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This document is for information

This document sets out the assessment criteria and working methods of the main and sub-panels for the 2014 Research Excellence Framework. The deadline for submissions is 29 November 2013.

Panel criteria and working methods

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Panel criteria and working methods

To

Heads of publicly funded higher education institutions in the UK

Of interest to those responsible for

Research

Reference

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Publication date

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Enquiries from staff at UK higher education institutions

E-mail your institutional REF contact. (These are listed at www.ref.ac.uk under Contact.)

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Executive summary

Purpose

1. This document sets out the assessment criteria and working methods of the main and sub-panels for the 2014 Research Excellence Framework (REF).
2. The final panel criteria and working methods set out in this document have been revised, in the light of responses to 'Consultation on draft panel criteria and working methods' (REF 03.2011), from July to October 2011. This includes amendments to the guidelines that were published in 'Assessment framework and guidance on submissions' (REF 02.2011). These changes are in Part 1, paragraphs 43, 44 and 64-91 and supersede the relevant paragraphs of REF 02.2011.
3. This document should therefore be read alongside REF 02.2011. Together, the two documents give a comprehensive description of the information required in submissions to the REF, and how the REF panels will assess submissions.

Key points

4. The REF is a process of expert review. Expert sub-panels for each of 36 units of assessment will carry out the assessment, working under the leadership and guidance of four main panels.
5. UK higher education institutions (HEIs) will be invited to make submissions by 29 November 2013. The REF main and sub-panels will assess submissions during 2014, and results will be published in December 2014. The results will inform the allocation of research funding by the UK higher education funding bodies, from 2015-16.
6. Part 1 of this document sets out the generic criteria and working methods that will be applied by all panels. Part 2 provides further details of the criteria of each of the four main panels.

Action required

7. This document is for information and to guide institutions in preparing and collecting data for inclusion in REF submissions. No action is required by HEIs at this stage.

Further information

8. For further information about the REF see www.ref.ac.uk.

9. Staff at UK HEIs should direct any queries to their institutional REF contact. Contact details for each institution are listed at www.ref.ac.uk under Contact.

10. Other enquiries should be addressed to info@ref.ac.uk.

Introduction

11. This document sets out the assessment criteria and working methods of the main and sub-panels for the 2014 Research Excellence Framework (REF):

- Part 1 sets out the generic assessment criteria and common working methods to be followed by all panels
- Part 2 gives further details of the criteria to be employed by each of the four main panels and their sub-panels.

12. This document should be read alongside REF 02.2011 'Assessment framework and guidance on submissions' (hereafter 'guidance on submissions'). Together, the two documents give a comprehensive description of the information required in submissions to the REF, and how the REF panels will assess submissions. We will issue supplements to the guidance at later dates to clarify points of detail regarding submissions, but such supplements will not request any new items of data.

13. This document includes amendments to the guidelines that were published in 'guidance on submissions', in the light of responses to 'Consultation on draft panel criteria and working methods' (REF 03.2011). These changes are in Part 1, paragraphs 43, 44 and 64-91 and supersede the relevant paragraphs of 'guidance on submissions'.

Background

14. In early 2011, the REF team invited the four main panels to develop their criteria and working methods, with input from their sub-panels. The 'Guidance to panels' on developing their criteria is available at www.ref.ac.uk under Publications. Each main panel was instructed to develop a common set of criteria and working methods for its group of sub-panels, with distinct criteria or approaches for particular sub-panels only where justified by differences in the nature of research in those disciplines. This approach reflects feedback from the Research Assessment Exercise that greater consistency across the exercise is desirable.

15. From July to October 2011, the REF team and the four main panels consulted on draft panel criteria and working methods (REF 03.2011). Around 400 responses were received and a number of events were held to discuss the draft criteria, including four workshops with a range of 'users' of research. A summary of the responses will be available on www.ref.ac.uk under Publications. A number of revisions to the criteria and working methods have

been made in response to the consultation feedback, and the criteria and working methods are set out in their final form in this document.

16. Panels will not be permitted to depart from the criteria and working methods as published in this document, other than in exceptional circumstances that cannot be accommodated within the published framework. In such cases, we will publish the reason and details of the change as an amendment.

Part 1

Generic statement of assessment criteria and working methods

The Research Excellence Framework

17. The Research Excellence Framework is the new system for assessing the quality of research in higher education institutions in the UK. It replaces the Research Assessment Exercise (RAE), which was last conducted in 2008.

18. The purpose of the REF, the general principles governing its conduct, and an overview of the REF framework are set out in Part 1 of 'guidance on submissions'.

Submissions and units of assessment

19. Institutions will be invited to make submissions by 29 November 2013, in each unit of assessment (UOA) they elect to submit in. There are 36 UOAs, listed in Annex D of 'guidance on submissions'. Part 2 of this document provides descriptors of each UOA (see Section 1 of each of the main panels' statements of criteria). Each submission must contain, in summary:

- a. **REF1a/b/c:** Information on staff in post on the census date, 31 October 2013, selected by the institution to be included in the submission.
- b. **REF2:** Details of publications and other forms of assessable output which they have produced during the publication period (1 January 2008 to 31 December 2013). Up to four outputs must be listed against each member of staff included in the submission.
- c. **REF3a/b:** A completed template describing the submitted unit's approach during the assessment period (1 January 2008 to 31 July 2013) to enabling impact from its research, and case studies describing specific examples of impacts achieved during the assessment period, underpinned by excellent research in the period 1 January 1993 to 31 December 2013.
- d. **REF4a/b/c:** Data about research doctoral degrees awarded and research income related to the period 1 August 2008 to 31 July 2013.
- e. **REF5:** A completed template describing the research environment, related to the period 1 January 2008 to 31 July 2013.

20. The generic eligibility definitions and data requirements set out in 'guidance on submissions' apply to all submissions.

Multiple submissions

21. Institutions will normally make one submission in each UOA they submit in. They may exceptionally, and only with prior permission from the REF manager, make multiple submissions in the same UOA. All requests for multiple submissions will be considered against the generic criteria set out in 'guidance on submissions' (paragraphs 50-51). The panel criteria in Part 2 indicate which sub-panels consider there is a case for multiple submissions in their UOAs, given the nature of the disciplines they cover. Part 2 also states any additional criteria that will need to be satisfied when requesting multiple submissions in the respective UOAs.

Expert panels

22. The REF will be a process of expert review, with discipline-based expert panels assessing submissions made by higher education institutions (HEIs) in the 36 UOAs. An expert sub-panel for each of the 36 UOAs will conduct a detailed assessment of submissions in its UOA. The sub-panels will work under the leadership and guidance of four main panels: Main Panels A, B, C and D.

23. In brief, the sub-panels are responsible for:

- assessing each submission made in its UOA and recommending the outcomes for each submission to the main panel
 - contributing to the criteria and working methods of their main panels.
24. The four main panels are responsible for:
- developing the panel criteria and working methods
 - ensuring adherence to the published procedures and consistent application of the overall assessment standards by the sub-panels
 - signing off the outcomes of the assessment.

25. The roles and responsibilities of the main and sub-panels are described fully in 'Units of assessment and recruitment of expert panels' (REF 01.2010).

26. The main and sub-panels were appointed by the four UK funding bodies through an open process of nominations, as described in REF 01.2010. The membership of each panel is at www.ref.ac.uk under Expert panels. As we indicated in REF 01.2010, we have sought to ensure that the membership of the

main and sub-panels comprises individuals who have experience in conducting, managing and assessing high-quality research, as well as experts who are well-equipped to participate in the assessment of research impact from a private, public and third sector perspective. In appointing the panels, due regard was given to the desirability of ensuring that the overall body of members reflects the diversity of the research community.

27. The main and sub-panels will undertake their roles within the common framework for assessment set out in 'guidance on submissions' (Part 1) and the generic statement of criteria and working methods (Part 1 of this document). Part 2 of this document sets out in more detail the criteria that each of the main panels and its sub-panels will employ when assessing submissions.

Role and appointment of additional assessors

28. Additional assessors will be appointed to extend the breadth and depth of expertise on the sub-panels as required to carry out the assessment. Assessors will undertake either one of the following roles:

- a. To assess the impact element of submissions and develop the impact sub-profiles, alongside existing panel members. These will be people with professional experience of making use of, applying or benefiting from academic research.
- b. To assess research outputs and develop the output sub-profiles, alongside existing panel members. These will be practising researchers with relevant expertise.

29. Assessors will play a full and equal role to sub-panel members in developing the sub-profiles for either the impact or outputs element of the assessment. They will be fully briefed, take part in calibration exercises and attend panel meetings at which the relevant aspects of submissions (outputs or impact) are discussed.

30. Assessors will be appointed by the chief executives (or equivalent) of the four UK funding bodies, following recommendations from sub- and main panel chairs, made from among nominated individuals. These will either be individuals with appropriate expertise who have already been nominated (see REF 01.2010), or additional nominations that the REF team will invite from appropriate bodies. Where further nominations are invited, the REF team will ask the nominating bodies to explain the relevant expertise of nominees, as well as to state how the nominees would help enhance the diversity of the panels concerned. In recommending assessors, sub-panel chairs will give due consideration to enhancing the extent to which the

overall body of members reflects the diversity of the research community. This consideration responds to the issues raised in the 'Analysis of panel membership' (July 2011).

31. Sub- and main panel chairs' recommendations will be guided by the principle of ensuring that sub-panels have access to appropriate expertise to reach robust and fair judgements with regard to submitted material. Appointments will be made as follows:

- a. Where a clear gap in the expertise of a sub-panel required to assess either outputs or impact has been identified during the criteria development and consultation phase, assessors will be appointed during 2012.
- b. Further assessors will be appointed during 2013, after the REF team has surveyed institutions about the volume and nature of work that they intend to submit to the REF. In early 2013 the sub- and main panels will consider the breadth and depth of expertise of each sub-panel's membership, in the light of institutions' submission intentions. Each sub-panel will seek to identify:
 - i. Disciplinary or interdisciplinary areas where there may be gaps in the sub-panel's expertise required to assess outputs, or where the volume of outputs may lead to potential workload issues for existing members.
 - ii. Areas where additional user expertise would be required to assess the range of impacts indicated in the survey responses.

32. Before recommending the appointment of assessors, sub-panel chairs will discuss the recommendations with their main panels. The following issues will be considered across each main panel:

- Whether a demonstrable lack of expertise has been identified which cannot be covered from within the sub-panel.
- Whether there is a sufficient body of activity requiring an additional assessor.
- Whether serious workload issues or conflicts of interest for existing panel members have been identified, requiring an additional assessor for a particular subject area.
- The overall size of the sub-panel.
- The need to ensure that impact case studies are given fair consideration, with the intention of ensuring that there is sufficient user expertise to review the range of likely impact case studies that will be submitted.

- The potential for individual assessors to be appointed to two sub-panels, where there is a significant overlapping body of work expected (and, if appropriate, the potential to appoint existing user members to also act as assessors for other sub-panels).

33. Once appointed at each stage, the names of assessors will be published on www.ref.ac.uk alongside the panel membership. Assessors will be paid fees and expenses on the same basis as panel members.

34. As stated in REF 01.2010 (paragraph 58), as the REF progresses, main or sub-panels may recommend to the funding bodies the appointment of a small number of members or assessors in addition to the members already appointed and/or the assessors to be appointed through the processes outlined above, to provide further expertise where this is necessary and in accordance with the criteria in REF 01.2010.

Generic assessment criteria

35. As with previous RAEs, the assessment process is based on expert review. Each sub-panel will examine the submissions made in its UOA, taking into account all the evidence presented. Each sub-panel will use its professional collective judgement to form an overall view about each submission and recommend to the main panel an overall quality profile to be awarded to each submission made in its UOA.

36. The primary outcome of the panels' work will be an overall quality profile awarded to each submission, to be published in December 2014. An example overall quality profile is at Annex B of 'guidance on submissions', and further details about the published outcomes and feedback that panels will produce are at paragraphs 33-38.

37. In forming their overall quality judgements, the sub-panels will assess three distinct elements of each submission – outputs, impact and environment – against the following generic criteria:

- Outputs:** The sub-panels will assess the quality of submitted research outputs in terms of their 'originality, significance and rigour', with reference to international research quality standards. This element will carry a weighting of **65 per cent** in the overall outcome awarded to each submission.
- Impact:** The sub-panels will assess the 'reach and significance' of impacts on the economy, society and/or culture that were underpinned by excellent research conducted in the submitted unit, as well as the submitted unit's approach to

enabling impact from its research. This element will carry a weighting of **20 per cent**.

- Environment:** The sub-panels will assess the research environment in terms of its 'vitality and sustainability', including its contribution to the vitality and sustainability of the wider discipline or research base. This element will carry a weighting of **15 per cent**.

38. The generic definitions of the starred quality levels in the overall quality profile in each of the three sub-profiles – outputs, impact and environment – are at Annex A of 'guidance on submissions'. All sub-panels will apply these generic assessment criteria, level definitions and weightings for each element, in forming the overall quality profiles to recommend to their main panel.

39. In Part 2 of this document, the main panel statements of criteria provide a descriptive account of these generic assessment criteria, and of the starred level definitions for outputs, as they apply in each main panel. These are provided to inform their subject communities on how the panels will apply the criteria and definitions in making their judgements. These descriptive accounts should be read alongside, but do not replace, the generic definitions.

Outputs

40. An underpinning principle of the REF is that all types of research and all forms of research output across all disciplines shall be assessed on a fair and equal basis. Panels have been instructed to define criteria and adopt assessment processes that enable them to recognise, and treat on an equal footing, excellence in research across the spectrum of applied, practice-based, basic and strategic research, wherever that research is conducted; and for identifying excellence in different forms of research endeavour including interdisciplinary and collaborative research, while attaching no greater weight to one form over another.

41. 'Guidance on submissions' (Annex C) sets out the generic definition of research. Any assessable form of output that embodies research is eligible for assessment, as set out in paragraphs 105-117 of the same document and in paragraphs 43-44 below. The main panels' statements of criteria in Part 2 of this document provide further descriptive accounts of the diversity of research outputs that may be applicable in their UOAs. These are provided to inform their subject communities and should be read alongside, but do not replace, the generic definitions in 'guidance on submissions'.

Outputs 'pre-published' before 1 January 2008

Amendment to 'guidance on submissions':

Following consultation on the draft panel criteria, the definitions at paragraphs 112-113 of 'guidance on submissions' have been amended, and are now superseded by paragraphs 43-44 as indicated below.

These changes have been made in response to concerns raised that the evolving nature of publication practices, such as online 'pre-publication', would have meant that some research outputs published near the boundary between the 2008 RAE and the 2014 REF publication periods may not in practice have been eligible for submission to either exercise.

42. The principle for determining the relevant date for whether or not an output was produced within the REF publication period, and hence is eligible for submission, remains the date at which it first became publicly available (or, for confidential reports, was lodged with the relevant body), **except** as described in paragraph 43 below.

43. [This paragraph replaces paragraph 112 of 'guidance on submissions'] An output first published in its final form during the REF publication period that was 'pre-published' during calendar year 2007 – whether in full in a different form (for example, an 'online first' article or preprint), or as a preliminary version or working paper – is eligible for submission to the REF, **provided that** the 'pre-published' output was not submitted to the 2008 RAE.

44. [This paragraph replaces paragraph 113 of 'guidance on submissions'] Other than the exception described in paragraph 43 above, an output published during the REF publication period that includes significant material in common with an output published prior to 1 January 2008 is eligible only if it incorporates significant new material. In these cases:

- a. The panel may take the view that not all of the work reported in the listed output should be considered as having been issued within the publication period; and if the previously published output was submitted to the 2008 RAE, the panel will assess **only** the distinct content of the output submitted to the REF.
- b. Submissions should explain where necessary how far any work published earlier was revised to incorporate new material (see paragraph 127 of 'guidance on submissions').

Co-authored/co-produced outputs

45. Institutions may list co-authored or co-produced outputs only against individuals that made a substantial research contribution to the output. The main panel statements of criteria in Part 2 provide details of any information that panels may require in submissions, to establish that an individual made a substantial contribution to any co-authored outputs listed against them. Once this has been established, the panels will assess the quality of the output rather than the specific contribution of the individual.

46. Where two or more co-authors of an output are returned in **different** submissions (whether from the same HEI or different HEIs), any or all co-author(s) that made a substantial research contribution to the output may list the same output. In Part 2, the panels' criteria statements provide further guidance about the extent to which a co-authored output may be listed against more than one member of staff returned within the **same** submission.

47. A co-authored output will count as a single output in the assessment in respect of each author against whom it is listed.

Double-weighted outputs

48. Institutions may request that outputs of extended scale and scope be double-weighted (count as two outputs) in the assessment, according to the procedures set out in 'guidance on submissions' (paragraphs 123-126). In all UOAs, institutions may include a 'reserve' output with each output requested for double-weighting.

49. In Part 2, each main panel provides further guidance on how outputs of extended scale and scope are characterised in their disciplines, and on the process for requesting an output to be double-weighted.

Use of additional information and citation data

50. In all UOAs panels will assess outputs through a process of expert review. In doing so, panels may make use of additional information – whether provided by HEIs in their submissions, and/or citation data – to inform their judgements. In all cases expert review will be the primary means of assessment. In Part 2, the panels set out the following:

- a. Whether they will make any use of citation data in the assessment.
- b. Whether they require any of the types of additional information listed in 'guidance on submissions' (paragraph 127). Annex A provides a summary of the four main panels' requirements for such additional information.

c. How they will use any such information to inform their assessments.

51. Those panels using citation data will do so within the framework set out in 'guidance on submissions' (paragraphs 131-136). In particular, they will consider the number of times an output has been cited as additional information about the academic significance of submitted outputs. Panels will continue to rely on expert review as the primary means of assessing outputs, in order to reach rounded judgements about the full range of assessment criteria ('originality, significance and rigour'). They will also recognise the significance of outputs beyond academia wherever appropriate, and will assess all outputs on an equal basis, regardless of whether or not citation data is available for them. They will recognise the limited value of citation data for recently published outputs, the variable citation patterns for different fields of research, the possibility of 'negative citations', and the limitations of such data for outputs in languages other than English. Panels will have due regard to the potential equality implications of using citation data as additional information.

52. Given the limited role of citation data in the assessment, the funding bodies do not sanction or recommend that HEIs rely on citation information to inform the selection of staff or outputs for inclusion in their submissions (see 'guidance on submissions', paragraph 136).

53. No sub-panel will make use of journal impact factors, rankings or lists, or the perceived standing of the publisher, in assessing the quality of research outputs.

Impact

54. The generic definition of impact for the REF given in 'guidance on submissions' (Annex C) is broad, and any impact that meets this definition is eligible for assessment, in any UOA. The panels' statements of criteria and working methods in Part 2 provide some further descriptions of the diversity of impacts that may apply in their UOAs. These are provided to inform their subject communities: they should be read alongside, but do not replace, the generic definition in 'guidance on submissions'.

55. 'Guidance on submissions' sets out the generic submission requirements in relation to impact, including the number of case studies required in each submission (paragraph 156), the eligibility criteria for impact case studies (paragraphs 158-162), the requirement for a completed impact template (paragraphs 149-155), and a template and guidance on completing impact case studies (Annex G).

56. The main panel statements of criteria in Part 2 provide guidance on the forms of evidence that would be appropriate for submissions to include in the impact template (REF3a) and in case studies (REF3b). They also state how the panels will assure that the quality of research that underpins impact case studies is equivalent to at least two star quality.

57. Annex B of this document provides a template for REF3a.

Impact case studies that include confidential information

58. The following arrangements have been developed to enable institutions to submit case studies that include confidential information, with the agreement of the relevant organisation(s):

- a. All panel members, assessors, observers and the panel secretariat are bound by confidentiality arrangements. The current confidentiality and data security arrangements are at Annex E. Panel members' obligations during the assessment phase will be expanded on, to include specific arrangements for their treatment of confidential or sensitive information in submissions. These expanded arrangements will be published in advance of the submissions deadline.
- b. Where there are main or sub-panel members or assessors who HEIs believe would have a conflict of interest in assessing specific case studies, HEIs can identify these when making submissions, and the case studies will not be made available to such individuals.
- c. When making submissions, HEIs can identify specific case studies that either should not be published at all due to their confidential nature, or that should be redacted prior to publication. HEIs will be able to provide redacted versions suitable for publication after the close of submissions. Submitted case studies identified as 'not for publication' or for 'redaction' will be destroyed by the REF team once no longer required for assessment purposes.
- d. To protect panel members from potentially inappropriate exposure to intellectual property, sub-panel chairs may identify specific panel members who should not have access to, or should have access only to the redacted versions of, specific case studies that include commercially sensitive information.

59. In addition to the general arrangements set out in paragraph 58 above, there may be specific instances where research has had impacts of a sensitive nature where the material to be included in a case study could only be made available for assessment to

individuals with national security vetting clearance. The following arrangements apply, to enable the submission of such specific cases:

- a. The submitting HEI must request advance permission from the REF manager to submit such case studies, by providing outline information about the broad nature of the impact, the level of sensitivity of the intended material, and the level of clearance required of individuals to whom the full case study could be made available. These requests must be made by December 2012.
- b. Permission will be granted to submit such case studies where the REF manager considers, having consulted the relevant panel chairs, that:
 - i. The confidentiality arrangements outlined at paragraph 58 above are insufficient to enable the institution to submit the case study in the normal way for assessment by the panel; **and**
 - ii. It is practicable to identify existing panellists or appoint additional assessors who have the appropriate clearance and expertise, and do not have direct conflicts of interest, to assess the material. Additional assessors would only be appointed for this purpose, on the basis that they would also play a full role as assessors, taking part in the sub-panel's calibration exercise and assessing a range of material relevant to their expertise.
- c. Where permission is granted, arrangements will be made for the HEI to make the case study available securely to the appropriate panel members/assessors. Only the outline information will be made available to the panel and no details about these case studies will be published.
- d. HEIs should allow sufficient time for such case studies to go through the relevant organisation's internal release processes.

