies that they represent. To improve further the representativeness of the appointed panels in this approach, we could introduce a requirement for nominating bodies to complete a structured form requesting information such as the E&D characteristics of the membership and how E&D was taken into account when selecting nominees. Such an approach is likely to ensure much greater account is taken of equality and diversity issues in the nominations process; however, the burden implications associated with this may limit the eventual number of bodies able to submit nominations. The process would also require a comprehensive review of the list of nominating bodies (see paragraph 39).

38. The scale of an open nominations process would significantly increase burden, but would potentially deliver a much larger candidate pool. To inform the selection of panel members from the candidate pool, all nominations would need to be accompanied by evidence to indicate the nomination had the support of the relevant subject community –support that extended beyond the nominating organisation or individual, in cases of HEI, mission group or self-nomination. There is less scope in this approach for promoting fair practice in the nominations process, but we are seeking views on whether a more open nature is likely to increase the representativeness of the candidate pool. This approach may be more costly to manage, in view of the likely significant increase in the number of nominations submitted, and may also impact on the overall timeframe for recruitment.

39. In either approach, it will be necessary to update the list of nominating bodies to ensure that all organisations with an interest in research that would like to make nominations to a future exercise are included, not just HEIs. The REF 2014 list of nominating bodies is provided alongside this consultation at www.hefce.ac.uk/pubs/year/2016/201636/ for review.

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

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

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

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

Staff

Selection of staff

40. To meet our policy aim for research assessment, as set out in paragraph 11, our primary objective for the process is to identify excellent research of all kinds in the UK HE sector, and its impact. It is not intended to be a comprehensive assessment of all research activity in the sector. Experience of previous assessments demonstrates that assessing a sample of work of the highest quality is sufficient to provide a robust quality assessment in this context. In REF 2014 and previous exercises, this was achieved through institutions' selective submission of research staff and their outputs.

41. We note comments made about the effect of staff selection on the comparability of the assessment outcomes. We are also aware of comments that the staff selection process was burdensome or divisive, or had divisive potential, and required careful management. An independent review of the costs and benefits of the REF further underlines these points and has identified the submission process for outputs, including review and staff selection, as the main cost driver at both the central and UOA level¹².

42. Lord Stern's Independent Review of the REF stated that 'it is important that all academic staff who have any significant responsibility to undertake research are returned to the REF'¹³. The review recommended that all research-active staff should be returned to the REF.

43. In line with this recommendation we propose that, for HEIs that choose to participate in the REF, all research-active staff should be included. We note concerns expressed that HEIs have previously and might now assign staff to UOAs in a way to maximize success in some UOAs at the expense of others. One route to avoid this is a proposition that HEIs would not choose which UOAs they make a submission to, with the expectation that all research-active staff would be associated with UOAs based on mapping Higher Education Statistics Agency (HESA) cost centres to UOAs. The proposed definition of 'research-active' staff is staff returned to the HESA Staff Collection with an activity code of 'Academic professional' and an academic employment function of either 'Research only' or 'Teaching and research'. We are aware that this definition would capture individuals employed as research assistants. We therefore propose that a measure of independence is also included in the definition of research-active staff. We seek views on whether such an approach would identify only those staff who are research-active. Such data from the HESA Staff Record could also be used as the volume measure for funding purposes.

44. Some comments suggest that this approach might lead to staff seeing changes to the contracts of employment that will determine whether they are eligible for submission. We are interested in views on the likelihood and impact of this possible consequence and the impact on any particular groups of staff, and possible approaches which may mitigate against such an effect. (For example, HESA data could be used to identify shifts in employment patterns.)

¹² Technopolis, 'REF Accountability Review: Costs, benefits and burden' (2015), available at www.hefce.ac.uk/pubs/rereports/Year/2015/refreviewcosts/.

¹³ See 'Building on Success and Learning from Experience' (2016), available at www.gov.uk/government/publications/research-excellence-framework-review.

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?

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

Decoupling staff from outputs in the assessment

45. In recognition of the burden associated with staff selection, the REF Manager's report made a recommendation to decouple staff and outputs in a future assessment. The report suggests that through this approach:

'the considerable efforts and stresses involved in staff selection and associated equality and diversity procedures could be greatly reduced. Some other complexities, notably relating to multi-authored papers, might also be reduced. However, this approach would require very careful consideration as there will remain a need for a robust volume measure for funding purposes.'¹⁴

46. In addition, Lord Stern's Independent Review of the REF stated that the direct link between outputs and individuals returned to the REF should be broken, and recommended that outputs should be submitted at UOA level with flexibility for some members of staff to submit more and others less than the average.

47. In our view, an approach that decoupled staff and outputs would most likely work by determining a set number of outputs to be submitted for each submitting unit according to the number of eligible staff in the unit. It may be more appropriate to determine this number by taking an average of the eligible staff over a set period, rather than from a single census date. Lord Stern's Independent Review recommended that rather than prescribing the return of four outputs for each member of staff, a future REF should prescribe maximum and minimum limits on the number of outputs that can be submitted for each individual.

48. We anticipate that this approach would negate the need for arrangements to account for individual staff circumstances and may contribute significantly towards deregulation in the exercise. However, this could potentially lead to the under-representation in submissions of research produced by some groups of staff (for example, early career researchers), and so we welcome views on this issue and its possible impact.

49. Careful consideration needs to be given to the impact on panel workloads in any model that results in a significant increase in the number of staff returned. Lord Stern's Independent Review suggested that the total number of outputs to be assessed should not significantly exceed the number reviewed in REF 2014. The review recommended that this should be achieved by reducing the average number of outputs submitted per full-time equivalent (FTE) staff member to two outputs, rather than using a sampling approach. We are aware that a multiplier of two, reducing the number of outputs required per member of staff, has the potential to reduce the power to discriminate between submissions that contain large amounts of high quality work. If a multiplier greater than two was recommended, a sampling approach would need to be considered in more detail. Views are sought on these issues.

¹⁴ 'REF Manager's Report', p.105.

50. Lord Stern's Independent Review suggested that there could be maximum and minimum requirements on the number of outputs required for each staff member. A maximum of six outputs and minimum of potentially none was proposed. The intention of this proposed flexibility is to ensure that academics with a limited publication record are not required to have four outputs, to reduce the burden of staff circumstances, and to promote inter-sector mobility.

51. Having a maximum number of outputs limits the extent to which staff and outputs are truly decoupled. However, having no limit could lead to submissions being based on the work of only a small number of individuals, meaning that the body of work submitted would not be representative of the work undertaken by the submitting unit. As an example, with a maximum limit of six outputs, a submission including 20 individuals, requiring 40 outputs, could be based on the work of seven members of staff.