Environment

60. 'Guidance on submissions' sets out the generic requirements for the environment element of submissions, which comprise:

- a. Standard data on research doctoral degrees awarded, research income and research income-in-kind (REF4a/b/c).
- b. A completed environment template (REF5).

61. In Part 2, the panel criteria provide guidance on the forms of evidence that would be appropriate for submissions to include in the environment template (REF5), including any quantitative indicators that

should be provided within REF5. The template for REF5 is at Annex C.

62. REF panels will form an environment sub-profile by assessing the information submitted in REF5, informed by the data submitted in REF4a/b/c. When the REF team provides submissions to sub-panels, we will supply a standard analysis of the quantitative data submitted in REF4a/b/c, in respect of each submission in that UOA, and aggregated for all submissions in that UOA (see 'guidance on submissions', Annex H). Panels will consider these data within the context of the information provided in REF5, and within the context of the disciplines concerned. In Part 2, panels' criteria statements indicate how the data analyses will be used in informing the assessment of the research environment.

Staff and individual staff circumstances

Amendment to 'guidance on submissions':

Following consultation on the draft panel criteria, the arrangements concerning maternity, paternity and adoption leave in 'guidance on submissions' have been amended, and are now superseded by the guidance as stated below.

For completeness, the full set of arrangements concerning individual staff circumstances are set out in paragraphs 64-91 of this document, which replace paragraphs 88-95 of 'guidance on submissions'.

63. The criteria for determining which staff are eligible to be included in institutions' submissions are common for all UOAs, and are set out in 'guidance on submissions' (paragraphs 78-83).

64. Up to four research outputs must be listed against each member of staff included in the submission. A maximum of four outputs per researcher will provide panels with a sufficient selection of research outputs from each submitted unit upon which to base judgements about the quality of that unit's outputs. Consultations on the development of the REF confirmed that this is an appropriate maximum volume of research outputs for the purposes of assessment.

65. As a key measure to support equality and diversity in research careers, in all UOAs individuals may be returned with fewer than four outputs without penalty in the assessment, where their individual circumstances have significantly constrained their ability to produce four outputs or to work productively throughout the assessment period.

This measure is intended to encourage institutions to submit all their eligible staff who have produced excellent research.

66. HEIs are allowed to list the maximum of four outputs against any researcher, irrespective of their circumstances or the length of time they have had to conduct research. A minimum of one output must be listed against each individual submitted to the REF.

67. In order to provide clarity and consistency on the number of outputs that may be reduced without penalty, there will be a **clearly defined** reduction in outputs for those types of circumstances listed at paragraph 69a. Circumstances that are more **complex** will require a judgement about the appropriate reduction in outputs; these are listed at paragraph 69b. Arrangements have been put in place for complex circumstances to be considered on a consistent basis, as described at paragraphs 88-91.

68. Where an individual is submitted with fewer than four outputs and they do not satisfy the criteria described at paragraphs 69-91 below, any 'missing' outputs will be graded as 'unclassified'.

69. Category A and C staff may be returned with fewer than four outputs without penalty in the assessment, if one or more of the following circumstances significantly constrained their ability to produce four outputs or to work productively throughout the assessment period:

- a. Circumstances with a **clearly defined** reduction in outputs, which are:
 - i. Qualifying as an early career researcher (on the basis set out in paragraph 72 and Table 1 below).
 - ii. Absence from work due to working part-time, secondments or career breaks (on the basis set out in paragraphs 73-74 and Table 2 below).
 - iii. Qualifying periods of maternity, paternity or adoption leave (on the basis set out in paragraphs 75-81).
 - iv. Other circumstances that apply in UOAs 1-6, as defined at paragraph 86.

b. **Complex circumstances** that require a judgement about the appropriate reduction in outputs, which are:

- i. Disability. This is defined in 'guidance on submissions' Part 4, Table 2 under 'Disability'.
- ii. Ill health or injury.
- iii. Mental health conditions.

- iv. Constraints relating to pregnancy, maternity, paternity, adoption or childcare that fall outside of – or justify the reduction of further outputs in addition to – the allowances made in paragraph 75 below.
- v. Other caring responsibilities (such as caring for an elderly or disabled family member).
- vi. Gender reassignment.
- vii. Other circumstances relating to the protected characteristics listed at paragraph 190 of 'guidance of submissions' or relating to activities protected by employment legislation.

Clearly defined circumstances

70. Where an individual has one or more circumstances with a clearly defined reduction in outputs, the number of outputs that may be reduced should be determined according to the tables and guidance in paragraphs 72-86 below. All sub-panels will accept a reduction in outputs according to this guidance and will assess the remaining number of submitted outputs without any penalty.

71. In REF1b, submissions must include sufficient details of the individual's circumstances to show that these criteria have been applied correctly. The panel secretariat will examine the information in the first instance and advise the sub-panels on whether sufficient information has been provided and the guidance applied correctly. The panel secretariat will be trained to provide such advice, on a consistent basis across all UOAs. Where the sub-panel judges that the criteria have not been met, the 'missing' output(s) will be recorded as unclassified. (For example, an individual became an early career researcher in January 2011 but only one output is submitted rather than two. In this case the submitted output will be assessed, and the 'missing' output recorded as unclassified.)

Early career researchers

72. Early career researchers are defined in paragraphs 85-86 of 'guidance on submissions'. Table 1 sets out the permitted reduction in outputs without penalty in the assessment for early career researchers who meet this definition.

Table 1 Early career researchers: permitted reduction in outputs

Date at which the individual first met the REF definition of an early career researcher:	Number of outputs may be reduced by up to:
On or before 31 July 2009	0
Between 1 August 2009 and 31 July 2010 inclusive	1
Between 1 August 2010 and 31 July 2011 inclusive	2
On or after 1 August 2011	3

Absence from work due to part-time working, secondments or career breaks

73. Table 2 sets out the permitted reduction in outputs without penalty in the assessment for absence from work due to:

- a. part-time working
- b. secondments or career breaks outside of the higher education sector, and in which the individual did not undertake academic research.

Table 2 Part-time working, secondments or career breaks: permitted reduction in outputs

Total months absent between 1 January 2008 and 31 October 2013 due to working part-time, secondment or career break:	Number of outputs may be reduced by up to:
0-11.99	0
12-27.99	1
28-45.99	2
46 or more	3

74. The allowances in Table 2 are based on the length of the individual's absence or time away from working in higher education. They are defined in terms of total months absent from work. For part-time working, the equivalent 'total months absent' should be calculated by multiplying the number of months worked part-time by the full-time equivalent (FTE) **not** worked during those months. For example, an individual worked part-time for 30 months at 0.6 FTE. The number of equivalent months absent = $30 \times 0.4 = 12$.

Qualifying periods of maternity, paternity or adoption leave

75. Individuals may reduce the number of outputs by one, for each discrete period of:

- a. Statutory maternity leave or statutory adoption leave taken substantially during the period 1 January 2008 to 31 October 2013, regardless of the length of the leave.
- b. Additional paternity¹ or adoption leave lasting for four months or more, taken substantially during the period 1 January 2008 to 31 October 2013.

76. The approach to these circumstances is based on the funding bodies' considered judgement that the impact of such a period of leave and the arrival of a new child into a family is generally sufficiently disruptive of an individual's research work to justify the reduction of an output. This judgement was informed by the consultation on draft panel criteria, in which an overwhelming majority of respondents supported such an approach.

77. The funding bodies' decision not to have a minimum qualifying period for maternity leave was informed by the sector's clear support for this approach in the consultation; recognition of the potential physical implications of pregnancy and childbirth; and the intention to remove any artificial barriers to the inclusion of women in submissions, given that women were significantly less likely to be selected in former RAE exercises.

78. The funding bodies consider it appropriate to make the same provision for those regarded as the 'primary adopter' of a child (that is, a person who takes statutory adoption leave) as the adoption of a child and taking of statutory adoption leave is generally likely to have a comparable impact on a researcher's work to that of taking maternity leave.

79. As regards additional paternity or adoption leave, researchers who take such leave will also have been away from work and acting as the primary carer of a new child within a family. The funding bodies consider that where researchers take such leave over a significant period (four months or more), this is likely to have an impact on their ability to work productively on research that is comparable to the impact on those taking maternity or statutory adoption leave.

¹ 'Additional paternity or adoption leave' refers to leave of up to 26 weeks which is taken to care for a child where the person's spouse, partner or civil partner was entitled to statutory maternity leave or statutory adoption leave, and has since returned to work. The term 'additional paternity leave' is often used to describe this type of leave although it may be taken by parents of either gender. For the purposes of the REF we refer to this leave as 'additional paternity or adoption leave'.

80. While the clearly defined reduction of outputs due to additional paternity or adoption leave is subject to a minimum period of four months, shorter periods of such leave can be taken into account as follows:

- a. By seeking a reduction in outputs under the provision for complex circumstances, for example where the period of leave had an impact in combination with other factors such as ongoing childcare responsibilities.
- b. By combining the number of months for shorter periods of such leave in combination with other clearly defined circumstances, according to Table 2.

81. Any period of maternity, adoption or paternity leave that qualifies for the reduction of an output under the provisions in paragraph 75 above may in individual cases be associated with prolonged constraints on work that justify the reduction of more than one output. In such cases, the circumstances should be explained using the arrangements for complex circumstances.

Combining clearly defined circumstances

82. Where individuals have had a combination of circumstances with clearly defined reductions in outputs, these may be accumulated up to a maximum reduction of three outputs. For each circumstance, the relevant reduction should be applied and added together to calculate the total maximum reduction.

83. Where Table 1 is combined with Table 2, the period of time since 1 January 2008 up until the individual met the definition of an early career researcher should be calculated in months, and Table 2 should be applied.

84. When combining circumstances, only one circumstance should be taken into account for any period of time during which they took place simultaneously. (For example, an individual worked part-time throughout the assessment period and first met the definition of an early career researcher on 1 September 2009. In this case the number of months 'absent' due to part-time working should be calculated from 1 September 2009 onwards, and combined with the reduction due to qualifying as an early career researcher, as indicated in paragraph 83 above.)

85. Where an individual has a combination of circumstances with a clearly defined reduction in outputs **and** complex circumstances, the institution should submit these collectively as 'complex' so that a single judgement can be made about the appropriate reduction in outputs, taking into account all the

circumstances. Those circumstances with a clearly defined reduction in outputs should be calculated according to the guidance above (paragraphs 72-84).

Other circumstances that apply in UOAs 1-6

86. In UOAs 1-6, the number of outputs may be reduced by up to two, without penalty in the assessment, for the following:

- a. Category A staff who are junior clinical academics. These are defined as clinically qualified academics who are still completing their clinical training in medicine or dentistry and have not gained a Certificate of Completion of Training (CCT) or its equivalent prior to 31 October 2013.
- b. Category C staff who are employed primarily as clinical, health or veterinary professionals (for example by the NHS), and whose research is primarily focused in the submitting unit.

87. These allowances are made on the basis that the staff concerned are normally significantly constrained in the time they have available to undertake research during the assessment period. The reduction of two outputs takes account of significant constraints on research work, and is normally sufficient to also take account of additional circumstances that may have affected the individual's research work. Where the individual meets the criteria at paragraph 86, and has had significant additional circumstances – for any of the reasons at paragraph 69 – the institution may return the circumstances as 'complex' with a reduction of three outputs, and provide a justification for this.

Complex circumstances

88. Where staff have had one or more complex circumstances – including in combination with any circumstances with a clearly defined reduction in outputs – the institution will need to make a judgement on the appropriate reduction in the number of outputs submitted, and provide a rationale for this judgement.

89. As far as is practicable, the information in REF1b should provide an estimate – in terms of the equivalent number of months absent from work – of the impact of the complex circumstances on the individual's ability to work productively throughout the assessment period, and state any further constraints on the individual's research work in addition to the equivalent months absent. A reduction should be made according to Table 2 in relation to estimated months absent from work, with further constraints taken into account as appropriate. To aid

institutions the Equality Challenge Unit (ECU) will publish worked examples of complex circumstances, which will indicate how these calculations can be made and the appropriate reduction in outputs for a range of complex circumstances. These will be available at www.ecu.ac.uk/our-projects/REF from February 2012.

90. All submitted complex circumstances will be considered by the REF Equality and Diversity Advisory Panel (EDAP), on a consistent basis across all UOAs. The membership and terms of reference of the EDAP are available at www.ref.ac.uk under Equality and diversity. The EDAP will make recommendations about the appropriate number of outputs that may be reduced without penalty to the relevant main panel chairs, who will make the decisions. The relevant sub-panels will then be informed of the decisions and will assess the remaining outputs without any penalty.

91. To enable individuals to disclose the information in a confidential manner, information submitted about individuals' complex circumstances will be kept confidential to the REF team, the EDAP and main panel chairs, and will be destroyed on completion of the REF (as described in 'guidance on submissions', paragraphs 98-99).

Interdisciplinary research and work on the boundaries between UOAs

92. All main and sub-panels recognise the diverse nature of the disciplines that they cover and the UOAs described in Part 2 thus have no firm or rigidly definable boundaries. The panels recognise that aspects of research are naturally interdisciplinary or multidisciplinary or span the boundaries between individual UOAs, whether within a main panel or across main panels. The main panels and sub-panels welcome the submission of such research, in any relevant UOA.

93. Panels will assess on an equal basis submissions that reflect the work of administrative units such as departments, and submissions that do not map neatly onto departmental or other administrative structures within HEIs. In either case institutions will not be penalised if submissions contain some work that overlaps UOA boundaries. The main and sub-panels will apply the standards of excellence defined by the starred quality levels equally to research in interdisciplinary areas, to research that spans UOA boundaries and to research within distinct disciplines. The main and sub-panels consider that all such research is capable of displaying the highest standards of quality.

94. The procedures that all panels will apply in assessing interdisciplinary research and work that spans UOA boundaries are set out below. In Part 2, the UOA descriptors indicate where the panels might expect work submitted in their UOA to cross boundaries with other UOAs, but recognise that there may be other overlaps.

95. Across all UOAs, the members of sub-panels have experience of multidisciplinary and interdisciplinary work and of work which spans UOA boundaries, and where appropriate this expertise will be augmented with the appointment of assessors. Sub-panels are confident that they can assess such work, and their members have been deliberately selected to embrace broad-ranging experience in order to enable this. In addition, specific arrangements to support the assessment of interdisciplinary and multidisciplinary work and work at UOA boundaries will be employed as follows:

- a. Additional assessors will be appointed to extend the breadth and depth of expertise on sub-panels, following the survey of institutions' submission intentions. Assessors may be appointed to work with an individual sub-panel or with more than one sub-panel, where there is a significant overlap between UOAs.
- b. Main panel international and user members have a range of multidisciplinary and interdisciplinary expertise and, where their expertise is relevant and additional to that on a sub-panel, they will provide assessment advice, across a number of sub-panels if appropriate.
- c. The sub-panels' preferred approach is to assess work within the sub-panel to which it was submitted, and to appoint assessors where required to enable this. Exceptionally, in cases where in the sub-panel's opinion the sub-panel and its appointed assessors do not have the required expertise to assess specific parts of submissions, those parts of submissions may be cross-referred to other sub-panels for advice. The broad procedures for cross-referral are set out in 'guidance on submissions' (paragraph 75d), supplemented by information about how panels will operationalise the procedures, in paragraphs 96-100 below.

Cross-referral of parts of submissions

96. The submitting HEI may identify research outputs as interdisciplinary and/or request that specific parts of submissions should be cross-referred to another sub-panel for advice. The sub-panels will

consider such requests and the most appropriate means of assessing the material in question:

- a. Where the sub-panel considers there is sufficient expertise within the sub-panel to reach a robust judgement, the work will be assessed within the sub-panel. The sub-panels expect that this will normally be the case, except where the UOA descriptors in Part 2 indicate specific arrangements for cross-referral.
- b. In those instances where the sub-panel does not consider it contains the appropriate expertise, it may request that the work should be cross-referred to an appropriate sub-panel for advice (whether within or outside the same main panel). Sub-panels will make these requests to the REF manager, who will decide on the requests and cross-refer parts of submissions to other sub-panels as necessary.

97. In addition to considering requests made by institutions, sub-panels may identify specific parts of submissions that it considers should be cross-referred to another sub-panel, and request that such work should be cross-referred.

98. The sub-panels' approach to cross-referral will be discussed within the main panels, to ensure an appropriate consistency of approach.

99. Specific outputs or impact case studies may be cross-referred. Entire submissions may not. The original sub-panel will specify the scope of advice that it is seeking. This will be limited to advice relating to the quality of outputs or the 'reach and significance' of impact case studies. It may not include advice on other matters such as individual staff circumstances, the contribution of a co-author or double-weighting of outputs.

100. Where parts of submissions are cross-referred, advice will be sought and given on the basis of the assessment criteria and procedures for the UOA in which the work was originally submitted; cross-referred parts of submissions will be assessed on the same basis as work which is not cross-referred. The original sub-panel will retain responsibility for recommending the quality profile for all work that was submitted in its UOA.

Panel procedures

Panel competence to do business

101. Each main and sub-panel will consider, confirm and document its competence to do business at the start of each assessment meeting, taking into consideration the range of expertise as well as the numbers of panel members present.

102. Where there is a foreseen absence of a sub-panel chair at a main panel meeting, the main panel chair will consider whether it requires the attendance of the deputy sub-panel chair in order to be competent to do business. Attendance of the deputy sub-panel chair at main panel meetings will only be allowed in this case, and at the discretion of the main panel chair.

Dealing with absences of the chair

103. Each main and sub-panel will elect a deputy chair for planned and unforeseen absences of the chair, and in cases where there is a major conflict of interest for the chair. In the absence of the chair, the deputy will chair meetings of the panel. Where both the chair and deputy declare a conflict of interest in the same institution, the panel will nominate one of the remaining members to officiate in that instance.

Conflicts of interest

104. All REF main and sub-panel chairs, members, assessors, observers, secretaries and advisers will observe the arrangements for managing potential conflicts of interest set out at Annex D.

Confidentiality arrangements

105. All REF main and sub-panel chairs, members, assessors, secretaries, advisers and observers are bound by the terms of the REF confidentiality arrangements as detailed at Annex E. These arrangements have been put in place to enable the effective management and operation of the REF, and for the protection of panel members.

Main panel working methods

106. Each main panel has worked with its sub-panels to define common assessment criteria, as set out in Part 2. Main panels will work with their sub-panels throughout the assessment process to ensure that the published procedures are followed and that the overall assessment standards are applied consistently. Each main panel will also be responsible for deciding on the quality profile to be awarded to each submission in each of the UOAs in its remit, following recommendations made by the sub-panels.

107. Each main panel will work with its sub-panels as follows:

- a. **Main panel meetings.** The main panels will meet regularly throughout the planning and assessment phases to ensure close working and communication between sub-panels, to identify issues for early action, seek advice on handling specific cases, resolve emerging differences, share developing good practice and provide assurance on the procedures being followed. Sub-panel chairs will report to the main panel meetings on

general progress and on the implementation of working methods, particularly on issues where cross-panel consistency is significant, including:

- individual staff circumstances with a clearly defined reduction in outputs
- cross-referrals
- the range of output types
- impact case studies generally
- double-weighted outputs.

b. **Main panel member attendance at sub-panel meetings.**

The chair and members of the main panel will attend some meetings of sub-panels, to provide assurance that practices are consistent across the group of sub-panels:

- i. The international members of the main panel will in particular be engaged in sub-panel calibration processes and in the formation of quality profiles, to ensure consistency with international standards.
- ii. Main panel user members will in particular be engaged in briefing and calibration among sub-panel user members and assessors, providing leadership and focus for them, and supporting consistency of method and efficient use of expertise and knowledge in assessing impact case studies.
- iii. The main panel chair, sub-panel chairs and other main panel members will attend a sample of sub-panel meetings as agreed with the main panel, especially at an early stage in the assessment process.

c. **Advice and support to panels.**

A group of panel advisers and panel secretaries will be appointed to support the work of each main panel and its sub-panels. The secretariat will be briefed and trained in providing advice and guidance to their group of panels on the assessment procedures. Each member of the panel secretariat will work with several sub-panels within a main panel, providing consistent support and advice across them and providing feedback to the main panel chairs as appropriate.

d. **Cross-panel appointments.**

Individual academic assessors and user members or assessors may be appointed to work with more than one UOA, particularly where there are substantial overlaps between UOAs, to contribute to consistency in the assessment of work on the boundaries. In considering the selection and appointment of assessors, the main panel will identify where such boundaries could benefit from joint appointments.

e. **Calibration exercises.**

Each main panel and its sub-panels will undertake calibration exercises at an early stage in the assessment to develop a common understanding of the assessment standards and the application of the quality levels. International and user members of the main panel will participate in these exercises to assist in benchmarking judgements. The main panel chair and members of the main panel will attend a selection of the sub-panel meetings that deal with calibration exercises and main panels will receive and discuss reports from sub-panel chairs on these exercises.

f. **Reviewing emerging assessment outcomes.**

The main panels will review the emerging assessments at UOA level from their sub-panels during the course of the assessment phase, to support the consistent application of assessment standards. To facilitate this review the group of sub-panels within each main panel will adopt a common process for the formation of each of the three sub-profiles and a common sequence in which each sub-profile will be formed. In considering the emerging assessment outcomes from sub-panels, the main panels will seek advice from the international members about the application of internationally referenced standards, and from the user members about the assessment of impact.

g. **Deciding on the outcomes.**

When endorsing the quality profiles recommended by its sub-panels, each main panel will confirm that the published assessment procedures and criteria have been applied by the sub-panels, and that the sub-panels have consistently applied the overall standards of assessment. The main panels recognise that there may be a range of overall profiles across their respective UOAs reflecting the relative strength of the disciplines in the UK. Each main panel will require that any substantial differences in the overall profiles for each UOA are investigated and understood before approving the quality profiles recommended by its sub-panels. Where the recommendations of a given sub-panel for the overall results for that UOA are at substantial variance from the other sub-panels, the sub-panel chair will need to justify this to the main panel with reference to external evidence where available.

108. In addition to the main panels' approaches to ensuring consistency within each group of sub-panels, to support appropriate consistency across the four main panels:

- a. Generic assessment criteria and working methods across all main and sub-panels have been developed, as set out in 'guidance on submissions'

and in Part 1 of this document. These include standard weightings for each of the elements of the assessment (outputs, impact and environment), generic criteria for assessing each element, a consistent approach to individual staff circumstances, and consistent working methods and procedures.

- b. The four main panel chairs, the REF manager and the panel advisers will meet regularly throughout the assessment phase to discuss progress, identify issues for early action and inform the work of the main panels. This will include planning and reporting on calibration exercises and reviewing emerging and final outcomes across the four main panels. Specific actions will be identified to support consistency across those sub-panels in different main panels that have a significant overlap (for example, sharing of some of the material used in calibration exercises, and identifying opportunities for appointing assessors to work across those sub-panels).

Sub-panel working methods

109. Each sub-panel will be responsible for assessing submissions in its UOA, applying the published criteria and working methods, and recommending the outcomes to the main panel. This section sets out how the sub-panels will undertake their work at each stage of the assessment process.

Reviewing the sub-panel's collective expertise

110. In early 2013, the sub-panels will examine institutions' submission intentions and identify where additional assessors are required to extend the breadth and depth of expertise on the sub-panels as required to carry out the assessment. Assessors will be appointed prior to the start of the assessment to ensure that sub-panels have access to appropriate expertise to reach robust and fair judgements with regard to the material anticipated in submissions. The procedures for appointing assessors are described at paragraphs 28-34.

111. Sub-panels will consider the breadth of work in actual submissions early in the assessment phase in 2014 in order to confirm that the sub-panel and its appointed assessors collectively have the breadth and depth of expertise to assess the work submitted. Where necessary, sub-panels may recommend the appointment of further additional assessors or, exceptionally, request that specific parts of submissions should be cross-referred to another sub-panel (as described at paragraphs 96-100 and indicated, where appropriate, in the UOA descriptors in Part 2).

112. Each sub-panel will include user members and assessors, with appropriate expertise to contribute fully to the assessment of the impact element of submissions, alongside academic members of the sub-panels. The user members and assessors will be appropriately briefed (for example, with respect to equality and diversity) alongside the sub-panel members and academic assessors, and may also receive additional training to ensure that they are fully cognisant of the REF process.

Allocating work

113. The sub-panel chair, consulting with the deputy chair and sub-panel members as appropriate, will allocate work to members and assessors with appropriate expertise, taking account of any conflicts of interest (see Annex D). This allocation may be at the level of individual or groups of outputs, individual or groups of impact case studies, whole impact templates and whole environment templates.

114. Each member and assessor on a sub-panel will be allocated a significant volume of material to assess, so that each member and assessor makes a significant contribution to the sub-panel's overall recommendations.

115. Each impact case study will be allocated to at least one academic member and one user member or assessor, wherever practicable. User assessors will be allocated impact case studies and impact templates only. User members may – in addition to impact case studies and impact templates – be allocated environment templates and/or outputs in particular areas where they are willing and have appropriate expertise to assess them.

116. Where a sub-panel cross-refers parts of a submission to another sub-panel for advice, the procedures at paragraphs 96-100 will be followed. Where a sub-panel refers outputs in a language other than English to external specialist advisers, the procedures in 'guidance on submissions' paragraphs 128-130 will be followed.

Calibration of assessment standards

117. Sub-panels will undertake early calibration exercises with respect to outputs and impact, to ensure sub-panel members and assessors develop a common understanding of the quality levels. The calibration exercises will be based on samples of a range of outputs (whether submitted to the REF or sourced from elsewhere by panel members) and on samples of submitted impacts.

118. In addition to sub-panel members, the assessors who will subsequently be involved in assessing either outputs or impact will take part in the relevant calibration exercises.

119. After these initial calibration exercises, the sub-panels will continue to discuss the application of the quality levels and will keep under review the scoring patterns of members and assessors, to ensure consistency in the sub-panel's standards of assessment.

Assessing submissions

120. Sub-panels will assess all of the components of submissions: research outputs, impact and the research environment. This reflects an underpinning principle that sub-panels will assess each submission in the round. They will not make collective judgements about the contributions of individual researchers. Sub-panels will make collective judgements about the range of submitted information in order to develop the sub-profiles and recommend the overall quality profile, for each unit being assessed.

121. All the outputs listed in submissions will (unless prevented by reasons beyond a sub-panel's control) be examined by panel members and/or assessors. They will be examined with a level of detail sufficient to contribute to the formation of a robust sub-profile for all the outputs in that submission. In doing so panels will take into account additional information where relevant (as described in Part 2, Section 2), but expert review of the outputs will remain the primary means of assessing them.

122. Sub-panels will examine all the submitted case studies and impact templates, and all the information submitted in the environment template together with the standard data analysis.

123. Sub-panels will meet during the course of the assessment phase to discuss their assessment of each element of submissions. Assessors will attend those meetings at which the relevant element of submissions is being discussed, so that they contribute fully and on an equal basis with members, to the development of the relevant sub-profile.

124. During the course of the assessment, the sub-panels will be asked to draw attention to any data they would like the REF team to verify through an audit. These data will be investigated by the REF team (in addition to the REF team auditing a proportion of submitted information from each institution, as described in 'guidance on submissions', paragraphs 67-72).

Developing and recommending quality profiles

125. Sub-panels will develop a sub-profile for each of the three elements – outputs, impact and environment – of each submission.

126. **Outputs sub-profile.** Each output listed in a submission will be assessed and assigned a quality level: 4*, 3*, 2*, 1* or 'unclassified'. The outputs sub-profile will be formed by calculating the percentage of outputs listed in a submission that are assigned at each quality level, with each output contributing an equal proportion to the sub-profile. The following exceptions and rules apply:

- a. Any submitted output that is found to be ineligible will be entered into the outputs sub-profile as 'unclassified'.
- b. Where a submitted member of staff is found to be ineligible, that member of staff and the outputs listed against them will be removed from the submission; those outputs will not contribute to the outputs sub-profile.
- c. Where fewer than four outputs are listed against an individual and the criteria for individual staff circumstances (described at paragraphs 69-91) are not satisfied, any 'missing' outputs will be entered into the outputs sub-profile as 'unclassified'.
- d. Where a request to double-weight an output has been accepted by the sub-panel, the quality level assigned to the output will be entered twice into the outputs sub-profile. Where a request to double-weight an output is not accepted by the sub-panel and no reserve output has been submitted, the output will contribute to the sub-profile as a single output and one instance of 'unclassified' will be entered into the outputs sub-profile.
- e. Where the sub-panel determines that the submitted member of staff against whom a co-authored output is listed did not make a substantial contribution to the output, the output will be entered into the outputs sub-profile as 'unclassified'.
- f. Where a co-authored output has been listed against two individuals within a submission and the panel accepts the justification for this, the quality level assigned to the output will be entered twice into the outputs sub-profile (once in respect of each member of staff against whom it is listed). Where the sub-panel does not accept the justification, one instance of the output will be assigned a quality level and the other will be entered into the sub-profile as 'unclassified'.

127. **Impact sub-profile.** Each case study included in a submission will be assessed according to the definitions of the starred levels in 'guidance on submissions' (Annex A, Table A3). Any case studies that are 'missing' from a submission (that is, where

fewer case studies have been submitted than the number required, as specified in Table 1 of 'guidance on submissions') will be graded as 'unclassified'. Sub-panels will form a graduated impact sub-profile for each submission by attributing a weighting of 20 per cent to the impact template (REF3a) and 80 per cent to the case studies (REF3b), with each case study within a submission making an equal contribution to this.

128. Environment sub-profile: Sub-panels will assess the information provided in the environment template, and consider the environment data within the context of that information. Sub-panels will build up a graduated sub-profile by assessing the range of elements in each submission, using the starred levels defined in 'guidance on submissions' (Annex A, Table A4). In Part 2 of this document, each main panel indicates the weighting that the sub-panels will attach to each component of the environment template.

129. The three sub-profiles will be combined into an overall quality profile, using the weightings and method described in Annex B of 'guidance on submissions'.

130. In recommending the overall quality profile for each submission to its main panel, each sub-panel will:

- a. Reach a collective decision, within the framework of the exercise and in accordance with the published statement of criteria and working methods. Each sub-panel will debate the reasoning behind the quality profiles in sufficient detail to reach collective conclusions, and will make recommendations to the main panel on the basis of its collective judgement. Each sub-panel will seek to achieve a consensus on all the overall quality profiles to be recommended to its main panel. If a consensus cannot be achieved, decisions will be taken by majority vote, with the chair holding a casting vote.
- b. Confirm to the main panel that each submission has been assessed against the published criteria for that UOA (including in cases where parts of submissions have been cross-referred to other sub-panels for advice) and according to the published procedures.
- c. Confirm that each submission has been examined in sufficient detail to form robust judgements, and that appropriate expertise has been deployed in assessing submissions.

Recording panel decisions

131. The panel secretariat will minute details of the procedures followed by panels, and these will be published after the conclusion of the exercise. Panels will not make or record collective judgements about individuals' contributions to submissions. The panel secretariat will record the panels' collective judgements about the sub-profiles and overall quality profiles in respect of each submission.

Part 2A

Main Panel A criteria

Main Panel A covers the following sub-panels:

- 1 Clinical Medicine
 - 2 Public Health, Health Services and Primary Care
 - 3 Allied Health Professions, Dentistry, Nursing and Pharmacy
 - 4 Psychology, Psychiatry and Neuroscience
 - 5 Biological Sciences
 - 6 Agriculture, Veterinary and Food Science
-

The following sections set out the criteria that Main Panel A and its sub-panels will apply in assessing submissions. This should be read alongside the guidance provided in REF 02.2011, 'Assessment framework and guidance on submissions' (hereafter 'guidance on submissions') and the generic statement of criteria and working methods provided in Part 1 of this document.

Section A1: Submissions and units of assessment

Section A2: Assessment criteria: outputs

Section A3: Assessment criteria: impact

Section A4: Assessment criteria: environment

Section A1: Submissions and units of assessment

Introduction

1. The units of assessment (UOAs) within Main Panel A's remit cover research into the practices, services, policies, education and underpinning science relevant to these disciplines, and associated methodological and theoretical advancement. The UOAs cover a full spectrum of research approaches, ranging from qualitative to quantitative, as well as theoretical and mixed method studies. This includes multi-disciplinary research and research that informs these areas from a range of stakeholders' perspectives, including research users and service users.
2. Research that has an international or developing country context can be included in submissions, where it is relevant to the UOAs.

Unit of assessment descriptors and boundaries

UOA 1: Clinical Medicine

3. The UOA includes research into all aspects of Clinical Medicine and its cognate sub-disciplines except for bodies of research more explicitly linked to UOA 2 (Public Health, Health Services and Primary Care), UOA 3 (Allied Health Professions, Dentistry, Nursing and Pharmacy), UOA 4 (Psychology, Psychiatry and Neuroscience) and UOA 5 (Biological Sciences).
4. The sub-panel expects submissions that demonstrate integrated strategies relating to all aspects of medical research. Submissions may cover the full range of research related to medicine, from basic underpinning studies through experimental medicine to clinical trials. In view of the breadth of research covered by this UOA, the sub-panel expects some degree of overlap with UOA 4 (Psychology, Psychiatry and Neuroscience) in the fields of neurology and ophthalmology, and with UOA 5 (Biological Sciences) in the area of basic biological sciences underpinning medical research.

UOA 2: Public Health, Health Services and Primary Care

5. The UOA includes research into all aspects of public health, health services and/or primary care and all their cognate disciplines. The research may be applied, theoretical or methodological research from any relevant health or healthcare discipline.
6. The sub-panel expects submissions in this UOA from all areas of public health and epidemiology (from aetiology to intervention), health services and primary care, including clinical trials, health social

sciences, health policy research and health care management, and from other related disciplines having a relevance to the research covered by the UOA. It recognises the breadth and diverse range of single, multi-disciplinary and/or multi-professional research across public health, health services and primary care.

UOA 3: Allied Health Professions, Dentistry, Nursing and Pharmacy

7. The UOA includes research into all aspects of the disciplines of allied health professions, dentistry, nursing, midwifery, and pharmacy. Its boundaries include research in underpinning science, laboratory-based work, applied clinical research and research into public health, social care and health promotion. Research into psychosocial, philosophical and ethical aspects of health care, as well as education, policy and methodology relevant to these disciplines, is also included. It is anticipated that such work will use qualitative, quantitative and mixed methods, as well as theoretical approaches.
8. For allied health professions, submitted research is expected to underpin clinical practice, social care, and policy development and implementation, and includes research in biomedical and nutritional sciences, vision sciences, optometry, orthoptics, diagnostic imaging, therapeutic radiography, audiology, podiatry, occupational therapy, physiotherapy, speech and language therapy, clinical linguistics, paramedics, prosthetics/orthotics, music therapy, drama therapy, and arts therapy. For dentistry it includes research in basic and applied dental, oral and craniofacial sciences encompassing all the related clinical disciplines, primary dental care, biomaterials sciences relevant to oral and craniofacial science, and other such sciences relevant to dentistry. For nursing and midwifery it includes specialist, community and public health nursing, and all the contexts within which they operate. For pharmacy it includes all aspects of the design, synthesis, formulation, action and use of pharmaceuticals (including biological and nutraceuticals), to include medicinal chemistry, pharmaceuticals, pharmacology, clinical pharmacy, underlying biomedical science, and the practice of pharmacy.
9. Submissions may cover the full translational range of research, from basic underpinning studies through to implementation research. It is expected that there will be some overlap with UOA 1 (Clinical Medicine), UOA 2 (Public Health, Health Services and Primary Care), UOA 4 (Psychology, Psychiatry and Neuroscience), UOA 5 (Biological Sciences) in the areas of biomedical sciences and pharmacology, and UOA 6 (Agriculture, Veterinary and Food Science).

UOA 4: Psychology, Psychiatry and Neuroscience

10. The UOA includes research into all aspects of psychology, neuroscience and its clinical specialities, and psychiatry.
11. For psychology the sub-panel expects submissions in this UOA covering the full range of the discipline from all areas of psychology, plus all aspects of neuroscience from the molecular through to whole-system behavioural research, genetics and varieties of imaging, incorporating neurodevelopmental as well as adult work. It will include work on the understanding and treatment of all types of brain injury, stroke, neurodegenerative and neurodevelopmental disorders, as well as all aspects of psychiatry including biological, community, developmental, genetic, and neuropharmacological research.
12. The sub-panel is aware of the breadth of its remit, which will cover submissions that inform, or have the potential to inform, practice as well as submissions reporting theoretical and methodological advances in basic research. It is expected that there will be some overlap with UOA 1 (Clinical Medicine), UOA 2 (Public Health, Health Services and Primary Care), UOA 3 (Allied Health Professions, Dentistry, Nursing and Pharmacy), UOA 5 (Biological Sciences), and UOA 6 (Agriculture, Veterinary and Food Science).

UOA 5: Biological Sciences

13. The UOA includes research into all aspects of biological and biomedical sciences that encompasses the full spectrum of the basic and applied biology of all organisms, at all levels of organisation from the molecular to the ecosystem, employing a diversity of approaches including experimental, theoretical, computational and mathematical. The UOA also covers all aspects of the biomedical sciences, including biochemistry, physiology, pharmacology and anatomy at the genetic, molecular, cellular, organ system and whole-organism level. It includes work relevant to the nervous and cardiovascular systems at all levels of enquiry.
14. Submissions may include work which is on the boundaries of other UOAs in Main Panel A, such as: UOA 1 (Clinical Medicine); UOA 3 (Allied Health Professions, Dentistry, Nursing and Pharmacy); UOA 4 (Psychology, Psychiatry and Neuroscience); UOA 6 (Agriculture, Veterinary and Food Science); as well as UOAs in other main panels, such as: UOA 7 (Earth Systems and Environmental Sciences); UOA 8 (Chemistry); UOA 9 (Physics); UOA 10 (Mathematical Sciences); UOA 11 (Computer Science and Informatics); UOA 17 (Geography, Environmental Studies and Archaeology) and UOA 26 (Sport and Exercise Sciences, Leisure and Tourism).

UOA 6: Agriculture, Veterinary and Food Science

15. The UOA includes research into all aspects of agriculture, veterinary and food science, including food security, sustainability and environmental aspects, basic through to applied research, and interdisciplinary research with significant content in any of these areas of science.
16. The sub-panel expects submissions in this UOA from all areas of relevant science. For agricultural science, this includes submissions of primary relevance to the animal, plant and crop, soil, water, and atmospheric sciences that are associated with agriculture; as well as forestry, fisheries, horticulture, and related land and water use. It includes mathematical modelling and biostatistics at a range of scales, and related social sciences. It includes production systems, biotechnology, sustainability and environmental aspects, biofuels, marketing of products, water quality and use, land use, integrated pest and disease management, and waste treatment. For veterinary science this includes submissions of primary relevance to subjects underpinning the practice of veterinary medicine and surgery, and the statutory responsibilities of the veterinary profession. It includes all clinical, basic and applied aspects relevant to the normal and abnormal function of animals, their health, welfare, behaviour, productivity and diseases as individuals and populations; and their role in human society as providers of food, companions, participants in sport, models for the human condition, sources of disease, and fellow occupants of the natural environment. For food science this includes submissions of primary relevance to food science and technology (including chemistry, physics, microbiology, engineering and processing), human nutrition, diet and health, food biotechnology, food safety, packaging, sensory science, and food consumer science.

Interdisciplinary research and work on the boundaries between UOAs

17. The main panel recognises that the UOAs described above do not have firm or rigidly definable boundaries, and that aspects of research are naturally interdisciplinary or multi-disciplinary or span the boundaries between individual UOAs, whether within the main panel or across main panels.
18. The arrangements for assessing interdisciplinary research and submissions that span UOA boundaries – including through the appointment of assessors and, where necessary, cross-referring specific parts of submissions between sub-panels – are common across all main panels and are described in Part 1, paragraphs 92-100.

Pedagogic and philosophical research

19. It is expected that research on pedagogy or medical or veterinary education will be submitted in UOA 25 (Education) and research on medical ethics will be submitted in UOA 32 (Philosophy), although applied research which conforms to the UOA descriptor may be submitted in UOA 2 (Public Health, Health Services and Primary Care), and research on the philosophical and ethical aspects of health care and on education relevant to its disciplines may be submitted in UOA 3 (Allied Health Professions, Dentistry, Nursing and Pharmacy).

20. If submitted in UOAs within Main Panel A, research on pedagogy, medical or veterinary education and on medical ethics may be cross-referred to Sub-panel 25 (Education) or Sub-panel 32 (Philosophy), as appropriate.

Multiple submissions

21. 'Guidance on submissions' (paragraphs 50-52) sets out the arrangements whereby institutions may exceptionally, and only with prior permission from the REF manager, make more than one submission (multiple submissions) in the same UOA. These exceptions include situations where a sub-panel considers there is a case for multiple submissions in its UOA, given the nature of the disciplines covered.

22. Sub-panel 3 considers that there is a case, based on the nature of the disciplines covered, for multiple submissions in its UOA (Allied Health Professions, Dentistry, Nursing and Pharmacy). Such requests will be considered according to the procedures and criteria at paragraph 50d of 'guidance on submissions'. In addition, where a multiple submission in UOA 3 is granted, the sub-panel would not expect any of the same outputs or case studies to be listed in each of the submissions from the HEI.

23. Sub-panels 1, 2, 4, 5 and 6 do not consider that there is a case for multiple submissions in their UOAs, based on the nature of the disciplines covered, and do not expect to receive requests for multiple submissions in these UOAs (other than for the reasons stated at paragraphs 50a and 50c of 'guidance on submissions').

24. The main panel encourages institutions to structure their submissions using research groups, noting that there is no expectation that submissions will necessarily comprise a single coherent body of research. Where submissions are structured using research groups, the sub-panels' written qualitative feedback to institutions will highlight individual research groups of particular note. In light of this, the main panel expects single submissions to be

submitted to UOAs 1, 2, 4, 5 and 6, thereby enhancing opportunities for demonstrating the connections between the diverse bodies of research within these UOAs.

Section A2: Assessment criteria: outputs

Output types

25. The main panel welcomes all forms of research output that fulfil the eligibility criteria for the REF (set out in paragraphs 105-117 of 'guidance on submissions' and in Part 1, paragraphs 43-44 of this document). In assessing research outputs, all forms of output will be considered equitably, with no distinction being made between the type of output submitted nor whether the output is made available electronically or in a physical form. Equal recognition will be given to all forms of research that meet the REF definition of research, whether basic or applied.

26. All types of output that embody research as defined in 'guidance on submissions' (Annex C), will be eligible for submission, including:

- original research findings
- research reports
- evidence synthesis, including systematic reviews, analyses, meta-analyses, metasyntheses
- review articles or text books and similar scholarly works only where they add a significant new perspective
- research-based case studies
- methodological and theoretical work
- technology appraisals.

27. Research outputs may be published in formats including, but not limited to:

- papers in peer-reviewed journals
- papers in conference proceedings
- research reports to government departments, charities, the voluntary sector, professional bodies, industry or commerce
- monographs
- books and book chapters
- intellectual property (whether granted as patents, published patent applications or other forms of intellectual property)
- other applied research outputs, including but not limited to: new materials; software packages; images and devices; research derived from development, analysis and interpretation of bio-informatic databases; work published in non-print media.

28. These are provided as examples of types of output that might be specifically relevant to Main Panel A but should not be regarded as an exhaustive list.

29. Where an output is not eligible or does not embody research as defined in 'guidance on submissions' (Annex C), it will be graded as 'unclassified'.