52. Having a minimum of zero has the potential for some research-active staff to contribute no outputs to the submission. An alternative may be a requirement for a minimum of one output associated with each staff member. We seek views on the issues above (paragraphs 47 to 52).

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 member returned?
- b. the maximum number of outputs for each staff member?
- c. setting a minimum requirement of one for each staff member?

Portability of outputs

53. In previous assessment exercises, research outputs were linked to submitted staff, and could be returned for assessment by the institution currently employing the staff member regardless of where they were employed when the output was produced. We note some comments about the effect of this policy on staff recruitment around the census date and about related salary inflation, which we would like to explore in this consultation. The approach described in paragraph 47, whereby the submission of outputs is decoupled from individual staff, would include a significant change to the assessment process in linking outputs wholly with the submitting institution.

54. In recognition of these issues, Lord Stern's Independent Review recommended that outputs should be submitted only by the institution where the output was demonstrably generated. The review recommended that if individuals transfer between institutions (including from overseas) during the REF period, their works should be allocated to the HEI where they were based when the work was accepted for publication. We are aware that for some types of outputs, particularly monographs and portfolios, a single date of acceptance may be hard to identify, and for some outputs (performances, CDs, films), date of acceptance may not be a relevant term. In addition, for these outputs, where an output was demonstrably generated may be difficult to evidence.

55. We anticipate that there would be significant challenges for institutions in identifying and being able to verify the eligibility of outputs as having been produced by the submitting unit

during the assessment period. While the new arrangements for open access that include the deposit of some output types in institutional repositories (see paragraph 68) may help with this, we are interested in identifying practical methods of verifying eligibility for all types of output across the period, as well as any unintended behavioural consequences that may result from this approach.

56. We are aware that significant concerns have been raised about the unintended consequences of such an approach. The main issue raised has been the potential for non-portability to have a disproportionately negative impact on certain groups, for example in relation to the career progression of early career researchers, and to act against appropriate dynamism in the sector, for example by limiting the movement of researchers between industry and HEIs. Views are sought on this issue and potential mitigating actions. We are aware of some suggestions that outputs produced by individuals on fixed-term contracts should continue to be portable. However, we are also aware that this approach could capture the work of individuals not considered to be disadvantaged by the non-portability of outputs, such as emeritus professors. Alternatively, outputs could remain portable for individuals not submitted to REF 2014.

57. Aside from the approach outlined by Lord Stern's Independent Review, we are seeking views on whether we could find a process that would enable HEIs to benefit from the support they have provided, for a significant part of the assessment period, to individuals who move HEIs close to the census date – for example, by allowing outputs to be shared proportionally between the current and previous institutions.

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?
- d. what comments do you have on sharing outputs proportionally across institutions?

Staff identifier

58. Where REF 2021 continues to collect information about individual staff, we are considering the arguments for and against mandating the use of Open Researcher and Contributor ID (ORCID) as the identifier for each staff member, as recommended in the report following the Independent Review of Metrics¹⁵. We welcome views on this issue. Respondents may find it helpful to review the 'Institutional ORCID Implementation and Cost-Benefit Analysis Report' in considering their views on this issue¹⁶.

¹⁵ The Metric Tide, p.xii.

¹⁶ Jisc, 'Institutional ORCID Implementation and Cost-Benefit Analysis Report' (2014), Available at <http://orcidpilot.jiscinvolve.org/wp/>.

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?

Categories of staff eligibility

59. The need for categories of staff who are eligible for submission depends on the outcome of the approach taken to staff selection (see paragraphs 40 to 44). In the event that the submission of outputs remains linked to eligible staff, we are seeking views in three areas.

60. A tighter definition of Category C staff (staff not employed by the submitting HEI, but whose research is primarily focused in the submitted unit) was introduced in REF 2014. As outlined in the REF manager's report, this was successful in enabling the submission of staff employed by embedded research council units, and NHS employees with specific research duties, but excluding those with looser relationships with the submitting HEI¹⁷. As also noted in that report, however, only 304 Category C staff were submitted in REF 2014, likely reflecting the tightened definition as well as changes to research council units that enabled more staff to be returned as Category A. In light of this, we are proposing to remove Category C as an eligible staff category in REF 2021.

61. The criteria for allowing the submission of research assistants in REF 2014 included an element of interpretation or judgement which raised queries in both the submission and assessment phases. There is some uncertainty over whether the criteria were clear enough to enable consistency in practice across submissions, and a recognition of disciplinary differences relating to how independence is defined. We are seeking views on this issue, and any changes to the definition that may improve clarity in REF 2021.

62. As has been the case in previous exercises, the assessing panels commented on the submission of staff on fractional contracts (0.2 FTE), particularly those who hold substantive research posts outside the UK, and whose research is not primarily focused in the submitted unit. To address this issue, the funding bodies are inviting views on a proposal to require the submission of a short statement outlining the connection of such staff to the submitted unit. The assessing sub-panel would use the statement to determine the eligibility of the member of staff. Where the panel is satisfied that a clear connection with the submitted unit has been established, the outputs listed against that staff member would be assessed according to the assessment criteria. Where the sub-panel is not satisfied, the staff member would not be considered eligible and would be removed from the submission, along with the listed outputs. We are aware of areas, for example the creative arts, where fractional contracts are standard practice and encourage collaboration between HE and industry. We do not intend to limit these interactions.

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

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

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

¹⁷ 'REF manager's report', p.23.

Individual staff circumstances

63. We still aim to support equality and diversity in research careers. As noted in paragraph 48, we anticipate that decoupling staff and outputs would negate the need for arrangements to account for individual staff circumstances and may contribute significantly towards deregulation in the exercise. However, we are aware this could potentially lead to the under-representation in submissions of research produced by some groups of staff (for example, early career researchers), and welcome views on this issue and its possible impact.

64. Following the outcomes from this consultation process, the funding bodies will establish a new Equality and Diversity Advisory Panel and explore with its members the most appropriate approach to supporting equality and diversity in research careers. Where significant changes to the staff selection process are introduced, this will include discussions with the sector. Although a non-selective approach to staff selection is proposed, there may still be a requirement for HEIs to produce a code of practice relating to their submissions. We will explore avenues for simplifying this, including developing a template code of practice.

Collaboration

65. We are considering how the REF can better support collaboration between academia and organisations beyond HE, as highlighted in relation to industry in the Dowling Review¹⁸. The review suggested allowances in terms of reductions to output thresholds for staff members moving into academia from other sectors, similar to those provided for early career researchers. However, we consider that the proposed flexibility in the number of outputs that can be returned can potentially promote this type of inter-sector mobility.

66. We are seeking views on ways in which the environment element can give more recognition to universities' collaborations beyond HE and what indicators might be provided¹⁹. This could include asking for data about staff mobility (both inward and outward) between the submitting unit and organisations outside HE, which would increase the visibility of this activity in the environment element and might further incentivise behaviour. We welcome views on this proposal.