Outputs with significant material in common

30. As stated in 'guidance on submissions' (paragraph 108), where two or more research outputs listed against an individual in a submission include significant material in common, the sub-panels may decide to assess each output taking account of the common material only once, or judge that they should be treated as a single output if they do not contain sufficiently distinct material.

31. Where a submitted output includes significant material in common with an output published prior to 1 January 2008, as stated in Part 1 paragraph 44, submissions should explain how far the earlier work was revised to incorporate new material (maximum 100 words).

Co-authored/co-produced outputs

32. Institutions may list co-authored outputs only against individual members of staff who made a substantial research contribution to the output.

33. Paragraphs 34-37 and 42 set out the information required in submissions to UOAs 1 to 6, to establish that an individual made a substantial contribution to any co-authored outputs listed against them.

Information required about the author's contribution

34. For all sub-panels, no additional information is required in form REF2 about the author's contribution to co-authored outputs where either:

- there are fewer than six authors **or**
- there are six or more authors but the submitted member of staff against whom the output is listed is identified as either lead or corresponding author (regardless of the number of authors).

35. The main panel understands that there are a variety of publication practices by different journals and different research teams in relation to author order. Whether first author, last author, alphabetical or some other order, Main Panel A considers that the lead and corresponding authors should be easily identifiable within the submitted output. Also, the main panel recognises that the role of lead author may be shared. Provided the submitted member of staff is clearly identifiable within the output as lead or corresponding author, including any instances of where that role may be shared with other authors, no additional information is required within REF2.

36. For each submitted co-authored output where there are six or more authors **and** where the submitted member of staff is not identified as the lead or corresponding author, institutions are required to affirm the substantial contribution to the research by the submitted member of staff. This should be done by entering the following statements in REF2, deleting those elements that do not apply, but including at least one element from each of a and b:

- a. The author made a substantial contribution either to the conception and design of the study; or to the organisation of the conduct of the study; or to carrying out the study (including acquisition of study data); or to analysis and interpretation of study data.

and

- b. The author helped draft the output; or critique the output for important intellectual content.

37. No further text should be provided in REF2 about the author's contribution to the output. Where necessary, further information may be requested through an audit to verify that an author made a substantial contribution to the output.

Assessing co-authored outputs

38. Once the sub-panel has established that the author's contribution to a co-authored output is substantial, according to the above guidance, the sub-panel will assess the quality of the output, taking no further regard of the submitted member of staff's individual contribution. The main panel wishes to emphasise that it is the quality of the outputs that is being assessed, and that neither the order of authorship nor the number of authors will be considered important in the assessment of quality. As such, the main panel will give equal weighting to individual and collaborative/team efforts.

39. Where a sub-panel judges that the submitted member of staff has not made a substantial contribution to a co-authored output listed against that individual, the sub-panel will grade that occurrence of the output as 'unclassified'.

Listing a co-authored output multiple times within the same submission

40. Where two or more co-authors of an output are returned in **different** submissions (whether from the same HEI or different HEIs), any or all co-author(s) that made a substantial research contribution to the output may list the same output.

41. The main panel considers that the fullest and most favourable impression of research will normally be gained when each co-authored output is listed once within a submission. However, the main panel

recognises that there may be very exceptional circumstances where there are substantial pieces of co-authored work, reflecting large-scale or intensive collaborative research, that institutions wish to list against more than one member of staff returned within **the same** submission. Therefore, co-authored outputs from substantial pieces of research that reflect collaboration within the institution may exceptionally be listed against a maximum of two members of staff in a submission.

42. Where a co-authored output is exceptionally listed against two members of staff returned within the same submission, this must be identified and a justification must be provided in REF2, irrespective of the number of co-authors (maximum 100 words). This should indicate the scale of the research, and describe the distinct and substantial contribution to the research of each author the output is listed against.

43. If a sub-panel does not accept the justification for listing the output twice, one occurrence of the output will be graded as 'unclassified'.

Double-weighted outputs

44. The sub-panels recognise that there may be some exceptional cases where the combined scale of academic investment in the research activity and the intellectual scope of the research output is considerably greater than the disciplinary norm, thereby limiting the capacity of an individual researcher to produce four outputs within the assessment period. Considering the patterns of publication across Main Panel A's areas of activity, the sub-panels anticipate that single-authored monographs may embody work of this nature. The sub-panels will consider requests for such outputs to be double-weighted in the assessment; in other words for it to count as two outputs in both a submission and in the calculation of the outputs sub-profile.

45. Institutions may request that a single-authored monograph is treated as double-weighted using a supporting statement to justify the claim (maximum 100 words). Sub-panels will assess the claim for double-weighting separately from assessing the quality of the output, and there is no presumption that double-weighted outputs will be assessed at the higher quality grades.

46. As the number of outputs submitted for assessment cannot sum to more than four per staff member submitted, no more than two outputs listed against an individual may be requested for double-weighting.

47. In requesting double-weighting of an output, institutions must either reduce the number of outputs listed against that individual by one per double-weighting request, or identify one output as a reserve

for each double-weighting request. Reserve outputs will be assessed only if the sub-panel does not accept the request for double-weighting. If no reserve output is included and the request for double-weighting is not accepted by a sub-panel, then the 'missing' output will be graded as 'unclassified'.

48. Sub-panels will double-weight an output only if a request is made by the submitting institution, and is accepted by the sub-panel. Sub-panels will not double-weight any output for which a request has not been made by the institution.

Additional information on outputs

Information about the research process and/or content

49. For non-text or practice-based outputs (including patents, software and standards documents), all sub-panels welcome the submission of a description in REF2 of the research process and research content, where this is not evident within the output (maximum 300 words), as described in 'guidance on submissions' (paragraph 127a).

Factual information about significance

50. The sub-panels **do not** wish to receive additional information about the significance of outputs ('guidance on submissions', paragraph 127b) and, if received, will take no account of any statement beyond those that have been requested by Main Panel A, as summarised in Annex A.

Other information

51. A summary of all the additional information about outputs required by Main Panel A is at Annex A.

Citation data

52. In accordance with 'guidance on submissions' (paragraphs 133-136), all sub-panels within Main Panel A will make use of citation data, where available and appropriate, as an indicator of academic significance to inform the assessment of output quality.

53. Where available on the Scopus citation database, the REF team will provide citation counts for submitted outputs, at a pre-determined date and in a standard format. The sub-panels will also receive discipline-specific contextual information about citation rates for each year of the assessment period to inform, if appropriate, the interpretation of citation data.

54. Citation data will inform the assessment as follows:

- a. Where available and appropriate, citation data will be considered as a positive indicator of the academic significance of the research output. This will only be one element to inform peer-review judgements about the quality of the output, and will not be used as a primary tool in the assessment.
- b. The sub-panels recognise that the citation count is sometimes, but not always, a reliable indicator. They are also aware that such data may not always be available, and the level of citations can vary across disciplines and across UOAs. Sub-panels will be mindful that citation data may be an unreliable indicator for some forms of output (for example, relating to applied research) and for recent outputs. Sub-panels will take due regard of the potential equalities implications of using citation data.
- c. Sub-panels will use citation data only where provided by the REF team, and will not refer to any additional sources of bibliometric analysis, including journal impact factors.

Criteria and level definitions

55. This section provides a descriptive account of how the sub-panels will interpret and apply the generic criteria for assessing outputs and the starred quality levels. This descriptive account expands on and complements the generic criteria and definitions in Annex A, Table A2 of 'guidance on submissions', but does not replace them.

56. In assessing outputs, the sub-panels will look for evidence of the quality of the output in terms of its originality, significance and rigour, and will apply the generic definitions of the starred quality levels.

57. The sub-panels will look for evidence of some of the following types of characteristics of quality, as appropriate to each of the starred quality levels:

- scientific rigour and excellence, with regard to design, method, execution and analysis
- significant addition to knowledge and to the conceptual framework of the field
- potential and actual significance of the research
- the scale, challenge and logistical difficulty posed by the research
- the logical coherence of argument
- contribution to theory-building

- significance of work to advance knowledge, skills, understanding and scholarship in theory, practice, education, management and/or policy
- applicability and significance to the relevant service users and research users
- potential applicability for policy in, for example health, healthcare, public health, animal health or welfare.

58. Unless there is sufficient evidence of at least one of the above, or the definition of research used for the REF is not met, research outputs will be graded as 'unclassified'.

59. The sub-panels will use citation information, where available, as part of the indication of academic significance to inform their assessment of output quality. These arrangements are discussed at paragraphs 52-54.

Section A3: Assessment criteria: impact

Introduction

60. This section should be read alongside ‘guidance on submissions’ (in particular, Section 3, Annex A, Annex C and Annex G), which sets out the generic definition of impact for the REF, the requirements for submitting impact case studies and a completed impact template, the associated eligibility guidelines, and the generic assessment criteria and level definitions. The sub-panels will assess impact in accordance with this framework.

61. This section provides information which adds to and complements, but does not replace, ‘guidance on submissions’ with the intention of assisting institutions in developing their submissions for this new element of research assessment.

Case studies: range of impacts

62. The impact of research within Main Panel A is broad. The main panel welcomes case studies which describe impacts that have provided benefits to one or more areas of the economy, society, culture, public policy and services, health, production, environment, international development or quality of life, whether locally, regionally, nationally or internationally.

63. Impacts can be manifested in a wide variety of ways including, but not limited to: the many types of beneficiary (individuals, organisations, communities, regions and other entities); impacts on products, processes, behaviours, policies, practices; and avoidance of harm or the waste of resources.

64. Examples are provided in Table A1 as a guide to the range of potential impacts that may be eligible as case studies. The list is not exhaustive or exclusive, and does not rank examples in any way. The main panel acknowledges that within its remit impact may take many forms and occur in a wide range of spheres, and the sub-panels will consider any impact that meets the general definition of impact given in ‘guidance on submissions’ (Annex C).

65. HEIs are not expected to align submitted case studies specifically with the types of impact listed in Table A1, and an impact case study may describe more than one type of impact arising from a single activity, for example, a new drug can generate both health and economic impact.

66. The sub-panels expect institutions to submit their strongest case studies, regardless of the type of impact they describe. The sub-panels do not necessarily expect submissions to provide impact case studies that are a proportionate representation of the spread

of research activity across the whole submitted unit. However, as part of the impact template, institutions should describe how they have sought to enable and/or facilitate the achievement of impact arising from their research, and describe the relationship between this support and the case studies submitted (see paragraph 81).

Table A1 Examples of impact²**Impacts on health and welfare:**

Impacts where the beneficiaries are individuals and groups (both human and animals) whose quality of life has been enhanced (or potential harm mitigated)

- Outcomes for patients or related groups have improved.
- Public health and well-being has improved.
- A new clinical or lifestyle intervention (for example, drug, diet, treatment or therapy) has been developed, trialled with patients, related or other groups (for example, prisoners, community samples), and definitive (positive or negative) outcome demonstrated.
- A new diagnostic or clinical technology has been adopted.
- Disease prevention or markers of health have been enhanced by research.
- Animal health and welfare has been enhanced by research.
- Care and educational practices have changed.
- Clinical, dietary or healthcare guidelines have changed.
- Healthcare training guidelines have changed.
- Decisions by a health service or regulatory authority have been informed by research.
- Public awareness of a health risk or benefit has been raised.
- Public engagement/involvement in research has improved.
- Public behaviour has changed.
- The user experience has improved.
- Animal health and welfare has been enhanced by research.
- The control of diseases has changed.

Impacts on society, culture and creativity:

Impacts where the beneficiaries are individuals, groups of individuals, organisations or communities whose knowledge, behaviours or practices have been influenced

- Public understanding has improved.
- Public debate has been stimulated or informed by research.
- Changes to social policy have been informed by research.
- Changes to social policy have led to improved social welfare, equality or social inclusion.

Impacts on the economy:

Impacts where the beneficiaries are usually the NHS, private health care, or agriculture activity.

- Policies have been introduced which have had an impact on economic growth or incentivising productivity.
- The costs of treatment or healthcare have changed as a result of research-led changes in practice.
- Gains in productivity have been realised as a result of research-led changes in practice.
- The roles and/or incentives for health professionals and organisations have changed, resulting in improved service delivery.

Impacts on commerce:

Impacts where the beneficiaries are usually companies, either new or established, or other types of organisation which undertake activity that creates wealth

- A spin-out or new business has been created and established its viability by generating revenue or profits.
- Industry (including overseas industry) has invested in research and development.
- The performance of an existing business has been improved.
- A business or sector has adopted a new technology or process.
- The strategy, operations or management practices of a business have changed.
- A new product or service is in production or has been commercialised.

² This is not an exhaustive or exclusive list, and submitted case studies may relate to more than one category.

Table A1 Examples of impact continued

	<ul style="list-style-type: none"> • Highly skilled people have taken up specialist roles (including academic consultancy) in companies or other organisations. • Jobs have been created or protected. • Social enterprise initiatives have been created.
<p>Impacts on public policy and services: Impacts where the beneficiaries are usually government, public sector, and charity organisations and societies, either as a whole or groups of individuals in society, through the implementation of policies</p>	<ul style="list-style-type: none"> • Policy debate has been stimulated or moved forward by research evidence. • Policy decisions or changes to legislation, regulations or guidelines have been informed by research evidence. • The implementation of a policy (for example, health, environment or agricultural policy) or the delivery of a public service has changed. • A new technology or process has been adopted. • The quality, accessibility, acceptability or cost-effectiveness of a public service has been improved. • The public has benefitted from public service improvements. • Control measures for infections have improved.
<p>Impacts on production: Impacts where the beneficiaries are individuals (including groups of individuals) whose production has been enhanced</p>	<ul style="list-style-type: none"> • Production, yields or quality have increased or level of waste has been reduced. • Decisions by regulatory authorities have been influenced by research. • Costs of production, including food, have been reduced. • Husbandry methods have changed. • Management practices in production businesses have changed.
<p>Impacts on practitioners and services: Impacts where beneficiaries are organisations or individuals, including service users involved in the development of and delivery of professional services</p>	<ul style="list-style-type: none"> • Professional standards, guidelines or training have been influenced by research. • Practitioners/professionals have used research findings in conducting their work. • The quality or efficiency of a professional service has improved. • Work force planning has been influenced by research. • Forensic methods have been influenced by research. • Educational or pedagogical practices and methods have changed outside of the submitting unit. • Law enforcement and security practices have changed.
<p>Impacts on the environment: Impacts where the key beneficiary is the natural or built environment</p>	<ul style="list-style-type: none"> • Policy debate on climate change or the environment has been influenced by research. • Environmental policy decisions have been influenced by research evidence. • Planning decisions have been informed by research. • The management or conservation of natural resources has changed. • The management of an environmental risk or hazard has changed.
<p>Impacts on international development: Impacts where the beneficiaries are international bodies, countries, governments or communities</p>	<ul style="list-style-type: none"> • International policy development has been influenced by research. • International agencies or institutions have been influenced by research. • Quality of life in a developing country has improved.

Case studies: evidence of impact

67. Each case study must include evidence appropriate to the type(s) of impact that supports the claims, including who or what has benefitted, been influenced or acted upon. Relevant indicators of the extent of the impact, in terms of its reach and significance, should also be included. Evidence and indicators may take many different forms depending on the type of impact.

68. The sub-panels within Main Panel A recommend that institutions refer to the following list of characteristics when preparing case studies:

- All the material required to make a judgment should be included – no further reading should be required.
- There should be a clear definition of who the non-academic beneficiaries were, or what had changed as a result of the research.
- The narrative should be coherent, clearly explaining the relationship between the research and the impact, and the nature of the changes or benefits arising.
- Indicators used should be meaningful, contextualised and precise in support of the case study, and the evidence should be focused and concise.
- Supporting evidence and claims should be capable of verification.
- There should be a brief explanation of what is original or distinctive about the research insights that contributed to the impact.
- The case study should include details of the names of researchers, their position in the institution, and the dates and locations of the research activity.
- Specific and appropriate independent sources of corroborating information should be supplied.
- Where the research was carried out in collaboration with other institutions, or was part of a wider body of research, this should be acknowledged and the specific input of the submitting unit's research clearly stated.
- For case studies claiming impact from public engagement:
 - There must be a clear link between the research and the engagement or involvement activity (see 'guidance on submissions' paragraph 161c).

- Evidence should be provided about dissemination, as well as a clear explanation about the significance or the benefits to audiences.
- The activity should go beyond 'business as usual' engagement or involvement (for example, there was active involvement of service users and/or the public, the activity informed the focus of the research or created widespread interest, was particularly innovative, or created legacy resources).

69. The list of examples in Table A2 provides a guide to potential evidence or indicators that may be most relevant to the type of impact claimed; however, it is not intended to be exhaustive or rank any indicators in any way. Some indicators may be relevant to more than one type of impact.

70. The main panel will consider any appropriate evidence that is verifiable. Wherever possible, quantitative indicators should be included. Verifiable sources for key evidence and indicators should be provided in section 5 of the impact case study template, and must be available on request. The main panel does not welcome testimonials offering individuals' opinions as evidence of impact; however, factual statements from external, non-academic organisations would be acceptable as sources to corroborate claims made in a case study.

71. The main panel recognises that some evidence in case studies may be of a confidential or sensitive nature. The arrangements for submitting and assessing case studies that include such material are set out in Part 1, paragraphs 58-59.

72. Institutions may submit case studies that describe impacts at any stage of development or maturity. However, the assessment will be solely on the impact achieved during the assessment period, regardless of the stage of maturity. No account will be taken of anticipated or future potential impact.

Table A2 Examples of evidence and indicators of impact³

<p>Impacts on health and welfare</p>	<ul style="list-style-type: none"> • Measures of improved clinical outcomes, public behaviour or health services (lives saved, reduced infection rates). • Measures of improved well-being. • Documented changes to clinical and public health guidelines (documented references to research evidence in guidelines). • Evidence from audit, change in guidelines. • Documented changes to animal welfare codes or guidelines. • Evidence of enhanced awareness of health risks and benefits by consumers. • Evidence of enhancement of patient experience.
<p>Impacts on society, culture and creativity</p>	<ul style="list-style-type: none"> • Documented evidence that public understanding has been enhanced through active collaborative involvement in research. • Critical reviews in the media. • Evidence of public debate. • Documented evidence of changes to social policy. • Measures of improved social equality, welfare or inclusion. • Increased public uptake of scientific training, through public engagement. • Documented shift in public attitude (for example, to sexual behaviour, or social factors in health).
<p>Impacts on the economy</p>	<ul style="list-style-type: none"> • Evidence of improved cost-effectiveness. • Evidence of service change.
<p>Impacts on commerce</p>	<ul style="list-style-type: none"> • Sales of new products/services. • Business performance measures (for example, turnover/profits, trends in key technical performance measures underlying economic performance). • Employment figures. • Licences awarded and brought to market; market authorisation. • Demonstrable collaborations with industry (including knowledge transfer partnerships, and contracts). • Commercial adoption of a new technology, process, knowledge or concept.
<p>Impacts on public policy and services</p>	<ul style="list-style-type: none"> • Documented evidence of policy debate (for example, at a parliamentary Select Committee, material produced by non-governmental organisations). • Documented evidence of changes to public policy/legislation/regulations/guidelines. • Measures of improved public services. • Documented evidence of influence on health policy and/or advisory committees. • Evidence of use of process/technology.

³ This is not an exhaustive or exclusive list. Other evidence or indicators related to the impact described may be included.

Table A2 Examples of evidence and indicators of impact continued

Impacts on production	<ul style="list-style-type: none">• A new product has been recommended for use or adopted.• Development of a new plant variety or crop protection product which has entered the appropriate national or international regulatory testing system.• Published rights for animals and plants.• Evidence of improved sustainability.• Documented changes to working guidelines.• Documented evidence of improved working practices and/or level of production.
Impacts on practitioners and services	<ul style="list-style-type: none">• Literature/web information from practitioners and advisers, including the research findings and how they are applied in practice.• Evidence of adoption of best practice (for example, by educators or law enforcement personnel).
Impacts on the environment	<ul style="list-style-type: none">• Sales of new products, or improvements in existing products, that bring quantifiable environmental benefits.• Verifiable influence on particular projects or processes which bring environmental benefits.• Evidence of generic environmental impact across a sector, confirmed by independent authoritative evidence.• Traceable reference to inclusion of research into government policy papers, legislation and industry guidance.• Traceable reference to the influence of research in planning decision outcomes.
Impacts on international development	<ul style="list-style-type: none">• Documented evidence of changes to international development policies.• Measures of improved international equality, food security, welfare or inclusion.• Evidence of take-up and use of new or improved products and processes that improve quality of life or animal welfare in developing countries.

Case studies: underpinning research

Underpinning research quality

73. Case studies must include references to one or more key research outputs produced by the submitted unit that underpinned the impact, and must provide evidence of the quality of the research. A case study will be eligible for assessment only if the sub-panel is satisfied that the underpinning research is predominantly of at least two star quality.

74. Case studies should include references to underpinning outputs that clearly demonstrate the threshold has been met. They should include additional indicators, as appropriate, of the quality of the underpinning research, for example evidence of peer-reviewed funding. The sub-panels will use the information provided in case studies, and where necessary will review outputs referenced in section 3, in order to be assured that the quality threshold has been met.

75. Provided the sub-panel is satisfied that the quality threshold has been met, the quality of the underpinning research will not be taken into consideration as part of the assessment of the reach and significance of the claimed impact.

76. Underpinning research referenced in a case study may also be included in a submission as an output (listed in REF2), without disadvantage. In these situations, the assessment of the impact case study will have no bearing on the assessment of the quality of the output. The assessment of the quality of the output may inform the assessment of the case study, only in terms of assuring the threshold for underpinning research quality.

Contribution of the underpinning research

77. The institution submitting a case study must have produced research that made a material and distinct contribution to the impact described in a case study. The sub-panels within Main Panel A recognise that several research groups or institutions may have made distinct research contributions to an impact, and they advise submitting institutions to ensure that their own critical, scientific contribution is specified clearly and that the contributions of others are acknowledged.

78. There will be many cases where a researcher has moved to a different institution during the period in which a body of research underpinning a case study was produced. Where this is the case, the submitting

institution should make clear that the research undertaken during the period the researcher spent at that institution made a material and distinct contribution to the impact claimed.

Impact template

79. 'Guidance on submissions' (paragraphs 149-155) sets out the requirement to submit a completed impact template. Submitting units are required to describe how they have sought to enable and/or facilitate the achievement of impact arising from their research, and how they are shaping and adapting their plans to ensure that they continue to do so in the future. This is distinct from evidence provided in the environment template, which should describe how a unit supports the production of excellent research.

80. The main panel believes that outstanding impact can be achieved from within a wide variety of research contexts and resulting from a wide diversity of approaches, and it has no pre-formed view of the ideal context or approach.

81. The submitted impact template should include specific examples and traceable references where possible, rather than broad, general statements. The sections of the impact template should include explanation of and evidence for:

- a. **Context.** Institutions should describe the main non-academic user groups, beneficiaries or audiences for the unit's research, the main types of impact specifically relevant to the unit's research, and how these relate to the range of research activity or research groups in the unit.
- b. **Approach to impact.** Institutions should describe the unit's approach to interacting with non-academic users, beneficiaries or audiences and to achieving impacts from its research, during the period 2008 to 2013. This could include details of, for example:
 - how staff in the unit interacted with, engaged with or developed relationships with key users, beneficiaries or audiences to develop impact from the research carried out in the unit⁴
 - evidence of the nature of those relationships and interactions
 - evidence of follow-through from these activities to identify resulting impacts
 - how the unit specifically supported and enabled staff to achieve impact from their research

⁴ Note that within the environment template, submissions should explain research collaborations with users, and how their relationships/interactions inform the development of the unit's research activity/strategy.

- how the unit made use of institutional facilities, expertise or resources in undertaking these activities
 - other mechanisms deployed by the unit to support and enable impact.
- c. **Strategy and plans.** Institutions should describe how the unit is developing a strategy for achieving impact, including goals and plans for supporting and enabling impact from current and future research.
- d. **Relationship to the case studies.** Institutions should describe how the selected case studies relate to their approach to achieving impact. This could include details of, for example, how particular case studies exemplify aspects of the approach, or how particular case studies informed the development of the unit's approach. The main panel recognises that case studies are underpinned by research over a time frame that is longer than the assessment period, and that individual case studies may, therefore, not relate directly to the approach set out in b above.

Impact criteria

82. The sub-panels will assess impact according to the generic criteria and level definitions in 'guidance on submissions', Annex A, Table A3. The criteria will be understood as follows:

- **Reach:** the spread or breadth of influence or effect on the relevant constituencies
- **Significance:** the intensity of the influence or effect.

83. The sub-panels will make an overall judgement about the reach and significance of impacts, rather than assessing each criterion separately.

84. The criteria will be applied in the assessment of the research impact regardless of the domain to which the impact relates. Reach will not be assessed in purely geographic terms, nor in terms of absolute numbers of beneficiaries, but rather based on the spread or breadth to which the potential constituencies have been affected.

Section A4: Assessment criteria: environment

Environment template

85. Main Panel A believes that excellent research can be undertaken in a wide variety of research structures and environments. The main panel has no pre-formed view of the ideal size or organisational structure for a research environment, and will judge each submission on its merits.

86. In this context, using the information provided in the environment template (REF5) and the environment data (REF4), sub-panels will assess the vitality and sustainability of the submitting unit and its contribution to the vitality and sustainability of its discipline. The sub-panels recognise that the health of the discipline requires appropriate infrastructures and activity at HEI level to maintain and develop individuals and groups of researchers, and to train new generations of researchers.

87. Given that for the REF there is no expectation that the environment element of submissions relates to a single coherent organisational unit, submissions may define groups and their members. Groups may be departments/research groups or units which may or may not be cognate. This gives an opportunity to explicitly state how enhanced multi- and/or interdisciplinary research is being encouraged. Institutions should define their prime activities, how they operate and their main achievements. It is recognised that submissions may consist of a single group which may or may not relate to a single coherent organisational unit.

88. To facilitate the assessment of submissions, when defining groups and their members, institutions should identify groups of staff and their associated outputs (in REF1 and REF2), and use the same groupings in the environment template (REF5). The same groups should be referred to in the impact template (REF3a) where relevant.

89. Evidence and indicators for environment may include, but are not limited to, the indicators listed below under each of the section headings in the environment template (REF5):

- a. **Overview:** This section should briefly describe the organisation and structure of the unit to set the context for sub-panels assessing the submission. It should be used to describe which research groups or units are covered by the submission, and how research is structured across the submitted unit. This section will be assessed in combination with the research strategy (see paragraph 94).
- b. **Research strategy:** This section should provide evidence of the achievement of strategic aims for research during the assessment period; details of future strategic aims and goals for research; how these relate to the structure described above; and how they will be taken forward. Evidence and indicators may include, but are not limited to, the following:
 - details of significant changes, if any, to the research environment over the assessment period
 - evidence of strong research plans: a statement of the main objectives and activities in research over the next five years, including capacity building, research student recruitment, the involvement of service users, and any ongoing research work that is not producing immediately visible outcomes; balance sought between long-term and short-term research; the development of infrastructure to facilitate research; and ongoing work which is not producing immediate visible outcomes
 - responsiveness to national and international priorities and initiatives
 - effective mechanisms for the development, promotion and dissemination of research
 - research groupings, their activities, their rationale, how they operate and their main achievements
 - mechanisms and practices for promoting research, and sustaining and developing an active and vital research culture
 - evidence of multi- and/or interdisciplinary developments.
- c. **People:**
 - i. **Staffing strategy and staff development** within the submitted unit. Evidence and indicators may include, but are not limited to, the following:
 - evidence of how the staffing strategy relates to the unit's research strategy and physical infrastructure
 - implementation of the Concordat to Support the Career Development of Researchers
 - evidence of how the submitting unit supports equalities and diversity
 - effective integration of clinical academics and NHS-employed active researchers
 - sustainable staff structure

- arrangements for the effective development and support of the research work of staff
 - a description of how the unit has been developing the research of early career researchers and support for integrating them into a wider, supportive research culture
 - research career development of both non-clinical and clinical researchers
 - role of clinical researchers where relevant.
- ii. **Research students:** The training and supervision of postgraduate research (PGR) students. Evidence and indicators may include, but are not limited to, the following:
- effective and sustainable doctoral research training
 - evidence of a strong and integrated research student culture
 - evidence of CASE awards and application of technology generated by research students.
- d. **Income, infrastructure and facilities:** Information about research income, infrastructure and facilities. Evidence and indicators may include but are not limited to the following:
- the nature and quality of the research infrastructure and facilities, including significant equipment, research facilities and facilities for research students
 - evidence of cross-HEI shared or collaborative use of research infrastructure
 - significance of major benefits-in-kind (including, for example, donated items of equipment, sponsorships secured, or other arrangements directly related to research)
 - policy and practice in relation to research governance.
- e. **Collaboration and contribution to the discipline or research base:** Contributions to the wider research base, including work with other researchers outside the submitted unit whether locally, nationally or internationally; support for research collaboration; and interdisciplinary research. Evidence and indicators may include but are not limited to the following:
- indicators of wider influence or contributions to the discipline or research base
 - participation in the peer-review process (for example, national and international grants committees, editorial boards)
 - fellowships and relevant awards
 - journal editorships
 - effective academic collaboration
 - extent of collaboration or integration with external bodies, such as NHS Research and Development, and/or with industry, government agencies, where appropriate
 - responsiveness to national and international priorities and initiatives
 - effective mechanisms to promote collaborative research, and to promote collaboration at national and international level within the academic community and/or with users of research (whether with industry or the public sector).

Environment data

90. 'Guidance on submissions' (Section 3, Part 4) sets out quantitative data relating to the research environment to be included in submissions (REF4a/b/c). Sub-panels will use the data in the context of the information provided in the environment template (REF5) to inform their assessment. Data on research doctoral degrees awarded (REF4a) will be used to inform the sub-panels' assessment in relation to 'research students' (section c.ii). Data on research income (REF4b/c) will be used to inform the sub-panels' assessment in relation to 'income, infrastructure and facilities' (section d).

91. Sub-panels within Main Panel A do not require quantitative data provided by institutions in REF4a/b/c to be reported by research group.

Environment criteria

92. The sub-panels will assess the environment according to the generic criteria and level definitions in 'guidance on submissions', Annex A, Table A4. The criteria will be understood as follows:

- **Vitality** will be considered as the extent to which a unit provides an encouraging and facilitating environment for research, has an effective strategic plan, is engaged with the national and international research community, is able to attract excellent postgraduate and postdoctoral researchers through a worldwide reputation and, where appropriate for the subject area, is supported by a portfolio of research funding.

- **Sustainability** will be understood as a coherent vision for the future, and investment in people and in infrastructure.
93. In assessing the environment element of submissions, panels will apply the criteria in terms of both the research environment within the submitting unit, and its participation in and contribution to the academic discipline and community of relevance to the UOA.
94. In forming the environment sub-profiles, the sub-panels will combine 'overview' and 'research strategy', and will assess the environment template sections as four components of equal weighting, (taking account of the environment data as stated in paragraph 90):
- overview and research strategy
 - people (staffing strategy and staff development; and research students)
 - income, infrastructure and facilities
 - collaboration and contribution to the discipline or research base.

Part 2B

Main Panel B criteria

Main Panel B covers the following sub-panels:

- 7 Earth Systems and Environmental Sciences
 - 8 Chemistry
 - 9 Physics
 - 10 Mathematical Sciences
 - 11 Computer Science and Informatics
 - 12 Aeronautical, Mechanical, Chemical and Manufacturing Engineering
 - 13 Electrical and Electronic Engineering, Metallurgy and Materials
 - 14 Civil and Construction Engineering
 - 15 General Engineering
-

The following sections set out the criteria that Main Panel B and its sub-panels will apply in assessing submissions. These should be read alongside the guidance provided in REF 02.2011, 'Assessment framework and guidance on submissions' (hereafter 'guidance on submissions') and the generic statement of criteria and working methods provided in Part 1 of this document.

Section B1: Submissions and units of assessment

Section B2: Assessment criteria: outputs

Section B3: Assessment criteria: impact

Section B4: Assessment criteria: environment

Section B1: Submissions and units of assessment

Introduction

1. The nine sub-panels that fall within Main Panel B invite submissions in units of assessment (UOAs) 7-15 as set out in the following paragraphs.
2. The sub-panels encourage submitting units to use research groups to assist both with the description of submissions by HEIs in these UOAs, and with the assessment of submissions by the sub-panels.
 - a. Where research groups are used to structure the environment template (REF5) (see paragraph 91a), staff should be allocated to research groups through the staff details form (REF1a).
 - b. Where an individual is a member of a single research group, it will be assumed that all of that individual's research outputs are associated with that group. Where an individual is a member of more than one research group, individual research outputs may be allocated to the appropriate groups through the research outputs form (REF2).

Unit of assessment descriptors and boundaries

UOA 7: Earth Systems and Environmental Sciences

3. The UOA includes earth, environmental and planetary sciences, including: geophysics; geochemistry; palaeontology; geology; mineral physics; evolution of planetary atmospheres, surfaces and interiors; earth surface processes; the physics, chemistry and biology of the environment, including ecology and conservation; atmospheric, marine, freshwater, terrestrial and soil sciences; innovative measurement systems; global change; natural resources; natural hazards; pollution and environmental management.
4. The sub-panel expects submissions in this UOA from all areas of earth systems and environmental sciences, as defined above, and expects that the majority of the research activity submitted will have made a direct contribution to the UOA as characterised in the UOA descriptor. It recognises, however, the increasingly interdisciplinary nature of research, and expects that submissions may contain work that contributes to this UOA and other cognate disciplines. It is expected, however, that submissions will be made to the UOA where there is the most appropriate expertise to assess the body of work as a whole.

UOA 8: Chemistry

5. The UOA includes all areas of experimental and theoretical chemistry, including appropriate areas of pharmacy, chemical engineering and materials science, where the research is primarily concerned with chemical aspects rather than clinical or engineering.
6. The sub-panel expects submissions in this UOA from all areas of chemistry, as defined above, and expects that the majority of the research activity submitted will have made a direct contribution to the UOA as characterised in the UOA descriptor. It recognises and welcomes, however, the increasingly interdisciplinary nature of research, and expects that submissions may contain work that contributes to this UOA and other disciplines, including those which have boundaries with this UOA, such as UOA 5 (Biological Sciences), UOA 7 (Earth Systems and Environmental Sciences), UOA 9 (Physics), and other cognate disciplines.

UOA 9: Physics

7. The UOA includes all areas of physics encompassing, but not limited to, theoretical, computational and experimental studies of: quantum physics; atomic, molecular and optical physics; plasma physics; fusion and energy; particle physics; nuclear physics; surface and interface physics; condensed matter, materials and soft matter physics; biophysics; semiconductors, nanoscale physics, lasers, optoelectronics and photonics; magnetism, superconductivity and quantum fluids; fluid dynamics; statistical mechanics, chaotic and nonlinear systems; astronomy and astrophysics, planetary and atmospheric physics; cosmology and relativity; medical physics; applied physics; chemical physics; instrumentation; pedagogic research in physics.
8. The sub-panel expects submissions in this UOA from all areas of physics, as defined above, and expects that the majority of the research activity submitted will have made a direct contribution to the UOA as characterised in the UOA descriptor. It recognises and welcomes, however, the increasingly interdisciplinary nature of research, and expects that submissions may contain work that contributes to this UOA and other cognate disciplines.

UOA 10: Mathematical Sciences

9. The UOA includes pure and applied mathematics, statistics and operational research, including the development and application of these areas in the study of biological, physical and social sciences, commerce, engineering, finance, government, health, industry, information science, medicine and elsewhere.

10. It therefore includes: algebra; analysis; category theory; combinatorics; complexity theory; continuum mechanics and magnetohydrodynamics; differential equations; dynamical systems and ergodic theory; environmental, financial, geophysical and industrial mathematics; geometry; integrable systems; mathematical biology; mathematical logic; mathematical methods; mathematical aspects of operational research, including optimisation and stochastic modelling; mathematical physics; number theory; numerical analysis and scientific computing; operator theory and operator algebras; probability; statistical methodology and applications including biostatistics, data mining, environmental and social statistics, experimental design, mathematical statistics and statistical computing; topology. This list is necessarily incomplete, and any research in which the primary contribution is mathematical may be considered in this UOA, including experimental, theoretical or computational investigations related to mathematical or statistical models applied in other subject areas.

11. The sub-panel expects submissions in this UOA from all areas of mathematical sciences, as defined above, and expects that the majority of the research activity submitted will have made a direct contribution to the UOA as characterised in the UOA descriptor. The sub-panel welcomes the submission of interdisciplinary research that incorporates significant and innovative mathematical, statistical or operational research content, irrespective of the primary research focus of the medium in which the output is disseminated. It also expects to receive some outputs on the history of mathematical sciences when they incorporate significant mathematical or statistical insights. The sub-panel does not expect to receive outputs describing purely pedagogic research, and will cross-refer such outputs to Sub-panel 25 (Education) if received. Operational research that is focused on business and management should not normally be submitted in this UOA.

UOA 11: Computer Science and Informatics

12. The UOA includes the study of methods for acquiring, storing, processing, communicating and reasoning about information, and interactivity in natural and artificial systems, through the implementation, organisation and use of computer hardware, software and other resources. The subjects are characterised by the rigorous application of analysis, experimentation and design.

13. The sub-panel expects submissions in this UOA from all areas of computer science and informatics, as defined above, and expects that the majority of the research activity submitted will have made a direct

contribution to the UOA as characterised in the UOA descriptor. It recognises and welcomes, however, the increasingly interdisciplinary nature of research in this area, and expects that submissions may contain outputs that make contributions to computer science, informatics, and other disciplines.

UOA 12: Aeronautical, Mechanical, Chemical and Manufacturing Engineering

14. The UOA includes engineering research in aeronautical, mechanical, chemical and manufacturing engineering. Topics may include, but are not limited to: acoustics; aerodynamics; automotive engineering; avionics; biochemical and biomedical engineering; computational methods; control; dynamics; engineering design; engineering management; environmental and systems engineering; failure analysis; food process engineering; fluid power; fluid mechanics; fluidics; fuel technology and energy engineering; heat transfer; manufacturing technology, processes and systems; physical ergonomics; materials; material processing; maritime engineering; mechanics; mechatronics; naval architecture; product design; product and process engineering; solid mechanics; sustainable engineering; thermodynamics; turbo-machinery and propulsion; and vibration. It also includes pedagogic research in aeronautical, mechanical, chemical and manufacturing engineering.

15. The sub-panel expects submissions in this UOA from all areas of aeronautical, mechanical, chemical and manufacturing engineering, as defined above, and expects that the majority of the research activity submitted will have made a direct contribution to the UOA as characterised in the UOA descriptor. It recognises and welcomes, however, the increasingly interdisciplinary nature of research in this area, and expects that submissions may contain outputs that make contributions to aeronautical, mechanical, chemical and manufacturing engineering and other disciplines, including those which have boundaries with this UOA, such as UOA 13 (Electrical and Electronic Engineering, Metallurgy and Materials), UOA 14 (Civil and Construction Engineering) and UOA 15 (General Engineering).

UOA 13: Electrical and Electronic Engineering, Metallurgy and Materials

16. The UOA includes research carried out in all areas of electrical and electronic engineering, including but not limited to: communications; electronic materials and devices; microelectromechanical systems (MEMS) and nanoelectronics; bioelectronics; electronic systems and circuits; optoelectronics and optical communications

systems; communications and networks; multimedia; video and audio processing and coding; signal and image processing, modelling and estimation; radio frequency (RF) techniques up to terahertz; antennae and radar; measurement; instrumentation; sensors; control, robotics and systems engineering; electrical power systems, machines and drives; power electronics; computer and software engineering. It also includes research into both fundamental and applied aspects of the study of the structure, properties, manufacture, processing and applications (and their interrelationships) of all categories and forms of materials (such as metals, ceramics, polymers, composites, biomaterials, nanomaterials, natural materials and textiles). The UOA also includes pedagogic research into electrical and electronic engineering, metallurgy and materials.

17. The sub-panel expects submissions in this UOA from all areas of electrical and electronic engineering, metallurgy and materials, as defined above, and expects that the majority of the research activity submitted will have made a direct contribution to the UOA as characterised in the UOA descriptor. It recognises and welcomes, however, the increasingly interdisciplinary nature of research in this area, and expects that submissions may contain outputs that make contributions to electrical and electronic engineering, metallurgy and materials and other disciplines, including those which have boundaries with this UOA, such as UOA 8 (Chemistry), UOA 9 (Physics), UOA 11 (Computer Science and Informatics), UOA 12 (Aeronautical, Mechanical, Chemical and Manufacturing Engineering), UOA 14 (Civil and Construction Engineering), and UOA 15 (General Engineering).

UOA 14: Civil and Construction Engineering

18. The UOA includes research carried out in: construction; design; infrastructure; fluid mechanics; hydraulics and hydrology; computational mechanics and informatics; structures and materials; geomatics (including surveying); transportation; geotechnical and geo-environmental engineering; earthquake engineering; energy; environmental engineering (including air, water, waste and contamination); offshore and coastal engineering; extreme events; fire engineering and wind engineering; impact of and adaptability to climate change; sustainability; building physics; management, safety and risk assessment aspects of the above. It also includes pedagogic research in civil and construction engineering and the application of civil engineering principles to other disciplines (such as biomechanics).

19. The sub-panel expects submissions in this UOA from all areas of civil and construction engineering, as

defined above, and expects that the majority of the research activity submitted will have made a direct contribution to the UOA as characterised in the UOA descriptor. It recognises and welcomes, however, the increasingly interdisciplinary nature of research in this area, and expects that submissions may contain outputs that make contributions to civil and construction engineering and other disciplines, including those which have boundaries with this UOA, such as UOA 7 (Earth Systems and Environmental Sciences) and UOA 16 (Architecture, Built Environment and Planning).

UOA 15: General Engineering

20. The UOA includes multi-disciplinary and interdisciplinary engineering research in fields such as medical engineering, bioengineering, biomechanics, environmental engineering, sustainability engineering, offshore technology, renewable energy/energy conversion, spacecraft engineering, control systems engineering and industrial studies. The UOA also includes mineral and mining engineering and pedagogic research in engineering.

21. The sub-panel also welcomes submissions from single organisational units within institutions that include activities spanning two or more of the other three UOAs in the fields of engineering: UOA 12 (Aeronautical, Mechanical, Chemical and Manufacturing Engineering), UOA 13 (Electrical and Electronic Engineering, Metallurgy and Materials), and UOA 14 (Civil and Construction Engineering). However, for submissions of this nature, the sub-panel will cross-refer any outputs that they consider to be more expertly assessed by other sub-panels in the fields of engineering.

22. The sub-panel expects submissions in this UOA from all areas of general engineering, as defined above, and expects that the majority of the research activity submitted will have made a direct contribution to the UOA as characterised in the UOA descriptor. It recognises and welcomes, however, the increasingly interdisciplinary nature of research in this area, and expects that submissions may contain outputs that make contributions to general engineering and other disciplines, including those which have boundaries with this UOA, such as those UOAs within the remit of Main Panel B.

Interdisciplinary research and work on the boundaries between UOAs

23. The main panel recognises that the UOAs described above do not have firm or rigidly definable boundaries, and that aspects of research are naturally interdisciplinary or multi-disciplinary or span the boundaries between individual UOAs, whether within the main panel or across main panels.

24. The arrangements for assessing interdisciplinary research and submissions that span UOA boundaries – including through the appointment of assessors and, where necessary, cross-referring specific parts of submissions between sub-panels – are common across all main panels and are described in Part 1, paragraphs 92-100.