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

Outputs

67. The key principles and criteria for assessing research outputs in REF 2021 are not expected to change significantly from those used for the assessment in 2014. Panels will need to consider various issues when drafting the panel criteria documents, depending on the outcomes from this consultation, including the contribution of authors to co-authored outputs in Main Panels A and B, encouraging more outputs to be double-weighted in Main Panels C and D, and providing more detailed guidance for portfolios in Main Panel D.

¹⁸ 'The Dowling Review of Business-University Research Collaborations' (2015), available at www.gov.uk/government/publications/business-university-research-collaborations-dowling-review-final-report, p. 4.

¹⁹ 'The Dowling Review', p.30.

Open access

68. One key aspect of the assessment of outputs in REF 2021 has already been established: a requirement that, to be eligible for submission in the next exercise, outputs must be made available in an open-access form. The open access policy states that journal articles and conference proceedings accepted for publication from 1 April 2016 need to have been deposited in an institutional or subject repository. Deposited material should be made discoverable, and free to read and download, for anyone with an internet connection, within the embargo periods specified in the policy²⁰.

69. This aspect of the next REF was announced in March 2014 following extensive consultation with the sector, and the policy requirements are not being opened for further consultation in this document. In addition, we propose that credit be given to research environments that can demonstrate that they have gone beyond the requirements of the policy (see paragraph 116). We intend to extend this policy to monographs in exercises beyond 2021. Further information about this is available in Annex C.

Outputs due for publication after the submission date

70. To address concerns raised about the risks of submitting outputs whose publication falls between the submission deadline and the end of the publication period, we are proposing that the submission of reserve outputs be permissible in this case. This would remove the risk of an unclassified score in the event that the output is not published during the publication period. We welcome views on this proposal.

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?

Interdisciplinary research

71. An underpinning principle of the REF is that all types of research and all forms of research output shall be assessed on a fair and equal basis, including interdisciplinary and collaborative research. To support this, REF 2014 built on enhancements to procedures for assessing this type of research. This included the configuration of broader UOAs; the appointment of additional assessors on the panels; an interdisciplinary identifier for outputs in the submissions system; arrangements for cross-referral of outputs across sub-panels; recognition of the impact arising from all types of research; and recognition of the support provided for interdisciplinary and collaborative research in the environment template. We are aware, however, that there continue to be concerns about the incentives for and assessment of interdisciplinary research in REF.

72. We are therefore considering whether any additional arrangements should be introduced into REF 2021, to facilitate interdisciplinary research activity and support its assessment further²¹. Our starting position would be the continuation of the arrangements introduced in REF 2014; for example, the option to cross-refer outputs to other sub-panels. A range of further steps

²⁰ See ‘Policy for open access in the post-2014 Research Excellence Framework: Updated July 2015’ (HEFCE 2014/07), available online at www.hefce.ac.uk/pubs/year/2014/201407/.

²¹ This also follows the findings of a quantitative study on interdisciplinary research, Elsevier, ‘A review of the UK’s interdisciplinary research using a citation-based approach’ (2015), and supplementary report, Elsevier, ‘Interdisciplinary research in REF 2014 submitted publications’ (2015), available at www.hefce.ac.uk/pubs/rereports/Year/2015/interdisc/.

could be taken. We welcome views on how effective the following suggestions we have received may be, as well as arguments for any additional ways to support interdisciplinary research:

- a. Appointment of interdisciplinary ‘champions’ on the sub-panels: each sub-panel would ensure one of the appointed members has interdisciplinary expertise. They would take on specific duties in the sub-panel for ensuring the equitable assessment of interdisciplinary research, including liaison with ‘champions’ on other sub-panels. This could involve meetings of all ‘champions’ in a main panel area, further to support consistency of assessment.
- b. Mandating the ‘interdisciplinary identifier’ field: as noted above (paragraph 71), in REF 2014 a submitting institution was able to identify the outputs it considered to be interdisciplinary, to draw this to the panels’ attention. We note the varied use of the identifier by institutions, and some uncertainty about its purpose. Consistency of use could be improved by making the interdisciplinary identifier a mandatory field in the submission system, which could work in combination with, for example, the role of the interdisciplinary champion in better enabling identification and monitoring of interdisciplinary research outputs in the assessment.
- c. Explicit section in the environment template: increased visibility could be given to the submitting unit’s structures in support of interdisciplinary research by introducing a separate section in the environment template. This would build on the arrangements in place for 2014, where information on interdisciplinary structures and support was invited as part of the final section of the template (‘collaboration and contribution to the discipline or research base’).

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

Assessment metrics

73. Informed by the outcomes of the Independent Review of Metrics, we have concluded that metrics should not replace peer review as the primary approach to the assessment in REF 2021²². This was endorsed by Lord Stern’s Independent Review of the REF.

74. With regard to the assessment of outputs, we propose that quantitative data continues to be provided to the panels to inform the assessment of output quality where the sub-panel, through consultation, deems this to be appropriate for the disciplines within its remit. Following the recommendation of the metrics review, we intend to explore whether the range and usefulness of the quantitative data provided to the panels can be enhanced, for example by providing field-weighted citation impact. We intend to work with the newly established Forum for Responsible Metrics on this, and we welcome views from respondents on this proposal, as well as any suggestions for appropriate output data for consideration by the forum.

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?

²² ‘The Metric Tide’.

Impact

75. Our continued policy aim in taking account of the impact of research in REF 2021 is to maintain and improve the achievements of the HE sector, both in undertaking ground-breaking research of the highest quality and in achieving demonstrable benefits to the economy and society through that research.

76. The funding bodies consider that the introduction of this new element in UK research assessment in REF 2014 has been successful, and has allowed the demonstration of a wide range of impacts associated with research. An independent two-stage evaluation of the submission and assessment process underlines this overall view, while highlighting key areas for refinement in future.

77. To enable institutions to build on the success of the first assessment of impact and allow the methodology to be further embedded, our key proposal for impact in REF 2021 is to remain consistent with the REF 2014 process as far as possible, except in the areas indicated below (paragraphs 78 to 108). These are where the evidence suggests further thought is required and where specific recommendations were made in Lord Stern's Independent Review of the REF. We welcome feedback on this key proposal.

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

Guidance and criteria

78. Lord Stern's Independent Review of the REF called for a broadening and deepening of the definition of impact, recognising that in REF 2014 there was room for a wider variety of impacts than were captured in the case studies. The review also recommended that the definition should include ground-breaking academic impacts leading to the creation of new disciplines. The broadening and deepening included some areas that fell within the definition of impact for REF 2014, but also covered new areas. It was recommended that guidance on the REF should make it clear that case studies can include impact on public engagement and understanding, impact on cultural life, academic impact outside the field, and impacts on teaching. We propose that ground-breaking academic impacts, such as research leading to the creation of new disciplines, would be more appropriately assessed through the output or environment element of the REF. Views are sought on these issues.