Pedagogic research

25. Research on pedagogy and educational issues within higher education that relate to the disciplines covered by Main Panel B may be submitted in the UOA to which it relates or in UOA 25 (Education), as deemed appropriate by submitting HEIs. Main Panel B will have at least two sub-panel members or assessors who will have expertise in pedagogy. Generally, such research will be assessed either by the sub-panel for the UOA in which it is submitted, or by one of the sub-panel members or assessors with expertise in pedagogy referred to above, who will work across several Main Panel B sub-panels. The only exception to these arrangements is for Sub-panel 10 (Mathematical Sciences), where pedagogic research relating to higher education will be cross-referred to Sub-panel 25 (Education).

26. Bodies of research into teaching in other education sectors or on general educational issues should be submitted in UOA 25. Individual outputs on these issues received by the sub-panels in Main Panel B will be cross-referred to Sub-panel 25 as appropriate.

Multiple submissions

27. 'Guidance on submissions' (paragraphs 50-52) sets out the arrangements whereby institutions may exceptionally, and only with prior permission from the REF manager, make more than one submission (multiple submissions) in the same UOA. These exceptions include situations where a sub-panel considers there is a case for multiple submissions in its UOA, given the nature of the disciplines covered.

28. Sub-panel 12 (Aeronautical, Mechanical, Chemical and Manufacturing Engineering) and Sub-panel 13 (Electrical and Electronic Engineering, Metallurgy and Materials) consider that there is a case, based on the nature of the disciplines covered by their UOAs, for multiple submissions in these UOAs. Such requests will be considered according to the procedures and criteria at paragraph 50d of 'guidance on submissions'. In addition, the normal expectation is that it will be difficult for convincing cases to be made for multiple submissions in these UOAs with a small number of staff, typically less than 10 Category A FTEs, in each requested submission.

29. Sub-panels 7, 8, 9, 10, 11, 14 and 15 do not consider that there is a case for multiple submissions in their UOAs, based on the nature of the disciplines covered, and do not expect to receive requests for multiple submission in these UOAs (other than for the reasons stated at sub-paragraphs 50a and 50c of 'guidance on submissions').

Section B2: Assessment criteria: outputs

Output types

30. The main panel welcomes all forms of research output that fulfil the eligibility criteria for the REF (set out in paragraphs 105-117 of 'guidance on submissions' and in Part 1, paragraphs 43-44 of this document.)

31. All forms of research output will be considered equitably in terms of the assessment, with no distinction being made between the types of output submitted nor whether the output has been made available electronically or in a physical form.

32. The main panel welcomes all forms of output submitted to its sub-panels, including:

- books, book chapters and research monographs
- conference papers and reports
- new materials, devices, products and processes
- patents
- published papers in peer-reviewed journals
- software, computer code and algorithms
- standards documents
- technical reports, including confidential reports.

33. These are provided as examples of outputs that might be specifically relevant to Main Panel B, but should not be regarded as an exhaustive list.

34. In relation to all forms of output, submitting HEIs should be mindful that the purpose of the assessment of research outputs is to assess the quality of original research reported. In particular, sub-panels will accept the submission of review articles only where they contain a significant component of unpublished research or new insight. Such outputs will be judged **only** on original research or new insights reported.

Outputs with significant material in common

35. As stated in 'guidance on submissions' (paragraph 108), where two or more research outputs listed against an individual in a submission include significant material in common, the sub-panels may decide to assess each output taking account of the common material only once, or judge that they should be treated as a single output if they do not contain sufficiently distinct material.

36. Where a submitted output includes significant material in common with an output published prior

to 1 January 2008, as stated in Part 1 paragraph 44, submissions should explain how far the earlier work was revised to incorporate new material (maximum of 100 words).

Co-authored/co-produced outputs⁵

37. Where a co-authored or co-produced output is submitted for assessment, it must be listed against an individual member of staff who made a substantial research contribution to the output. Information may be requested through an audit to verify this, and where it cannot be verified the output will be graded as 'unclassified'. Neither the order of authorship nor the number of authors will be considered important.

38. With the exception of the arrangements for the submission of a co-authored output twice in the same submission, detailed at paragraphs 41-43, and for Sub-panel 9 (Physics), detailed at paragraph 45, the sub-panels do not require the submission of textual information about individual co-authors' contributions to co-authored outputs and, if received, will take no account of such statements.

39. Once the sub-panel accepts that the author has made a substantial research contribution to the output, the sub-panel will assess the quality of the output taking no further regard of the submitted member of staff's individual contribution. The quality of each output will be judged on its merits independent of authorship arrangements.

Listing a co-authored output multiple times within the same submission

40. Where two or more co-authors of an output are returned in **different** submissions (whether from the same HEI or different HEIs), any or all co-author(s) that made a substantial research contribution to the output may list the same output.

41. The main panel considers that, given publication patterns in its disciplines, the fullest and most favourable impression of a submitted unit's research will normally be gained when each co-authored output is listed only once in a submission. However, the main panel recognises that there may be exceptional circumstances where there are substantial pieces of co-authored work reflecting collaborative research, that institutions wish to list against more than one member of staff returned within **the same** submission.

42. Therefore, where two members of staff in a single submission have made distinct and substantial research contributions to a co-authored output the main panel will, exceptionally, accept such an output

⁵ 'Co-produced' refers to outputs that are not in a written form.

listed against both members of staff. Such exceptional circumstances include cases where, because of the nature of the subject, a collaborating group or groups within a submitting unit produce few papers which are likely to be substantial in the publication period, and may therefore be unable to submit four different outputs for every member of the group.

43. The submission must clearly identify where a co-authored output has been listed against two members of staff returned within the same submission, and specific information should be provided about the distinct and substantial contribution to the research of each co-author against whom the output is listed (maximum 100 words). A single co-authored output may be listed against a maximum of two members of staff within a submission.

44. Once the sub-panel has determined that each co-author's contribution to the research content of the output is distinct and substantial, it will assess the quality of the output as a whole, taking no further regard of each individual co-author's contribution. If a sub-panel is not persuaded by the justification for listing the output twice, one occurrence of the output will be graded as 'unclassified'.

Additional requirement for information on co-authored outputs – Sub-panel 9 (Physics) only

45. In physics, large numbers of co-authors may contribute to research outputs, therefore for outputs with more than 10 co-authors submitted in UOA 9 (Physics) specific information is required about the author's contribution (maximum 100 words), to allow the sub-panel to assess the nature of that contribution to the output. Once the sub-panel has determined that the author's contribution is a significant contribution to the research content of the output, it will assess the quality of the output as a whole, taking no further regard of the individual author's contribution.

Outputs for which the panel considers that the author has not made a significant research contribution will be graded as 'unclassified'. HEIs should note that this information is not required for research outputs with 10 or fewer co-authors; if submitted, the sub-panel will take no account of such statements.

Double-weighted outputs

46. The sub-panels recognise that there may be some exceptional cases where the scale of academic investment in the research activity and the scope of the research is considerably greater than the disciplinary norm, thereby limiting the capacity of the individual researcher to produce four outputs within the assessment period. The sub-panels will consider requests for such outputs to be double-weighted in

the assessment; in other words for it to count as two outputs in both a submission and in the calculation of the outputs sub-profile.

47. The sub-panels anticipate that they will double-weight outputs only where they derive from substantial academic endeavour by the member of staff against whom the output is listed in the submission. Such endeavour might be understood in terms of (but is not limited to) the length of research time it took to produce or the ambition of the project. Considering the patterns of publication across Main Panel B's areas of activity, the sub-panels expect that such requests will occur only very exceptionally. In particular, the sub-panels anticipate that outputs published as journal articles and conference papers will not normally embody work of this nature, and they therefore do not normally expect to receive requests for double-weighting these types of outputs.

48. An HEI may request that an output is treated as double-weighted using a supporting statement to justify the claim (maximum 100 words). Sub-panels will assess the claim for double-weighting separately from assessing the quality of the output, and there is no presumption that double-weighted outputs will be assessed at the higher quality grades.

49. No more than two outputs listed against an individual may be requested for double-weighting. Requests for double-weighting may not be made for co-authored outputs that have been submitted twice in a single submission, as set out in paragraphs 41-43.

50. In requesting double-weighting of an output, HEIs must either reduce the number of outputs listed against that individual by one per double-weighting request, or identify one output as a reserve for each double-weighting request. Reserve outputs will be assessed only if the sub-panel does not accept the request for double-weighting. If no reserve output is included and the request for double-weighting is not accepted by a sub-panel, then the 'missing' output will be graded as 'unclassified'.

51. Sub-panels will double-weight an output only if a request is made by the submitting institution, and is accepted by the sub-panel. Sub-panels will not double-weight any output for which a request has not been made by the institution.

Additional information on outputs

Information about the research process and/or content

52. For non-text, or practice-based outputs (including patents, software and standards documents) all sub-panels require the submission of a description of the

research process and content, where this is not evident within the output (maximum 300 words).

53. For reviews, sub-panels welcome the identification of the original research or new insights reported, to assist with the assessment of research quality (maximum 300 words).

Factual information about significance

54. Sub-panels 7, 8, 9 and 10 consider that, within their disciplines, normally all the relevant information that the panel requires will be contained in the submitted outputs and the accompanying citation data, where the latter are provided by the REF system. They therefore do not wish to receive additional information in this category and, if received, will take no account of any statement in this category.

55. Sub-panels 11, 12, 13, 14 and 15 consider that the nature of their disciplines is such that the significance of an output may not be evident within the output itself. They therefore invite factual information to be provided (maximum 100 words) that could include, for example, additional evidence about how an output has gained recognition, led to further developments, or has been applied. They would welcome the inclusion of relevant and verifiable information for all outputs, wherever available.

56. HEIs are instructed to ensure that such evidence is succinct, verifiable, and externally referenced where appropriate. Where claims are made relating to the industrial significance of the output, the name and contact details of a senior industrialist must be given to allow verification of claims. Information provided should not comprise a synopsis of the output or a volunteered opinion as to the quality of the output, and information provided that is of this nature will be disregarded. It is expected that, in most cases, sufficient information will be provided in significantly fewer words than the 100 word limit.

57. Information provided must not include citation data. Any panels that make use of citation data will be provided with the data by the REF team, the only exception being Sub-panel 11 who will additionally make use of Google Scholar (as set out at paragraph 61). Sub-panels will take no account of any citation data provided directly by the HEI.

Other information

58. A summary of all the additional information about outputs required by Main Panel B is at Annex A. No other information should be included, and sub-panels will take no account of any such information if submitted.

Citation data

59. Sub-panels 7, 8, 9 and 11 acknowledge that citation data are widely used and consider that it is well understood in the disciplines covered in their UOAs. These sub-panels will make use of citation data, where available, as part of the indication of academic significance to inform their assessment of output quality.

60. Where available on the Scopus citation database, the REF team will provide citation counts for research outputs submitted in the UOAs identified in paragraph 59, at a pre-determined date and in a standard format. These sub-panels will also receive discipline-specific contextual information about citation rates for each year of the assessment period to inform, if appropriate, the interpretation of citation data.

61. In addition to the citation data provided by the REF team, Sub-panel 11 intends to make use of Google Scholar as a further source of citation information. Sub-panel 11 will access Google Scholar citation data in a systematic way, and these data will be used principally to identify where outputs have been cited extensively outside the body of publications indexed in Scopus⁶.

62. For the sub-panels identified in paragraph 59 citation data will inform the assessment as follows:

- a. Where available and appropriate, citation data will form part of the process of assessment, in relation to the academic significance of outputs. It will be used as one element to inform peer-review judgements made about output quality, and will not be used as a primary tool in the assessment.
- b. The absence of citation data for an output will not be taken to mean an absence of academic significance.
- c. Sub-panels will be mindful that for some forms of output (for example relating to applied research) and for recent outputs, citation data may be an unreliable indicator. Sub-panels will take due regard of the potential equalities implications of using citation data.
- d. Except for reference to Google Scholar by Sub-panel 11 (as set out at paragraph 61), the sub-panels will use citation data only where provided by the REF team. None of the sub-panels will refer to any additional sources of bibliometric analysis including journal impact factors.

63. Sub-panels 10, 12, 13, 14 and 15 recognise that the uneven and often sparse coverage of citation data in

⁶ This paragraph supplements paragraph 133 of 'guidance on submissions' which states that the REF team will procure and make available to panels a single source of citation data.

their disciplines would not provide fair and robust additional data to inform the assessment of output quality. They therefore will not receive nor make use of citation data or any other form of bibliometric analysis, including journal impact factors.

Criteria and level definitions

64. This section provides a descriptive account of how the sub-panels will interpret the generic criteria for assessing outputs – originality, significance and rigour – and will apply them at each of the starred quality levels. This descriptive account expands on and complements the generic criteria and definitions in Annex A of ‘guidance on submissions’, but does not replace them.

Interpretation of generic criteria

65. The criteria for assessing outputs will be interpreted as follows:

- **Originality** will be understood as the extent to which the output introduces a new way of thinking about a subject, or is distinctive or transformative compared with previous work in an academic field.
- **Significance** will be understood as the extent to which the work has exerted, or is likely to exert, an influence on an academic field or practical applications.
- **Rigour** will be understood as the extent to which the purpose of the work is clearly articulated, an appropriate methodology for the research area has been adopted, and compelling evidence presented to show that the purpose has been achieved.

66. Where appropriate to the output type, sub-panels may consider editorial and refereeing standards as part of the indication of rigour, but the absence of these standards will not be taken to mean an absence of rigour.

67. Some sub-panels will use citation information, where available, as part of the indication of academic significance to inform their assessment of output quality. These arrangements are discussed at paragraphs 59-63.

Interpretation of generic level definitions

68. In assessing outputs, the sub-panels will look for evidence of originality, significance and rigour and apply the generic definitions of the starred quality levels as follows:

a. In assessing work as being **four star** (quality that is world leading in terms of originality, significance and rigour), sub-panels will expect

to see evidence of, or potential for, some of the following types of characteristics:

- agenda-setting
 - research that is leading or at the forefront of the research area
 - great novelty in developing new thinking, new techniques or novel results
 - major influence on a research theme or field
 - developing new paradigms or fundamental new concepts for research
 - major changes in policy or practice
 - major influence on processes, production and management
 - major influence on user engagement.
- b. In assessing work as being **three star** (quality that is internationally excellent in terms of originality, significance and rigour but which falls short of the highest standards of excellence), sub-panels will expect to see evidence of, or potential for, some of the following types of characteristics:
- makes important contributions to the field at an international standard
 - contributes important knowledge, ideas and techniques which are likely to have a lasting influence, but are not necessarily leading to fundamental new concepts
 - significant changes to policies or practices
 - significant influence on processes, production and management
 - significant influence on user engagement.
- c. In assessing work as being **two star** (quality that is recognised internationally in terms of originality, significance and rigour), sub-panels will expect to see evidence of, or potential for, some of the following types of characteristics:
- provides useful knowledge and influences the field
 - involves incremental advances, which might include new knowledge which conforms with existing ideas and paradigms, or model calculations using established techniques or approaches
 - influence on policy or practice
 - influence on processes, production and management
 - influence on user engagement.

- d. In assessing work as being **one star** (quality that is recognised nationally in terms of originality, significance and rigour), sub-panels will expect to see evidence of, or potential for, some of the following types of characteristics:
- useful but unlikely to have more than a minor influence in the field
 - minor influence on policy or practice
 - minor influence on processes, production and management
 - minor influence on user engagement.
- e. Research will be graded as '**unclassified**' if it falls below the quality levels described above or does not meet the definition of research used for the REF.

Section B3: Assessment criteria: impact

Introduction

69. This section should be read alongside 'guidance on submissions' (in particular, Section 3, Annex A, Annex C and Annex G), which sets out the generic definition of impact for the REF, the requirements for submitting impact case studies and a completed impact template, the associated eligibility guidelines, and the generic assessment criteria and level definitions. The sub-panels will assess impact in accordance with this framework.

70. This section provides information which adds to and complements, but does not replace, 'guidance on submissions', with the intention of assisting institutions in developing their submissions for this new element of research assessment.

Range of impacts

71. The main panel welcomes case studies describing impacts that have provided benefits to one or more areas of culture, the economy, the environment⁷, health, public policy and services, quality of life, or society, whether locally, regionally, nationally or internationally.

72. A single body of research work may underpin impact which provides benefits in more than one area. An impact case study may therefore describe more than one type of impact arising from such bodies of work; for example, a new drug can generate both health and economic impact, and a new energy technology can generate both environmental and economic impact.

73. An indicative list of potential examples of impact is provided in Table B1. These are categorised according to the different domains that sub-panels expect to see in submitted case studies, with an indicative list of examples of impact for each type. In making use of this to assist with the preparation of submissions, HEIs should note that:

- a. The list of types and examples of impacts is not intended to be exhaustive, and some examples are relevant to more than one type of impact. Sub-panels wish to encourage HEIs to submit case studies describing any impacts that meet the generic definition in 'guidance on submissions' (Annex C).
- b. HEIs are **not** expected to align submitted case studies specifically with the particular types of impact defined in the list.

74. All types of impact will be considered equitably in terms of the assessment of the reach and significance achieved during the assessment period. The sub-panels expect institutions to submit their strongest case studies, regardless of the types of impact that they describe.

75. HEIs are reminded that impacts on research or the advancement of academic knowledge within the HE sector (whether in the UK or internationally) **are excluded**. Other impacts within the HE sector that meet the definition of impact for the REF, **are included** where they extend significantly beyond the submitting HEI. (See 'guidance on submissions', Annex C.) For example:

- a. The take-up by the HE sector of products arising from research such as open source software would be eligible as examples of impact **only** where there is some evidenced impact that goes beyond academic research or the advancement of knowledge **and** where the impact extends significantly beyond the submitting HEI.
- b. Impact on research outside the HE sector (such as in industrial laboratories) may be evidence of a link to an impact, but is unlikely to be a significant impact in itself.

76. The sub-panels will also welcome impacts that describe changes or benefits resulting from research that leads to a decision **not** to undertake a particular course of action. For example, the impact deriving from evidence that a particular building material should not be used.

⁷ References to 'environment' throughout Part 2, Section B3 of this document refer to both the natural and built environments, unless otherwise specified.

Table B1 Examples of impact

Economic impacts

Impacts where the beneficiaries may include businesses, either new or established, or other types of organisation which undertake activity that may create wealth

- The performance of an existing business has been improved through the introduction of new, or the improvement of existing, products, processes or services; the adoption of new, updated or enhanced technical standards and/or protocols; or the enhancement of strategy, operations or management practices.
- A spin-out or new business has been created, established its viability, or generated revenue or profits.
- A new business sector or activity has been created.
- A business or sector has adopted a new or significantly changed technology or process, including through acquisition and/or joint venture.
- Performance has been improved, or new or changed technologies or processes adopted, in companies or other organisations through highly skilled people having taken up specialist roles that draw on their research, or through the provision of consultancy or training that draws on their research.
- Potential future losses have been mitigated by improved methods of risk assessment and management in safety or security critical situations.

Impacts on public policy and services

Impacts where the beneficiaries may include government, non-governmental organisations (NGOs), charities and public sector organisations and society, either as a whole or groups of individuals in society

- A policy has been implemented (including those realised through changes to legislation) or the delivery of a public service has changed.
- (Sections of) the public have benefited from public service improvements.
- In delivering a public service, a new technology or process has been adopted or an existing technology or process improved.
- Policy debate has been stimulated or informed by research evidence.
- Policy decisions or changes to legislation, regulations or guidelines have been informed by research evidence.
- Changes to education or the school curriculum have been informed by research.
- Risks to the security of nation states have been reduced.
- The development of policies and services of benefit to the developing world has been informed by research.

Impacts on society, culture and creativity

Impacts where the beneficiaries may include individuals, groups of individuals, organisations or communities whose knowledge, behaviours, creative practices and other activity have been influenced

- Public discourse has been stimulated or informed by research.
- Public interest and engagement in science and engineering has been stimulated, including through the enhancement of science and engineering-related education in schools.
- The awareness, attitudes or understanding of (sections of) the public have been informed, and their ability to make informed decisions on issues improved, by engaging them with research.
- The work of an NGO, charitable or other organisation has been influenced by the research.
- Research has contributed to community regeneration.

Table B1 Examples of impact continued

Health impacts

Impacts where the beneficiaries may include individuals (including groups of individuals) whose health outcomes have been improved or whose quality of life has been enhanced (or potential harm mitigated) through the application of enhanced healthcare for individuals or public health activities

- A new drug, treatment or therapy, diagnostic or medical technology has been developed, trialled with patients, or adopted.
- Patient health outcomes have improved through, for example, the availability of new drug, treatment or therapy, diagnostic or medical technology, changes to patient care practices, or changes to clinical or healthcare guidelines.
- Public health and quality of life has been enhanced through, for example, enhanced public awareness of a health risk, enhanced disease prevention or, in developing countries, improved water quality or access to healthcare.
- Decisions by a health service or regulatory authority have been informed by research.
- The costs of treatment or healthcare have reduced.
- Quality of life in a developed or developing country has been improved by new products or processes.

Impacts on practitioners and professional services

Impacts where beneficiaries may include organisations or individuals involved in the development of and delivery of professional services

- Changes to professional standards, guidelines or training have been informed by research.
- Practitioners/professionals/lawyers have used research findings in the conduct of their work.
- The quality or efficiency or productivity of a professional service has improved.
- Professional bodies and learned societies have used research to define best practice.
- Practices have changed, or new or improved processes have been adopted, in companies or other organisations, through the provision of training or consultancy.
- Expert and legal work or forensic methods have been informed by research.