79. To enhance the complementarity of impact policies across the dual support system, and to underpin our work towards developing a whole-system approach to impact, the funding bodies and Research Councils UK (RCUK) propose to align our respective definitions of academic and wider impact. It is our proposal that these definitions be adopted for use in REF 2021. The proposed definitions are as follows:

- a. **Academic impact:** the demonstrable contribution that excellent research makes to academic advances, across and within disciplines, including significant advances in understanding, methods, theory, application and academic practice.

b. **Wider impact:** an effect on, change to or benefit to the economy, society, culture, public policy or services, health, the environment, or quality of life, beyond academia.

80. In the evidence we have gathered through our evaluation activity, some challenges have been identified in understanding the criteria of reach and significance, how these criteria would be assessed and weighted, and how they should be evidenced. The view from the panels was mixed with regard to the criteria, with some finding the relationship between reach and significance challenging, and others finding the application of reach in particular more difficult. While it sometimes proved challenging to assess the criteria holistically, our view is that this remains an important principle to maintain in REF 2021. We welcome views on this issue, and on any further guidance that might be helpful in supporting understanding of reach and significance.

81. Feedback suggests that impact arising from public engagement activity was one of the more challenging types to describe and evidence, and some panels noted that the distinction between dissemination and impact was not clearly understood by institutions in all cases. We are seeking views on whether further guidance is necessary on submitting these types of impact case studies, and what sort of information would be helpful for institutions without being restrictive.

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

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?

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

Question 23: What do you think about having further guidance for public engagement impacts and what do you think would be helpful?

Portability of impact

82. In REF 2014, impact case studies were submitted by the institution or institutions in which the associated research had been conducted. This gave recognition to institutions' support of the research associated with impacts, and reflected our aim to assess the impact of a submitting unit. We note a mix of views on this issue, with some in favour of impact remaining with the institution, and others advocating for impact to travel with researchers. Arguments for the latter include the more practical, such as challenges in tracing information and evidence relating to staff who have left the institution, as well as perspectives on the principle, particularly where impacts are based primarily on the work of individuals.

83. Our view is that the existing approach remains the most appropriate route to assessing impact, whereby impacts are submitted by the institution or institutions in which the underpinning research has been conducted. In addition to the arguments outlined in paragraph 82, this will allow recognition of, and continue to encourage, institutions' strategies for enabling impact, which might be disrupted if impact case studies were made portable.

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?

Impact template

84. The impact template (REF3a) in REF 2014 described the submitted unit's approach to supporting and enabling impact from its research. The information in the template was intended to allow a more holistic and contextualised assessment of impact than would be possible from case studies alone. It also provided a mechanism for the assessment to take account of particular circumstances that might have constrained a unit's selection of case studies (for example, a new department).

85. The evidence we have gathered suggests mixed views on the template from both institutions and panels. Some institutions have described a lack of guidance and uncertainty in completing the template, while others have described different issues such as the limitations of the template's length. REF panellists identified a range of challenges in assessing the template, questioning the effectiveness with which it could reflect institutions' enablement of impact, and its narrative basis.

86. Lord Stern's Independent Review of the REF notes that environment and impact are mutually supportive and should be seen together, and that the strategy and support of impact are closely linked to the environment for research. It therefore recommends that the aspects captured by the impact template should be incorporated into the environment statement.

87. On the other hand, positive views of the template have emerged. Institutions have reflected positively on its role in helping to shape strategy and allow units to demonstrate a breadth of impact activity. Similarly, some panellists felt the template allowed them to understand better what institutions were doing, and the contexts in which impacts occurred.

88. In view of the feedback, and in accordance with our position that REF 2021 should continue to take account of the support for impact provided by submitting units, we propose taking account of the unit's approach to supporting and enabling impact as an explicit section of the environment element of the assessment. The impact template would no longer be required. The assessment of this section would contribute to the sub-profile for environment. 100 per cent of the impact sub-profile would be attributed to the impact case studies.

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?

Case study ratio

89. The aim with impact in REF 2021 will be to assess the impact of the submitting institution's excellent research, not the impact of individuals or individual research outputs. This will continue to recognise the often serendipitous nature by which impact arises and acknowledges that, in a given period, not all research may result in impact.

90. The required number of case studies per submission in REF 2014 is reported as having an effect on staff selection. In a detailed evaluation of the submission process, RAND Europe identified a 'discontinuity' in submission of staff at the threshold points for additional case studies,

and cited anecdotal evidence of the reported role that the number of case studies played in staff selection²³.

91. The proposal that all research-active staff should be included in the REF (see paragraphs 40 to 44) will remove the issue of non-selection of staff due to case study requirements. However if all research-active staff are returned to the REF and the case study ratio used in REF 2014 remains, this will significantly increase the number of case studies submitted to the REF and thereby increase burden on the sector. We believe that the volume of impact case studies submitted to REF 2014 (around 7,000) was appropriate.

92. Lord Stern's Independent Review of the REF has recommended that the number of case studies required in the next REF should not be significantly more than the number submitted to REF 2014. Therefore we are proposing that the case study ratio should be based on HESA data on research-active staff (as described in paragraph 43), to provide a total number of case studies that does not significantly exceed the number submitted to REF 2014.

93. With the proposal to include all research-active staff and maintain the total number of case studies at REF 2014 levels, it may be appropriate for the minimum requirement of case studies for the smallest submissions to be reduced from two to one. This change would necessarily lead to scores for individual case studies becoming available for those small submissions.

94. Lord Stern's Independent Review also recommended that all institutions should be required to submit some institutional-level impact case studies which arise from multi- and interdisciplinary and collaborative work. This is discussed in further detail in the section on institutional-level assessment (see paragraphs 118 to 125)

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?

Case study template

95. The case study template (REF3b) in REF 2014 was an open-field template, designed to enable submitting units across all UOAs clearly to explain and demonstrate the impact of their research.

96. To support the assessment and audit of case studies better, we propose that case studies are submitted via a web form in REF 2021 that will include the following mandatory fields to capture some of the basic details about the impact being described:

- name of submitting institution
- Unit of Assessment
- title of case study
- names and roles of staff conducting the underpinning research ('role' at time when the associated research was conducted)
- dates of employment by the submitting unit for staff conducting the associated research
- period in which the associated research was carried out
- Digital Object Identifier for each associated research output listed (where applicable).

²³ RAND Europe, 'Preparing impact submissions for REF 2014', pp.11-12.

97. Further optional fields could be introduced into the case study template to standardise the information collected, for example name of research funder (where applicable). The addition of fields such as this would primarily facilitate the use and analysis of case studies following the end of the exercise, rather than in the assessment process itself, although the information would still be available to the panels. We are seeking views on the arguments for and against including this type of additional field in the case study template.

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?

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

Underpinning research

98. It was a requirement for impact case studies in REF 2014 to be underpinned by excellent research produced by the submitting unit. While recognising that impact should be underpinned by research of demonstrable quality, Lord Stern's Independent Review of the REF stated that the requirement to link case studies to key research outputs has meant that potentially very valuable channels whereby the UK's research base impact on industry, public engagement, and policy advice are not being captured.

99. The review therefore recommended that case studies should continue to be based on research of demonstrable quality, but could be linked to a research activity and a body or work as well as to specific research outputs. This would enable a richer picture of the impact of research to be developed where an individual or group's research and expertise has led to impact, but where the impact could not sensibly be linked to particular research outputs.

100. We propose that examples of impact in REF 2021 must be underpinned by excellent research, research activity, or a body of work produced by the submitting unit in the period from 1 January 2000 to 31 December 2020.

101. The window in which the underpinning research could have been produced was found to be broadly acceptable in REF 2014, with excellent examples of impact of many different types submitted across the panels. Analysis of the submitted case studies indicates that the time lag across the UOAs fell well within the window allowed, including in UOA 16: Architecture, Built Environment and Planning, which had an additional five years in REF 2014²⁴. Therefore, we propose to retain the length of the window, the starting point for which will become 1 January 2000 in REF 2021 across all UOAs.

102. We note that some issues were encountered by both submitting institutions and assessing panels in ensuring the two-star eligibility criterion for underpinning research was met. In REF 2014 underpinning research was required to be internationally recognised in terms of originality, significance and rigour. It could be considered that if the research has delivered impact, its originality and significance are less important than the rigour with which the research was undertaken. We welcome views on whether the threshold criterion should be based on standards of rigour and how these might be assessed.

²⁴ KCL, 'The nature, scale and beneficiaries of research impact' (March 2015), available at www.hefce.ac.uk/pubs/rereports/Year/2015/analysisREFimpact/, pp.45-6.

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?

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

Question 31: What are your views on the suggestion that the threshold criterion for underpinning research, research activity or a body of work should be based on standards of rigour? Do you have suggestions for how rigour could be assessed?

Evidence for impact

103. Our evaluation activity has highlighted the provision of evidence as one of the most challenging aspects of the submission process for impact, as well as presenting issues for the assessing panels.

104. In considering how best to refine this aspect of the process in REF 2021, it is helpful to divide the wider concept of ‘evidence’ into two separate categories:

- audit evidence: corroborating information that underpins the truth of the claims being made in the case study, for audit purposes
- assessment evidence: information and indicators in the case study that will enable the panel to judge the reach and significance of the impacts described.

Audit evidence

105. Following REF 2014, some panel members highlighted the limited access they had to corroborating evidence during the assessment process. One option to address these concerns would be to require the submission of all corroborating evidence along with the case studies. This would offer panels greater access to evidence that, for the most part, institutions might already have held and would circumvent the need for institutions to be involved in the audit process. However, as highlighted in the REF Manager’s report, consideration should be given to the potential increased burden on both institutions and the panels, as well as to providing an avenue for additional information about the impact. For panels, careful consideration would need to be given to whether and how audit evidence should be used, without informing judgements about the quality of the impact described.

Assessment evidence

106. Analysis of the REF 2014 case studies highlighted that in some instances more standardised numerical measures could be used (for instance, quality-adjusted life years or generated income, where relevant). Use of consistent numerical units across case studies may better support the panels’ assessment, and will further enable analysis of impact at a national level following the assessment.

107. However, these benefits need to be balanced with our intention to enable the submission of all eligible impacts. We recognise there may be some concern that the use of standardised measures may signal a hierarchy of evidence within which not all types of impact can be demonstrated.

108. As recommended in the Metrics Review, we are exploring the role that quantitative data could play as supportive evidence for the impact case studies, including the extent to which a set of guidelines on suggested types and standards of data may be useful. We intend to explore these issues with the Forum for Responsible Metrics, and we welcome initial views on this issue to feed into this work.

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?

Submitting examples of impact returned in REF 2014

109. We would like to explore with the sector the principle of, and the practical issues involved in, submitting examples of impact in REF 2021 that were submitted in an earlier version to REF 2014, where the research is still delivering impact arising in the REF 2021 assessment period and where the remaining eligibility criteria are met.

110. In defining the rules for submitting these types of case study, the funding bodies would like to strike the right balance between incentivising and recognising longer-term impacts arising from research, and continuing to incentivise the delivery of new areas of impact. We are seeking views on how the rules can be best designed to support this dual aim.

111. An initial issue for consideration is whether such case studies need to demonstrate any additionality to the example submitted in 2014, beyond the continuation of the impact in the new assessment period. We are interested in views on this question on how, if there is a need for additionality, this might work in the assessment framework, and on how the regulatory burden of any additional requirements can be minimised. We also welcome views on the extent to which, if additionality is not needed, the panels should be made aware that the example was submitted in REF 2014, or whether any other rules should apply – for example, should submitting units only be allowed to submit impacts returned in 2014 as a certain proportion of their case studies? What other issues may be relevant to submitting impacts returned in REF 2014?

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?

Environment

Overall approach

112. Concerns about the narrative nature of the environment template have been raised by the REF panels through our evaluation process. In line with this feedback, and recommendations made in Lord Stern's Independent Review and the Metrics Review, we propose to introduce a more structured template for the environment element of the assessment in REF 2021, which incorporates more quantitative data. Our view is that through decreasing the narrative elements

of the template and increasing the use of data which is already collected and held by institutions, a more deregulated approach to the environment element could be adopted. It will be important that the data provides a clearer picture of the submitting unit than in 2014, where the panels found challenging disconnections between the data provided and the submitted staff. We are also considering whether to introduce a separate section focusing on interdisciplinary research, as set out in paragraph 72.

113. We intend to work with the Forum for Responsible Metrics to develop appropriate indicators for the research environment. As noted, our starting point will be to consider data which is already collected and held by institutions. We invite initial suggestions to inform this work, including indicators related to equality and diversity.

114. Following the recommendation made in the REF Manager's Report, the funding bodies do not intend to schedule a formal period for data adjustments in REF 2021 where HESA data is used as part of the assessment²⁵. This is in view of the disproportionate resource required to undertake this activity, and to encourage institutions further to ensure HESA returns are as accurate as possible.

115. As set out in paragraph 66, following the recommendations made in the Dowling review, we are also seeking views on ways in which the environment element can give more recognition to universities' collaborations beyond HE²⁶.

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?

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

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?