Impacts on the environment

Impacts where the key beneficiaries are the natural environment and/or the built environment, together with societies, individuals or groups of individuals who benefit as a result

- The environment has been improved through the introduction of new product(s), process(es) or service(s); the improvement of existing product(s), process(es) or services; or the enhancement of strategy, operations or management practices.
 - New methods, models, monitoring or techniques have been developed that have led to changes or benefits.
 - Policy debate on the environment, environmental policy decisions or planning decisions have been stimulated or informed by research and research evidence.
 - The management or conservation of natural resources, including energy, water and food, has been influenced or changed.
 - The management of an environmental risk or hazard has changed.
 - The operations of a business or public service have been changed to achieve environmental (green) objectives.
 - Direct intervention, based on research evidence, has led to reduction in carbon dioxide or other environmentally damaging emissions.
-

Impacts arising from public engagement activity

77. Engaging the public with research is an activity that may lead to impact. Sub-panels will welcome case studies that include impact achieved in this way, either as the main impact described or as one facet of a wider range of impacts.

78. Public engagement is a very broad area, not all of which is underpinned by research. Case studies which include impacts that derive from engaging the public with research must:

- a. At least in part, be based on specific research or a body of research carried out in the submitted unit, and explain clearly which particular aspects of the research underpinned the engagement activity and contributed to the impact claimed.
- b. Include evidence of the reach of the impact. This should extend beyond simply providing the numbers of people engaged and may also, for example, include:
 - information about the types of audience
 - whether there was secondary reach, for example from follow-up activity or media coverage
 - other quantitative indicators such as evidence of sales, downloads of linked resources, and/or access to web content.
- c. Include evidence of the significance of the impact. This should include a description of the social, cultural or other significance of the research insights with which the public have engaged. Examples of the evidence that might be provided for this include:
 - evaluation data
 - user feedback or testimony
 - critical external reviews of the engagement activity
 - evidence of third party involvement, for example how collaborators have modified their practices, contributions (financial or in-kind) by third parties to enhance services or support for the public, or evidence of funds from third parties to enhance or extend the engagement activity
 - evidence of sustainability, through, for example, a sustained or ongoing engagement with a group, a significant increase in participation in events or programmes, continuing sales, downloads, or use of resources.

Case studies: evidence of impact

79. Each case study must provide a clear and coherent narrative that includes an account of who or what constituency, group, sector, organisation and so on, has benefited, been influenced, or acted upon. Evidence appropriate to the type(s) of impact described should be provided to support the claims made of the nature and extent of the impact, in terms of its reach and significance.

80. Evidence may take many different forms depending on type of impact(s) reported. Wherever possible, quantitative indicators should be included. Sources that could verify key evidence and indicators provided in the case study should be included in section 5 of the impact case study template.

81. The main panel recognises that some of the evidence in case studies may be of a confidential or sensitive nature. The arrangements for submitting and assessing case studies that include such material are set out in Part 1, paragraphs 58-59.

82. The examples in Table B2 provide a guide to potential types of evidence or indicators that may be most relevant to each of the types of impact described in Table B1. However, HEIs should note that:

- a. This is not intended to be exhaustive.
- b. Some indicators may be relevant to more than one type of impact.
- c. Sub-panels will consider any appropriate evidence that is verifiable.
- d. Sub-panels recognise the varying degrees to which evidence and indicator information may be available to HEIs.

Table B2 Examples of evidence and indicators of impact

Economic impacts	<ul style="list-style-type: none">• Business performance measures, for example, sales, turnover, profits or employment associated with new or improved products, processes or services.• Licences awarded and brought to market.• Jobs created or protected.• Investment funding raised from UK and/or non-UK agencies (venture capital/Business Angel, and so on) for start-up businesses and new activities of existing businesses.• Evidence of critical impact on particular projects, products and processes confirmed by independent authoritative evidence, which should be financial where possible.• Priority shifts in expenditure profiles or quantifiable reallocation of corporate, non-profit or public budgets.
Impacts on public policy and services	<ul style="list-style-type: none">• Documented evidence of policy debate (for example, in Parliament, the media, material produced by NGOs).• Documented evidence of changes to public policy/legislation/regulations/guidelines.• Measures of improved public services, including, where appropriate, quantitative information; such information may relate for example to the quality, accessibility or cost-effectiveness of public services.• Documented evidence of changes to international development policies.• Measures of improved international welfare or inclusion.
Impacts on society, culture and creativity	<ul style="list-style-type: none">• Visitor or audience numbers and feedback.• Critical reviews in the media and/or other professional publications.• Evidence of public debate in the media or other fora.• Evidence of sustained and ongoing engagement with a group.• Measures of increased attainment and/or measures of improved engagement with science in non-HE education.
Health impacts	<ul style="list-style-type: none">• Evidence from clinical trials.• Measures of improved patient outcomes, public health or health services.• Documented changes to clinical guidelines.• Evidence of take-up and use of new or improved products and processes that improve quality of life in developing countries.
Impacts on practitioners and professional services	<ul style="list-style-type: none">• Traceable reference to inclusion of research in national or international industry standards or authoritative guidance.• Traceable references by practitioners to research papers that describe their use and the impact of the research.• New or modified professional standards and codes of practice.• New or modified technical standards or protocols.• Documented changes in knowledge, capability or behaviours of individuals benefiting from training.

Table B2 Examples of evidence and indicators of impact continued

Impacts on the environment	<ul style="list-style-type: none">• Sales of new products or improvements in existing products that bring quantifiable environmental benefits.• Traceable impacts on particular projects or processes which bring environmental benefits.• Evidence of generic environmental impact across a sector, confirmed by independent authoritative evidence.• Documented case-specific improvements to environment-related issues.• Traceable reference to inclusion of research into government policy papers, legislation and industry guidance.• Traceable reference to impact of research in planning decision outcomes.• Policy documentation.
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Case studies: underpinning research

83. As described in the impact case study template (see the 'guidance on submissions', Annex G) HEIs should provide in section 3 up to six key references to research produced by the submitting unit in the period 1 January 1993 to 31 December 2013 that underpins the impact described in the case study. A case study will be eligible for assessment only if the sub-panel is satisfied that the underpinning research is predominantly of at least two star quality.

84. Case studies may reference any type of output that is the product of research. HEIs should identify up to three of these references that best indicate the quality of the underpinning research. Based on the information submitted, the sub-panels will use their expert judgement to determine in how much detail they need to review the underpinning research in order to be assured that the quality threshold has been met.

85. Provided the sub-panel is satisfied that the quality threshold has been met, the quality of the underpinning research will not be taken into consideration as part of the assessment of the reach and significance of the claimed impact.

86. Underpinning research referenced in a case study may also be included in a submission as an output (listed in REF2), without disadvantage. In these situations, the assessment of the impact case study will have no bearing on the assessment of the quality of the output. The assessment of the quality of the output may inform the assessment of the case study, only in terms of assuring the threshold for underpinning research quality.

Impact template

87. The requirement to submit an impact template is described in 'guidance on submissions' (paragraphs 149-155), and the generic template is at Annex B of this document. The sub-panels request the following information in each section a-d of the template. Where possible, relevant illustrative examples with traceable references should be given, rather than broad general statements. The information submitted under headings a and d will be considered as contextual information for the sub-panels in assessing the case studies, and will not be assessed in forming the impact sub-profiles.

- a. **Context:**
 - Describe the main non-academic user groups, beneficiaries or audiences for the unit's research.
 - Describe the main types of impact specifically relevant to the unit's research, and how these relate to the range of research activity or research groups in the unit.
- b. **Approach to impact:** Describe the unit's approach to its interaction with non-academic users, beneficiaries or audiences and to achieving impacts from its research, during the period 2008-2013. This could include details of, for example:
 - How staff in the unit interacted with, engaged with or developed relationships with key users, beneficiaries or audiences to develop impact from the research carried out in the unit⁸.

⁸ Note that within the environment template, submissions should explain research collaborations with users, and how their relationships/interactions inform the development of the unit's research activity/strategy.

- Evidence of the nature of those relationships and interactions. This may include, for example, participation in schemes such as Research Council knowledge exchange schemes and industrial doctoral training centres, and interactions through training provided or consultancy undertaken, where these have led to beneficial relationships.
 - Evidence of follow-through from these activities to identify resulting impacts.
 - Evidence of an agile approach to opportunities.
 - How the unit specifically supported and enabled staff to achieve impact from their research, and ways in which they are rewarded or recognised for achieving impact.
 - How the unit made use of institutional facilities, expertise or resources in undertaking these activities.
 - Other mechanisms deployed by the unit to support and enable impact.
- c. **Strategy and plans:** Describe how the unit is developing its strategy for achieving impact, including its goals for supporting and enabling impact from its research in the future.
- d. **Relationship to the case studies:** The sub-panels do not expect that submitted case studies will necessarily have arisen out of the approaches to achieving impacts, as described in b above, for the period 2008 to 2013. However, where relevant, they would welcome details of, for example, how particular case studies exemplify aspects of the approach, or how particular case studies informed the development of the unit's approach.

Impact criteria

88. The sub-panels will assess impact according to the generic criteria and level definitions in 'guidance on submissions', Annex A, Table A3. The criteria will be understood as follows:

- **Reach** is the extent and breadth of the beneficiaries of the impact.
- **Significance** is the degree to which the impact has enabled, enriched, influenced, informed or changed the products, services, performance, practices, policies or understanding of commerce, industry or other organisations, governments, communities or individuals.

89. The sub-panels will make an overall judgement about the reach and significance of impacts, rather than assessing each criterion separately.

90. HEIs may submit case studies describing impacts at any stage of development or maturity. However, the assessment will be solely on the impact achieved during the assessment period, regardless of its stage of maturity. No account will be taken of anticipated or future potential impact, and therefore early stage or interim impacts might not score as highly as more mature impacts.

Section B4: Assessment criteria: environment

Environment template

91. The environment template (REF5) is at Annex C. Sub-panels request the following information in sections a-e of REF5:

- a. **Overview:** This will provide context for the sub-panel in assessing the submission, and will not be assessed.
 - Submitting units should describe how research is structured across the unit, including, where appropriate, what research groups or sub-units are covered by the submission. Given that there is no expectation that the environment element of submissions will relate to a single coherent organisational unit, groups may be organisational units such as departments or schools and/or research groups.
 - HEIs presenting staff in research groups should allocate staff to research groups in the staff details form (REF1a) of the submission. HEIs should note that staff may be allocated to more than one research group.
- b. **Research strategy:** Submitting units are invited to provide evidence of the achievement of strategic aims for research during the assessment period, as well as details of future strategic aims and goals for research; how these relate to the structure described above; and how they will be taken forward. This should include (but is not limited to):
 - vision, including strategic plans
 - an evaluation of the submitting unit's current position with reference to the research position described in RAE 2008.
- c. **People:**
 - i. **Staffing strategy and staff development:** Submitting units are invited to describe staffing strategy and staff development within the unit, including but not limited to:
 - evidence of how the staffing strategy relates to the unit's research strategy and physical infrastructure
 - evidence about career development support at all stages in research careers, including for research assistants, early career researchers and established academic staff
 - ii. **Research students:** Submitting units are invited to provide evidence of the quality of training and supervision of postgraduate research students, including but not limited to:
 - information on PGR recruitment such as approaches to recruitment, and any discipline-specific issues
 - information on training and support mechanisms
 - information on progress monitoring.
- d. **Income, infrastructure and facilities:** Submitting units are invited to provide evidence including (but not limited to):
 - information on provision and operation of specialist infrastructure and facilities
 - evidence of investments (both current and planned) in infrastructure and facilities
 - information on the research funding portfolio, including future plans
 - information on consultancies and professional services.
- e. **Collaboration and contribution to the discipline or research base:** Submitting units are invited to provide evidence and information relating to contributions to the wider research base, including work with other researchers outside the submitted unit, whether locally, nationally or internationally, and indicators of wider influence or contributions to the discipline or research base. This may include (but is not limited to):
 - information on support for and exemplars of research collaborations, including national
 - evidence about the implementation of the Concordat to Support the Career Development of Researchers
 - information on staff with personal research fellowships won in an open competition such as Royal Society University Research Fellowships
 - information on international staff appointments (incoming and outgoing), international recruitment and visiting scholars
 - evidence of how the submitting unit supports equalities and diversity.

or international research collaborations, with academic, industry and other bodies

- information on support for and exemplars of interdisciplinary research
- information on how research collaborations with research users, including industry users, have informed research activities and strategy
- exemplars of leadership in the academic community such as national or international advisory board membership; leadership roles in industry, commerce, Research Councils, learned societies or professional bodies; conference programme chairs; invited keynote lectures; election to membership or fellowship of learned societies; journal editorships; and fellowships, awards and prizes.

92. Requirements for additional quantitative data to be included in REF5 are described below (paragraphs 96 and 97).

Environment data

93. 'Guidance on submissions' (Part 3, Section 4) sets out quantitative data relating to the research environment to be included in submissions (REF4a/b/c). Sub-panels will use the data in the context of the information provided in the environment template (REF5), to inform their assessment. Data on research doctoral degrees awarded (REF4a) will be used to inform the sub-panels' assessment in relation to 'research students' (section c.ii). Data on research income (REF4b/c) will be used to inform the sub-panels' assessment in relation to 'income, infrastructure and facilities' (section d).

94. Sub-panels within Main Panel B do not require quantitative data provided by institutions in REF4a/b/c to be reported by research group.

95. Some sub-panels have identified additional quantitative indicators that are particularly relevant to the assessment of the vitality and sustainability of the research environment in their disciplines. These sub-panels therefore request the following additional data items to be provided as part of the narrative submitted within the environment template (REF5), under the section headings stated below.

96. **People: research students.** In chemistry, higher proportions of funder investment are committed to postgraduate doctoral training than in other physical sciences, and there is wide acknowledgment of the doctoral degree as the professional qualification in the discipline. Doctoral research student numbers are

therefore an especially strong indicator of research vitality in chemistry submissions. Sub-panel 8 therefore wishes to receive information on doctoral research student populations to supplement the data on doctoral degrees awarded, to provide a fuller picture of the development of the postgraduate research profile throughout the assessment period. For **Sub-panel 8 only**, the total FTE postgraduate research students enrolled on doctoral programmes, broken down into the academic years of the assessment period (from 1 August 2008 to 31 July 2013), should be provided. Only students registered and conducting their research programme should be included (not, for example, students who are writing up their thesis outside the normal registration period, or visiting from other institutions). This information should be included in tabular format as part of the 'People: research students' section of the REF5 template.

97. **Income, infrastructure and facilities.** For **Sub-panel 9 only**, data should be provided on usage within the assessment period (1 January 2008 to 31 July 2013) of major national and international facilities not supported by the Research Councils, which was awarded to an investigator in the submitted unit after competitive review by a panel of internationally recognised experts. The information should be provided for each facility in terms of the time awarded together with the total cost, if the latter is available.

Environment criteria

98. The sub-panels will assess the environment according to the generic criteria and level definitions in 'guidance on submissions', Annex A, Table A4. The criteria will be understood as follows:

- **Vitality** will be understood as the extent to which a unit provides an encouraging environment for research, has an effective strategy, is engaged with the national and international research and user communities, and is able to attract excellent postgraduate and postdoctoral researchers.
- **Sustainability** will be assessed by considering leadership, vision for the future and investment in people and infrastructure and, where appropriate for the subject area, the extent to which activity is supported by a portfolio of research funding.

99. In assessing the environment element of submissions, panels will apply the criteria in terms of both the research environment within the submitting unit, and its participation in and contribution to its subject discipline and academic community.

100. In considering each section of the environment template, sub-panels will take account of data reported in the template, as well as the data submitted in REF4a/b/c, as stated at paragraph 93. Sub-panels will attach the following weighting to the assessment of the components within the environment template, in forming the environment sub-profile:

a.	Overview	For information only
b.	Strategy	20%
c.	People (staffing strategy and staff development; and research students)	30%
d.	Income, infrastructure and facilities	30%
e.	Collaboration and contribution to the discipline or research base	20%

Part 2C

Main Panel C criteria

Main Panel C covers the following sub-panels:

- 16 Architecture, Built Environment and Planning
 - 17 Geography, Environmental Studies and Archaeology
 - 18 Economics and Econometrics
 - 19 Business and Management Studies
 - 20 Law
 - 21 Politics and International Studies
 - 22 Social Work and Social Policy
 - 23 Sociology
 - 24 Anthropology and Development Studies
 - 25 Education
 - 26 Sport and Exercise Sciences, Leisure and Tourism
-

The following sections set out the criteria that Main Panel C and its sub-panels will apply in assessing submissions. These should be read alongside the guidance provided in REF 02.2011, 'Assessment framework and guidance on submissions' (hereafter 'guidance on submissions') and the generic statement of criteria and working methods provided in Part 1 of this document.

Section C1: Submissions and units of assessment

Section C2: Assessment criteria: outputs

Section C3: Assessment criteria: impact

Section C4: Assessment criteria: environment

Section C1: Submissions and units of assessment

Introduction

1. The sub-panels of Main Panel C cover a diverse range of content, disciplines and methodologies. The sub-panels anticipate receiving research outputs, impact case studies, and impact and environment templates which reflect that rich diversity, and have no pre-conceptions about where excellent research will be found.
2. Each sub-panel expects to receive submissions whose primary research focus falls within the stated remit of its UOA. Submitting units are encouraged to submit their strongest work, including interdisciplinary work, in the UOA where it is most appropriate.

Unit of assessment descriptors and boundaries

UOA 16: Architecture, Built Environment and Planning

3. **Descriptor:** The UOA covers all forms of historical theoretical, applied and practice-based research relevant to the planning, design, creation, use, management and governance of the built environment in both rural and urban areas. This includes: building engineering, building sciences, communities, construction, construction management, economic development, environment, housing, landscape, manufacture, real estate, regeneration, sustainability, transport, regional and spatial analysis and urbanism. The UOA also covers any other research in which the built environment forms a major field for application or provides the context for research. It expects submissions in this UOA from a broad range of disciplines, research methodologies and forms of output, across the spectrum of fundamental, applied, policy and practice-based research. Much of the submitted research is expected to span disciplinary and methodological boundaries. The sub-panel has wide-ranging experience in this area, and welcomes interdisciplinary submissions.
4. **Boundaries:** The sub-panel anticipates that there may be overlaps with UOA 2 (Public Health, Health Services and Primary Care, such as work that relates to healthy cities and healthy environment), UOA 4 (Psychology, Psychiatry and Neuroscience), UOA 7 (Earth Systems and Environmental Sciences), UOA 11 (Computer Science and Informatics), UOA 13 (Electrical and Electronic Engineering, Metallurgy and Materials), UOA 14 (Civil and Construction Engineering), UOA 17 (Geography, Environmental

Studies and Archaeology), UOA 18 (Economics and Econometrics), UOA 19 (Business and Management Studies), UOA 21 (Politics and International Studies), UOA 22 (Social Work and Social Policy), UOA 23 (Sociology), UOA 24 (Anthropology and Development Studies) and UOA 34 (Art and Design: History, Practice and Theory).

UOA 17: Geography, Environmental Studies and Archaeology

5. **Descriptor:** The UOA covers all aspects of research – conceptual, methodological, substantive and applied – conducted within the disciplines of geography, environmental studies and archaeology, as broadly defined. This research embraces a wide range of enquiries into natural, environmental and human phenomena, and their interrelationships in particular systems, contexts, periods and locations (both in the UK and internationally). In **Geography**, submitted research may include work from all fields of physical and human geography (for example, biogeography, climatology, geomorphology, glaciology, hydrology, environmental change, Quaternary science; environmental geography; development, economic, health, political, population, social, cultural and historical, urban and rural geographies; and geographical information sciences); work that combines any of these sub-fields; and work that uses a wide range of available methods, from science-based to humanistic and participatory, from the abstract to the experimental and field-based. In **Environmental Studies**, submitted research may include work in any area of the field, including some also present in environmental geography (for example, environmental economics, governance, management and policy), and some areas of environmental science (for example, conservation, ecology, environmental pollution, and resource management). In **Archaeology**, submitted research may include work from all fields of the subject (for example, archaeological theory and historiography, archaeological science, the archaeology of human origins, and prehistoric and historic societies worldwide, early civilisations, Egyptology, classical archaeology and related historical studies, medieval and post-medieval archaeology, colonial and industrial archaeology, landscape and environmental archaeology, archaeological aspects of heritage management and museum studies, archaeological conservation and forensic archaeology). The UOA also includes work on the history and theory of geographical, environmental and archaeological enquiry; as well as work on geographical, environmental and archaeological techniques, including remote sensing, geospatial analyses, dating methods, and bio- and geo-archaeology.

6. **Boundaries:** Given the breadth of the subject matter of UOA 17, there are likely to be some overlaps with other UOAs, located both in Main Panel C and in any of the other main panels. The expectation is that submissions in UOA 17 that overlap with cognate fields will normally involve research in such areas that are integral to research programmes and research environments in archaeology, geography and environmental studies. Where a submission's **main** research emphasis lies elsewhere, it should be submitted in a more appropriate UOA. In areas where there is significant overlap between UOA 17 and another UOA, it is expected that whole submissions will be made in the UOA appropriate to the academic context and research environment in which the research was undertaken, and with the most appropriate range of expertise for the body of work as a whole. Possible areas of overlap may include: some physical geography and some environmental studies and archaeology with UOA 7 (Earth Systems and Environmental Sciences); some archaeology and ancient history with UOA 31 (Classics); historical geography with UOA 30 (History); development geography and archaeology with UOA 24 (Anthropology and Development Studies); environmental studies with UOA 5 (Biological Sciences); and archaeological conservation and heritage science with UOAs in several panels including UOA 8 (Chemistry).

UOA 18: Economics and Econometrics

7. **Descriptor:** The UOA includes all aspects of economics and econometrics (including, where appropriate, economic history). Research of all types – empirical or theoretical, strategic, applied, or policy-focused – will be considered of equal standing.

8. **Boundaries:** Submitting units are encouraged to submit their strongest work irrespective of the form of output or the extent of its interdisciplinary nature, even if the research is at the boundaries of the UOA. There could be overlaps with any UOA, including the other UOAs within Main Panel C, particularly UOA 19 (Business and Management Studies).