Open access

116. In addition, as noted in our policy on open access in the next REF, we intend that credit will be given to submissions that can demonstrate how the unit's approach to open access is above and beyond the policy requirements, in terms of the type of outputs that are published on an open access basis, and to submissions where outputs are presented in a form that allows re-use of the work. We propose that this information is provided through a statement detailing the unit's open access strategy, and supported with data on the unit's open access outputs and type of licencing. We welcome views on this proposal.

117. We are also interested in views on ways in which we can incentivise units to share and manage their research data more effectively. This is in accordance both with our role on the UK Open Research Data Forum, which has published a concordat on open research data, and with our invitation from Government to consider how open data could be rewarded as part of future

²⁵ 'REF Manager's Report', p.39.

²⁶ 'The Dowling Review', p.30.

REF assessments²⁷. The concordat aims to help ensure that the research data gathered and generated by members of the UK research community is made openly available for use by others wherever possible, consistently with relevant legal, ethical and regulatory frameworks and norms²⁸. As with the previous exercise, research datasets and databases that meet the REF definition of research will be eligible for submission in the outputs element of the assessment.

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

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

Institutional-level assessment

118. A key change recommended by Lord Stern's Independent Review of the REF is that the next REF should include assessment of impact and environment at institutional level, undertaken by an institutional assessment panel. For impact, all institutions submitting to the REF should be required to submit some institutional-level impact case studies which arise from multi- and interdisciplinary and collaborative work. For environment, each institution would be required to submit an institutional-level environment statement which complements the statement provided at submission level.

119. The introduction of institutional-level impact case studies is intended to provide institutions with the flexibility to showcase their interdisciplinary and collaborative impacts. We seek views on the proposal that institutions are required to submit between 10 and 20 per cent of their total number of required case studies at institutional level, with the provision that the smallest institutions can submit a minimum number of one institutional-level impact case study.

120. The introduction of an institutional-level environment statement is intended to capture the aspects of environment that reflect the strategy, support and actions of the institution as a whole and reduce the amount of duplication currently presented in the multiple individual submissions at UOA level.

121. Lord Stern's Independent Review recommends that the institutional-level environment assessment should include an account of the institution's future research environment strategy, and a statement of how it supports high-quality research and research-related activities, including its support for interdisciplinary and cross-institutional initiatives and impact.

122. Lord Stern's Independent Review provided the following illustrative examples of the types of information that could be included:

- a. HEI research and knowledge, engagement and impact strategies for the next REF cycle and progress made against plans from the previous REF cycle.

²⁷ 'Concordat on Open Research Data launched', www.rcuk.ac.uk/media/news/160728/; 'Grant letter' from the Department for Business, Innovation and Skills to HEFCE (2015), available at www.hefce.ac.uk/funding/govletter/.

²⁸ The draft concordat is available at www.rcuk.ac.uk/research/opendata/.

- b. HEI actions to promote innovative and interdisciplinary research and cross-departmental working, for example seed funding, networks, shared facilities and cross-disciplinary networks or units.
- c. Institutional support for, and leading examples of, major external research collaborations with academic and non-academic partners, regionally, nationally and globally.
- d. Research facilities (such as laboratories, information technology capacity and library) and research support services (such as research data management, gaining and managing research funding, and support for the commercialisation of research).
- e. Institutional support for research students and early career researchers, for instance doctoral training centres and institutional career development assistance for research staff.
- f. Diversity strategy, including for example the institutional Athena Swan award recognising employment practices which promote gender equality.

123. The submission-level environment statements should be condensed, be made complementary to the institutional statement and include those key metrics in research intensity specific to the UOA.

124. Lord Stern's Independent Review provided the following illustrative examples of the types of information that could be included:

- UOA research and knowledge, engagement and impact strategy for the next REF cycle, and implementation of strategic plans from the previous REF cycle
- innovative interdisciplinary research initiatives and participation in major regional, national or international research collaborations with other academic and non-academic partners
- contribution to the wider academic community such as journal editing, conference convening, working for learned societies and peer review, as well as other indicators of recognition and contribution
- contribution to the wider non-academic community through engagement and impact-related activities, including membership of major policy committees or industry partnerships
- provision of research facilities and research support specific to the unit
- numbers of PhD students and post-doctoral research fellows per academic FTE
- research grant income per academic FTE from competitive funding sources
- UOA diversity strategy (to the extent that this is distinct from the institution's), including for example Departmental Athena Swan awards.

125. Lord Stern's Independent Review noted that the introduction of institutional-level assessment will require careful testing and recommended that the funding bodies explore options for piloting this aspect of a future REF. The funding bodies intend to use the responses to the consultation to inform this pilot work. As a starting point we anticipate that the institutional-level assessment will be undertaken by a single panel with membership drawn from across the four Main Panels with additional panel members as required.

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

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

Outcomes and weighting

126. The introduction of institutional-level assessment will necessarily require a change to the weightings of different elements of the assessment and the construction of sub-profiles and overall quality profiles. Lord Stern's Independent Review recommended that the weighting for outputs should stay at 65 per cent and that the total weighting for impact across the submission and institutional-level assessment should not comprise less than 20 per cent. The Dowling review of Business-University Research Collaborations recommended that successor exercises to the REF should maintain or increase the weighting given to impact²⁹. Meanwhile, Sir Andrew Witty's review of universities and growth recommended that the weighting for impact should increase to 25 per cent in a future exercise³⁰.

127. Within the boundaries of these recommendations, we propose an initial approach of considering the institutional-level assessments of impact and environment as two additional 'sub-profiles' when constructing the overall quality profile for each submission. This is shown in Figure 1, along with the proposed weighting for each component. Under this approach, the scores for the institutional impact case studies would contribute to the impact sub-profile for all submissions made by an institution.

128. This is one suggested approach. An alternative approach could take either or both of the elements of the institutional-level assessment out of the overall quality profile and be considered separately. Views are sought on potential approaches.

129. In relation to joint submissions involving two or more HEIs, under the first of the approaches outlined in paragraph 127, the outcome would be different overall quality profiles for each HEI, due to the incorporation of different institutional-level assessments.

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

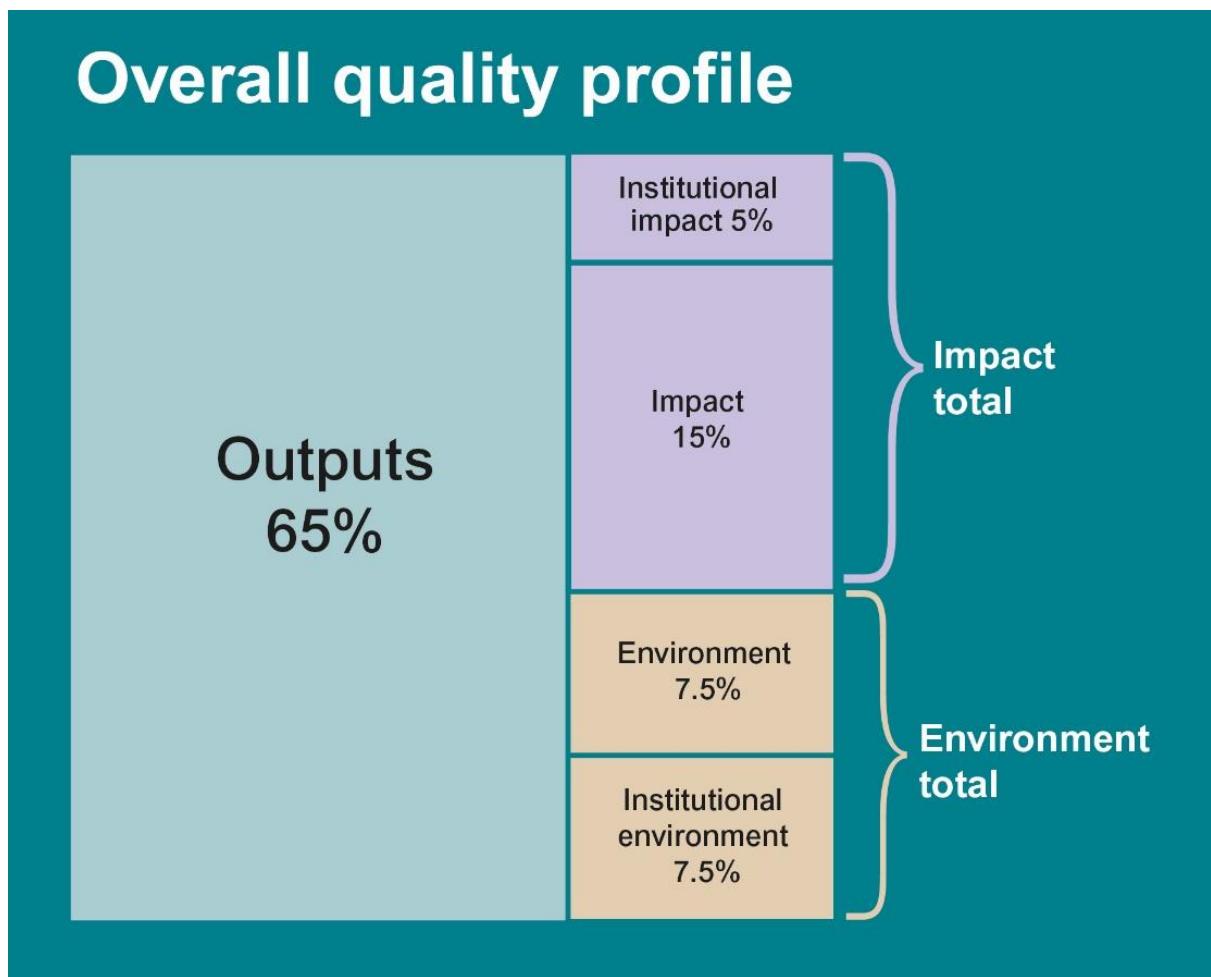
Question 41: Given the proposal that the weighting for outputs remain at 65 per cent, do you agree that the overall weighting for impact should remain at 20 per cent?

Question 42: Do you agree with the proposed split of the weightings between the institutional and submission-level elements of impact and environment?

²⁹ 'The Dowling Review', p. 30

³⁰ 'Encouraging a British Invention Revolution: Sir Andrew Witty's Review of Universities and Growth' (2013), available at <https://www.gov.uk/government/consultations/universities-and-growth-the-witty-review-call-for-evidence>, p.37

Figure 1: Proposed approach for considering institutional-level assessments of impact and environment



Proposed timetable for REF 2021

130. As indicated in paragraph 24, our view is that the next REF exercise should take place in 2021. This strikes the right balance between offering stability of funding and minimising where possible the significant effort involved in the assessment process, while providing an opportunity to recognise improving performance in a timely fashion. An indicative timetable for an exercise according to this proposal is set out in Table 1. This timetable does not include information on key areas on which we are consulting, for example the appointment of members and assessors to the REF panels (see paragraphs 31 to 33).

Table 1: Proposed indicative timetable for REF 2021

1 August 2013	Start of period for income and impacts
1 January 2014	Start of period for outputs
Noon on Friday 17 March 2017	Consultation deadline
Mid-2017	Publish initial decisions on the next REF
Mid-2017	Appoint panel chairs
2018	Publish guidance on submissions and panel criteria
2019	Invite HEIs to make submissions
31 July 2020	End of assessment period (for research impacts, the research environment and related data)
November 2020	Closing date for submissions
31 December 2020	End of publication period for publication of research outputs and outputs underpinning impact case studies
2021	Assessment year
December 2021	Publication of outcomes
Spring 2022	Publication of submissions and reports

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

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?

Annex A: Questions for consultation

Overall approach

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?

Unit of Assessment structure

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

Expert panels

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

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

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

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

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

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

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?

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

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?

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?

d. What comments do you have on sharing outputs proportionally across institutions?

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?

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

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

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

Collaboration

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

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?

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

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?

Impact

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

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

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?

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

Question 23: What do you think about having further guidance for public engagement impacts and what do you think would be helpful?

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?

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?

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?

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?

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

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?

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

Question 31: What are your views on the suggestion that the threshold criterion for underpinning research, research activity or a body of work should be based on standards of rigour? Do you have suggestions for how rigour could be assessed?

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?

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?

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?

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

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?

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

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

Institutional-level assessment

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

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

Outcomes and weighting

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

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?

Question 42: Do you agree with the proposed split of the weightings between the institutional and submission-level elements of impact and environment?

Proposed timetable for REF 2021

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

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?

Annex B: List of evaluation and wider evidence

Category	Name
Research Excellence Framework (REF) documentation	<p>'REF Manager's report' (March 2015)</p> <p>'Equality and diversity in the 2014 REF: A report by the Equality and Diversity Advisory Panel (EDAP)' (January 2015)</p> <p>'REF 2014 Panel overview reports' (January 2015)</p> <p>'Analysis of panel membership' (July 2011)</p>
REF evaluation (commissioned)	<p>RAND Europe, 'Preparing impact submissions for REF 2014: An evaluation (findings and observations)' (March 2015)</p> <p>RAND Europe, 'Preparing impact submissions for REF 2014: An evaluation (approach and evidence)' (March 2015)</p> <p>RAND Europe, 'Assessing impact submissions for REF 2014: An evaluation' (March 2015)</p> <p>Technopolis, 'REF Accountability Review: Costs, benefits and burden' (July 2015)</p> <p>Elsevier, 'A review of the UK's interdisciplinary research using a citation-based approach' (July 2015)</p> <p>Elsevier, 'Interdisciplinary research in REF 2014 submitted publications' (July 2015)</p>
REF evaluation (internal)	<p>'Evaluating the 2014 REF: Feedback from participating institutions' (March 2015)</p> <p>'Feedback from the REF 2014 panels' (July 2016)</p> <p>'Selection of staff for inclusion in the REF 2014' (August 2015)</p>
Wider work relevant to future REF	<p>KCL, 'The nature, scale and beneficiaries of research impact' (March 2015)</p> <p>The REF impact case study database</p> <p>'The Metric Tide: Report of the Independent Review of the Role of Metrics in Research Assessment and Management' (July 2015)</p> <p>Technopolis, 'Landscape review of interdisciplinary research in the UK' (September 2016)</p> <p>Technopolis, 'Case study review of interdisciplinary research in higher education institutions in England' (September 2016)</p> <p>British Academy, 'Crossing paths: Interdisciplinary institutions, careers, education and applications' (July 2016)</p> <p>'Building on success and learning from experience: An independent review of the research excellence framework' (July 2016)</p>

Annex C: Open access and monographs

1. We have already stated that monographs and other long-form research outputs need not be available in an open-access form to be eligible for submission to the next REF³¹. In the long term, however, we want to see the benefits that open access has brought to journal articles extended to other research outputs, including monographs³². We therefore intend to move towards an open-access requirement for monographs in the exercise that follows the next REF (expected in the mid-2020s). Given the length of time required to produce and publish monographs, we are signalling this now, to give due notice to the sector.
2. As Professor Geoffrey Crossick confirmed in his report, 'Monographs and Open Access',³³ monographs are a vitally important and distinctive vehicle for research communication in many disciplines, and must be sustained in any moves to open access. There are clear benefits to extending open access to books, but substantial complexities involved in doing so. The report recommended that funders develop policies to encourage moves towards open access for monographs, but also set out in detail the issues that would need to be tackled before open-access monographs could become widespread.
3. The report concluded that:
 - a. Open access offers both short and long-term advantages for monograph publication and use; many of these are bound up with a transition to digital publishing that has not been at the same speed as that for journals.
 - b. There is no single dominant emerging business model for supporting open-access publishing of monographs; a range of approaches will coexist for some time and it is unlikely that any single model will emerge as dominant.
 - c. Printed books will continue to be preferred for extensive reading and may form a part of many future business models; they will therefore continue to a considerable extent to be available alongside their open-access versions.
4. The report also highlighted particular challenges around the open licensing of monographs, the inclusion of third-party copyrighted material in monographs, and the technicalities of digital book publishing, all of which would need to be treated with appropriate flexibility in designing policies to encourage open access.
5. We do not intend to set out any detailed open-access policy requirements for monographs in a future REF exercise in this annex. However, setting a direction of travel now will allow academics, institutions, publishers and others to take appropriate steps. We see a clear need to develop some **principles** that can govern the introduction of a policy requirement in future.

Principles for a future policy on open access monographs

6. Despite open access for monographs being at an earlier stage than for journals, this is a rapidly developing area. There is a clear need for better ongoing monitoring of the various

³¹ For details of our open access policy for journals and conferences in the next REF, see www.hefce.ac.uk/rsrch/oa.

³² By 'monographs' we mean authored books, edited books, scholarly editions, book chapters and exhibition catalogues.

³³ Available at www.hefce.ac.uk/pubs/rereports/Year/2015/monographs/.

initiatives to ensure that progress can be gauged, policies coordinated, and opportunities seized. To this end, the Open Access Implementation Group, led by Universities UK and chaired by Professor Adam Tickell, is considering establishing in due course a sub-group to monitor developments in open-access monographs following Professor Crossick's report, and to stimulate and coordinate further work. Further details of the group will be made available in due course. We anticipate that the following principles can be developed further with the input of that group, but we would welcome comments on these principles from all interested parties, to be directed in the first instance to openaccess@hefce.ac.uk:

- a. **There are powerful and valid reasons why open access should be extended to monographs and other long-form publications.** Open access has brought substantial benefits to scholarly communication in journals; within reason, and as far as is practical, it is right that other research outputs are required to take advantage of open-access options. We wish to see a gradual but definite move towards open access for monographs.
- b. **There will be legitimate reasons why some monographs cannot be open-access, and we will be flexible about the proportion of monographs submitted to a future exercise that will be expected to meet open-access requirements.** Such reasons might include, but are not limited to: the lack of viable electronic or open-access publishing options for some monographs; problems created by significant dependence on the inclusion of copyrighted third-party material in the monograph; or a substantial dependence on royalty payments for sustaining an author's research endeavours.
- c. **In as far as is practicable, the version that is made open-access should be academically equivalent to the final published version of record.** This will often mean that the open-access version reflects all academically necessary textual and presentational elements. However, policies should be flexible in allowing author manuscripts, deposited in a repository, to meet the requirements where the author is confident that these manuscripts reflect an academically correct version of the monograph.
- d. **The monograph should at least be free to read, and ideally be licensed in a way that gives freedom to copy and reuse the published material.** The community should move towards adopting more permissive licenses, such as the Creative Commons Attribution licence ('CC BY'), when these are congruent with disciplinary norms and practices. More restrictive licences, such as the Creative Commons Attribution-NonCommercial-NoDerivs ('CC BY-NC-ND'), should be considered as acceptable alternatives for open-access monographs to allow norms and practices around more permissive licensing to evolve and be monitored.
- e. **The monograph should be free to access in its entirety, ideally immediately on publication.** Partial access would not be sufficient, and might put the academic integrity of the monograph at risk. Embargoed access should be the exception, not the norm, and should ideally apply only to author-driven open-access models, such as repository deposit.
- f. **There should be no requirement that any one particular business model be used to deliver open-access monographs.** The current models of open-access book publishing should be permitted, but we recognise that author-facing publishing charges are very high and cannot work at scale. Further experimentation is required to identify and develop business models that are cost-effective and scalable, paying due attention to the

need for the monograph publishing ecosystem to remain sustainable, innovative and diverse.

g. **Further work is needed to improve the academic acceptability and long-term accessibility of digital books.** A print copy of the monograph should to a considerable extent continue to be available, even when the primary mode of dissemination is online open access, and further work is needed by publishers to deliver improvements in digital publishing technology.

Annex D: Abbreviations

E&D	Equality and diversity
FTE	Full-time equivalent
HE	Higher education
HEFCE	Higher Education Funding Council for England
HEI	Higher Education Institution
HESA	Higher Education Statistics Agency
ORCID	Open Research and Contributor Identification
RAE	Research Assessment Exercise
RCUK	Research Councils UK
REF	Research Excellence Framework
UOA	Unit of Assessment