UOA 19: Business and Management Studies

9. **Descriptor:** The UOA consists of the areas of: accounting and finance; business history; business and industrial economics; corporate governance and risk management; corporate social responsibility; employment relations; entrepreneurship and small firms; human resource management; information management and business systems; innovation and technology management; international business; management education and development;

management science; marketing; operations and project management; organisational psychology; organisational studies; public sector management; public services and third sector; service management; strategic management; and any other field or sub-field aligned to business and management.

10. **Boundaries:** The sub-panel anticipates that work submitted in this UOA may overlap with the remits of UOA 10 (Mathematical Sciences), UOA 18 (Economics and Econometrics) and UOA 36 (Communication, Cultural and Media Studies, Library and Information Management).

11. An anticipated exception to the main panels' preferred approach of the majority of work submitted in a UOA being assessed by that sub-panel, is that significant aspects of submissions in UOA 19 (Business and Management Studies) are expected to fall within the remit of UOA 18 (Economics and Econometrics). These parts of submissions may be cross-referred to Sub-panel 18 for advice, although, in common with any cross-referred work, Sub-panel 19 (as the sub-panel for the UOA in which the work was submitted for assessment) will retain responsibility for recommending the quality profile.

UOA 20: Law

12. **Descriptor:** The UOA includes all doctrinal, theoretical, empirical, comparative, critical, historical or other studies of law and legal phenomena including criminology, and socio-legal studies. The sub-panel would also expect research on legal education to be submitted in this UOA.

13. **Boundaries:** All areas of law as described above fall within the boundaries of the UOA. Research in law may intersect with or draw upon a variety of disciplines and methodologies. The sub-panel has been constituted with a broad spread of relevant expertise to ensure informed assessment of all submissions, and encourages units to submit their strongest work including research which is at the boundaries of the UOA. For the avoidance of doubt, it is recognised that criminological research may fall within the boundaries of Sub-panels 20 (Law), 22 (Social Work and Social Policy) and 23 (Sociology). All three sub-panels welcome such work, which will be assessed in accordance with the arrangements noted above, in particular making use of joint assessors and cross-referral as deemed appropriate by the sub-panels.

UOA 21: Politics and International Studies

14. **Descriptor:** The UOA includes (but is not restricted to) comparative, area, national and sub-national politics; public administration and policy studies; political behaviour and political sociology;

political theory and philosophy, including history of political thought; international relations, including strategic, war and peace studies, international history, international political economy and foreign policy analysis; methods in political studies; and higher education pedagogic research in politics and international studies.

15. **Boundaries:** The sub-panel expects submissions in this UOA from all areas of the discipline in the UOA descriptor, but recognises that some of the outputs submitted will cross disciplines; the sub-panel is confident of its ability to assess a wide range of interdisciplinary outputs.

UOA 22: Social Work and Social Policy

16. **Descriptor:** The UOA covers all forms of research in social work, social policy and administration and criminology, including those in governmental, voluntary and community, private for profit and not for profit areas. Research includes:

- a. Theory, methodology, empirical research, ethics and values, and pedagogy as they apply to social work, social care, social policy, criminology and criminal justice policy, gerontology and substantive issues in these areas of study.
- b. Comparative research and research into international institutions, policy and practice.
- c. Research that uses a range of disciplinary approaches including (but not exclusively) the following: business and management, demography, development studies, economics, education, geography, health studies, history, law, politics, psychology and sociology.
- d. Relevant links with other stakeholders, professionals, service users and carers.
- e. Policy-making processes, practice, governance and management, service design, delivery and use, and inter-professional relationships.

17. **Boundaries:** Social work, social policy and administration, and criminology are essentially multidisciplinary subjects and are closely related to a range of other disciplines within the social sciences and more broadly. Appropriate methods will be used in cases of substantial overlap with other sub-panels, as set out in Part 1, paragraphs 92-100. For the avoidance of doubt, it is recognised that criminological research may fall within the boundaries of Sub-panels 20 (Law), 22 (Social Work and Social Policy) and 23 (Sociology). All three sub-panels welcome such work, which will be assessed in accordance with the arrangements noted above, in particular making use of joint assessors and cross-referral as deemed appropriate by the sub-panels.

UOA 23: Sociology

18. **Descriptor:** The UOA includes empirical and theoretical study of the social structures, cultures and everyday practices of societies, including styles and material standards of living, opinions, values and institutions. It covers all areas of social theory, historical and comparative studies, and social research methodology (including qualitative and quantitative methods and visual methodologies), philosophy of social science, and research on pedagogy in sociology. The sub-panel also expects to consider sociological research in such interdisciplinary fields as criminology and socio-legal studies, media and cultural studies, demography, socio-linguistics, social psychology, psychosocial studies, social studies of science and technology (including science and technology policy), and lesbian, gay, bisexual, transgender and intersex studies.

19. The sub-panel expects submissions in this UOA from all fields of sociological enquiry including, but not restricted to, research on cultures, economies, and politics; class, ethnicity, gender, sexuality, disability, and age, and their intersection; religion, education, health and medicine, family, media, welfare institutions, and work and employment; environment, technology, and climate change; the body, interpersonal and inter-group relations, violence; urban and rural issues; language and social interaction; political sociology, public policy, and social movements; political economy, globalisation, development, migration, and diaspora; comparative studies of societies of all kinds, including work on transnational structures and agencies, the European Union, world systems. The sub-panel welcomes works in social theory and the history of social thought.

20. As in previous research assessment exercises, work in interdisciplinary women's studies may be submitted in this UOA, or may be cross-referred by other sub-panels to Sub-panel 23. Assessors will be appointed to consider the interdisciplinary aspects of women's and gender studies that fall outside the expertise of the sub-panels.

21. Work submitted in this UOA may overlap significantly with the remit of UOA 22 (Social Work and Social Policy). This arises from the large number of academic units that combine the constituent subject areas and that may make a combined submission in UOA 22 or UOA 23. It is anticipated that the use of joint assessors and cross-referral of parts of submissions may be required in order to ensure an appropriate assessment, in accordance with the arrangements in Part 1, paragraphs 92-100. For the avoidance of doubt, it is recognised that

criminological research may fall within the boundaries of Sub-panels 20 (Law), 22 (Social Work and Social Policy) and 23 (Sociology). All three sub-panels welcome such work, which will be assessed in accordance with the arrangements noted above, in particular making use of joint assessors and cross-referral as deemed appropriate by the sub-panels.

UOA 24: Anthropology and Development Studies

22. **Descriptor:** The UOA covers all aspects of research within the disciplines of Anthropology and Development Studies, including research that is conceptual, theoretical, empirical, applied, strategic and practice-based, and that draws on a broad range of methodologies that includes the qualitative, quantitative, field-based, laboratory-based, experimental, participatory, evaluative, visual and comparative.

23. **Anthropology** is understood to include the broad fields of biological anthropology, palaeoanthropology and social and cultural anthropology. Social and cultural anthropology includes, but is not limited to, economic and political anthropology; kinship, gender and relatedness; religion and cognition; medical anthropology; environment, conservation and biodiversity; the anthropology of development; visual anthropology; ethnomusicology and performance; material culture. Biological anthropology includes, but is not limited to, human and non-human primate evolution and adaptation; palaeoanthropology, behaviour, growth and development, health and disease, ecology, conservation, genetics, demography and for forensic applications.

24. **Development Studies** covers issue-driven research concerning the analysis of global to local processes of cultural, demographic, economic, environmental, political, technological and social change in developing and emerging parts of the world, with particular reference to structures and institutions; the changing relationships between developed and developing countries; and the construction and critical interrogation of development theories and methods, and of policy analysis.

25. **Boundaries:** The sub-panel expects submissions in this UOA from all areas outlined in the UOA descriptor, but recognises that some of the work submitted might span the boundaries between two or more UOAs. The sub-panel is confident in its ability to assess a wide range of interdisciplinary work.

UOA 25: Education

26. **Descriptor:** Research in education is multi-disciplinary and is closely related to a range of other disciplines with which it shares common interests, methods and approaches. This diversity of content and methodology requires the sub-panel to be flexible in setting out the boundaries of work relevant to the REF.

27. The UOA may be broadly described as being concerned with research in the areas identified in the following illustrative lists:

- Research which addresses education systems, issues, processes, provision and outcomes in relation to sectors, **such as:** early years, primary, secondary, further, higher, medical, workplace, adult and continuing education. It also includes teacher, healthcare and other forms of professional education, vocational training; and informal, community and lifelong learning.
- Research which addresses substantive areas, **such as:** curriculum, pedagogy, assessment, language, teaching and learning; children, young people, student and adult learners; parents, families and communities; culture, economy and society; teacher training, professionalism and continuing professional development (CPD); special and inclusive education; participation, rights and equity issues; technology-enhanced learning; education policy; the organisation, governance, management, effectiveness and improvement of educational institutions; education, training, workplaces, industry and the labour market; comparative, international and development education.
- Research which employs a range of theoretical frameworks and methodologies drawn from disciplinary traditions, **including, but not limited to:** anthropology, applied linguistics, economics, geography, history, humanities, mathematics, statistics, philosophy, political science, psychology, science and sociology. Research in the field of education deploys a range of qualitative and quantitative methodologies with structured, exploratory and participatory research designs. These **include, but are not limited to:** surveys, experiments and controlled trials; ethnography, interview and narrative enquiry; action research and case study; evaluation research; critical theory and documentary analysis; analytic synthesis and systematic review.

28. The sub-panel welcomes submissions in pedagogical research in higher education and in professional education (including healthcare), while recognising that such work may instead be submitted in another relevant UOA. The sub-panel will consider submissions in counselling and neuroscience where this work has an educational orientation. However, submissions in these areas may be referred to another sub-panel for advice.

UOA 26: Sport and Exercise Sciences, Leisure and Tourism

29. **Descriptor:** Research in the UOA stems from the natural sciences, social sciences and the humanities. The sub-panel expects to receive submissions from a wide range of disciplines and subject areas that contribute to research in sport and exercise sciences, leisure and tourism. These include (in alphabetical order): adapted physical activity, anthropology, biochemistry, biomechanics, business and management, coaching, economics, education, engineering and technology, event management, geography, history, hospitality, law, medicine, molecular biology, motor learning and control, nutrition, outdoor and adventure education, philosophy, physical education and pedagogy, physical activity and health, physiology, policy studies, politics, psychology and sociology. Research in sport and exercise sciences, leisure and tourism is therefore derived from diverse disciplines and subject areas, and can also be multi-disciplinary and interdisciplinary.

30. The sub-panel expects submissions in this UOA of research of all types, and it expects to consider research informed by a variety of research epistemologies, methodologies and methods. The sub-panel will consider research defined as empirical, theoretical, strategic, applied, or policy-focused as having equal standing.

Interdisciplinary research and work on the boundaries between UOAs

31. The main panel recognises that the UOAs described above do not have firm or rigidly definable boundaries, and that aspects of research are naturally interdisciplinary or multi-disciplinary or span the boundaries between individual UOAs, whether within the main panel or across main panels.

32. The arrangements for assessing interdisciplinary research and submissions that span UOA boundaries – including through the appointment of assessors and, where necessary, cross-referring specific parts of submissions between sub-panels – are common across all main panels and are described in Part 1, paragraphs 92-100.

Pedagogic research

33. Research on pedagogy and educational issues within higher education that relate to the disciplines covered by Main Panel C may be submitted in the UOA to which it relates or in UOA 25 (Education), as deemed appropriate by submitting HEIs. Main Panel C anticipates that individual sub-panels will assess such research where it relates to higher education in the sub-panel's discipline area. Assessors will be appointed with expertise in pedagogic research in those UOAs where the pattern of submission requires it.

34. Research into teaching in other education sectors or on general educational issues should be submitted in UOA 25, or will be cross-referred to Sub-panel 25 as appropriate.

Multiple submissions

35. 'Guidance on submissions' (paragraphs 50-52) sets out the arrangements whereby institutions may exceptionally, and only with prior permission of the REF manager, make more than one submission (multiple submissions) in the same UOA. These exceptions include situations where a sub-panel considers there is a case for multiple submissions in its UOA, given the nature of the disciplines covered.

36. The following sub-panels in Main Panel C consider that there is a case, based on the nature of the disciplines covered by their UOAs, for multiple submissions in their UOAs and would expect to receive requests:

- Sub-panel 17 (Geography, Environmental Studies and Archaeology). It is anticipated that requests proposing separate submissions by discrete geography and archaeology departments would normally fulfil the criteria.
- Sub-panel 24 (Anthropology and Development Studies). It is anticipated that requests proposing separate submissions by discrete anthropology and development studies departments would normally fulfil the criteria.

37. Requests for multiple submissions may be made in other UOAs within Main Panel C but are expected to be a rare occurrence. All such requests will be considered according to the criteria and procedures at paragraph 50 of 'guidance on submissions'.

Section C2: Assessment criteria: outputs

Output types

38. Main Panel C welcomes all forms of research output that fulfil the eligibility criteria for the REF (set out in paragraphs 105-117 of 'guidance on submissions' and in Part 1, paragraphs 43-44 of this document) and recognises that work of the highest quality can be found in a range of media. The sub-panels will assess all forms of output on an equal basis, with no preconception of quality attached to the form or medium of an output. No sub-panel will use journal impact factors or any hierarchy of journals in their assessment of outputs.

39. All submitted outputs must embody original research. Main Panel C expects to receive a wide range of research output including, but not limited to:

- Books, edited works, parts of books, special issues.
- Journal articles (including web-based), including articles in supplements of journals.
- Physical artefacts such as buildings, devices, images, installations, materials, products and processes, prototypes.
- Digital artefacts such as data sets, multi-use data sets, archives, software, film and other non-print media, web content such as interactive tools.
- Temporary artefacts, such as exhibitions and performances.
- Other paper-based outputs such as: case notes; catalogues; conference papers; designs; design codes; monographs; multilateral and international agencies' research reports; outputs from projects commissioned by all levels of government, industry and other research funding bodies; policy evaluations/reports/commissioned reports; primary data reports; publications of development donors; published maps; patents; critical review articles; systematic reviews; teaching, curriculum and assessment materials and textbooks (including those for training and/or for practice) where they embody original research; working papers.

Outputs with significant material in common

40. As stated in 'guidance on submissions' (paragraph 108), where two or more research outputs listed against an individual in a submission include significant material in common (for example, an article reissued as a chapter in a book, or two articles

informed by the same empirical research and which make the same argument), the sub-panels may decide to assess each output taking account of the common material only once, or judge that they should be treated as a single output if they do not contain sufficiently distinct material.

41. Where a submitted output includes significant material in common with an output published prior to 1 January 2008, as stated in Part 1, paragraph 44, submissions should explain how far the earlier work was revised to incorporate new material (maximum 100 words).

Co-authored/co-produced outputs

42. Main Panel C recognises that collaboration is a positive and increasing dimension of research within its remit, and that collaboration results in co-authored or co-produced research outputs. It recognises that collaborative work may be addressing issues of significant concern to today's society. It expects, therefore, that co-authored works will represent a significant proportion of output submitted for assessment.

43. Where a co-authored or co-produced output is submitted for assessment, it must be listed against an individual member of staff who made a substantial research contribution to the output.

44. With the exception of the arrangements for the submission of a co-authored output twice in the same submission, detailed at paragraphs 47-48, the sub-panels do not require the submission of textual information about the individual co-author's contribution to a co-authored output and, if received, will take no account of such statements.

45. Information may be requested through an audit to verify that an author made a substantial research contribution to a co-authored output listed against them, and where this cannot be verified the output will be graded as 'unclassified'. The order of authors will not be taken into account, as conventions in this regard vary between subject areas. Once the sub-panel accepts that the author has made a substantial research contribution to the output, the sub-panel will assess the quality of the output taking no further regard of the member of staff's individual contribution. The quality of each output will be judged on its merits independent of authorship arrangements.

Listing a co-authored output multiple times within the same submission

46. Where two or more co-authors of an output are returned in **different** submissions (whether from the same HEI or different HEIs), any or all co-author(s) that made a substantial research contribution to the output may list the same output.

47. Sub-panels wish to receive the fullest possible picture of a submitted unit's research activity and advise that, if additional outputs of comparable quality will give a wider picture of research in the submitting unit, an item of co-authored work should be submitted only once within a single submission.

48. Nevertheless, sub-panels recognise that there may be circumstances in which institutions wish to submit a substantial piece of co-authored work against more than one member of staff returned within **the same** submission. In such cases institutions should provide a brief statement to demonstrate that each co-author or co-producer's contribution has been substantial and, where relevant, that it has been distinctive (maximum 100 words). A single co-authored output may be listed against a maximum of two members of staff within a submission.

49. Once the sub-panel has determined that each co-author made a substantial contribution to the output, it will assess the quality of the output as a whole, taking no further regard of each individual co-author's contribution. If a sub-panel does not accept the justification for listing the output twice, one occurrence of the output will be graded as 'unclassified'.

Double-weighted outputs

50. The sub-panels recognise that there will be cases where the combined scale of academic investment in the research activity and the scope of the research output is equivalent to two or more single outputs and may, in some cases, have limited the ability of an individual researcher to produce four substantial outputs within the assessment period. The sub-panels want to recognise and double-weight such outputs in the assessment; in other words for them to count as two outputs both in a submission and in the calculation of the outputs sub-profile.

51. Considering the patterns of publication across Main Panel C's areas of activity, and recognising that publication practices vary, the following sub-panels expect that requests for double-weighting would normally be made only for outputs other than journal articles or book chapters:

- Sub-panel 17 (Geography, Environmental Studies and Archaeology)
- Sub-panel 18 (Economics and Econometrics)
- Sub-panel 19 (Business and Management Studies)
- Sub-panel 21 (Politics and International Studies)
- Sub-panel 23 (Sociology).

52. When requesting that an output is treated as double-weighted, institutions should submit a supporting statement, explaining in what ways the output is of sufficiently extended scale and scope to justify the claim (maximum 100 words). Sub-panels will assess the claim for double-weighting separately from assessing the quality of the output, and there is no presumption that double-weighted outputs will be assessed at the higher quality grades.

53. No more than two outputs listed against an individual may be requested for double-weighting. Requests for double-weighting may not be made for co-authored outputs that have been submitted twice in a single submission (as set out in paragraphs 47-48 above).

54. Given the publication practices in Main Panel C disciplines, and in view of the main panel's wish to give full recognition to outputs of extended scale and scope, institutions may (but are not required to) identify one of the remaining outputs as a reserve for each double-weighting request. The reserve outputs will be assessed only if the sub-panel does not accept the request for double-weighting. If no reserve output is included in the submission and the request for double-weighting is not accepted by the sub-panel, the 'missing' output will be graded as 'unclassified'.

55. As the number of outputs submitted for assessment cannot sum to more than four per staff member submitted, no more than two outputs listed against an individual may be requested for double-weighting. In other words, the maximum number of outputs listed against a member of staff will comprise one of the following:

- four single outputs
- two single outputs plus one double-weighted output, plus the option to include one further output identified as a reserve
- two double-weighted outputs plus the option to include a reserve output for each.

56. Given that sub-panels will assess submissions in the form that HEIs have chosen to present their research within the REF framework, they will double-weight outputs only where requested by the submitting institution (and the request is accepted by the sub-panel), and will not double-weight any output for which a request has not been made by the institution.

Submission of outputs

57. To ensure that practice-based outputs are assessed on an equal basis with other outputs, submissions should include an explanatory

presentation of the building, design or intervention in an easily-handled paper-based format, sufficient to allow the panel both to understand the output without visiting it, and to make a judgement of its research contribution.

58. For software and data sets, a full written description should be provided in a paper-based format in order to avoid accessibility problems, including details of how and where the data set or software can be accessed.

59. Where the form of an output makes this essential, the paper-based submission may be supplemented by limited visual material in an accessible format such as DVD.

Additional information on outputs

Information about the research process and/or content

60. For **any** submitted output where the research content and/or process is not evident from the output itself, such as non-text outputs or teaching materials, submissions should include a statement of up to 300 words which identifies the research questions, methodology and means of dissemination.

Factual information about significance

61. Institutions may provide, in REF2, additional factual information about the significance of a submitted output (maximum 100 words). This information **must** be limited to factual, verifiable information and should relate only to nationally or internationally awarded prestigious prizes or similar significant recognition. It must relate specifically to the submitted output, rather than to an author's output in general. Where provided, statements should be succinct. It is expected that in the majority of cases considerably fewer than the 100 words allowed will be required.

62. The assessment of output quality remains one of peer review based on professional judgement, and no negative inference will be drawn from the absence of such additional information.

Other information

63. A summary of all the additional information about outputs required by Main Panel C is at Annex A.

Citation data

64. Sub-panels 16, 17, 19, 20, 21, 22, 23, 24, 25 and 26 will neither receive nor make use of citation data, or any other form of bibliometric analysis including journal impact factors.

65. Sub-panel 18 (Economics and Econometrics) will receive citation data where available, and will make use of the data where considered appropriate.

66. Where available on the Scopus citation database, the REF team will provide citation counts for research outputs submitted in UOA 18, at a pre-determined date and in a standard format. Sub-panel 18 will also receive discipline-specific contextual information about citation rates for each year of the assessment period to inform, if appropriate, the interpretation of citation data.

67. Sub-panel 18 will make use of citation data to inform the assessment as follows:

- a. Citation data will not be used as a primary tool in the assessment, but only as supplementary information, where this is deemed helpful, about the academic significance of an output. Sub-panel 18 will make rounded judgements about the quality of outputs, taking into account the full range of assessment criteria (originality, significance and rigour).
- b. The absence of citation data for any individual output will have no bearing whatsoever on its assessment.
- c. Sub-panel 18 will be mindful that for some forms of output (for example research monographs, or forms relating to applied research) and especially for very recent outputs, citation data may be unavailable or a particularly unreliable indicator. Sub-panel 18 will take due regard of the potential equalities implications of using citation data.
- d. The sub-panel will use citation data only where provided by the REF team and will not refer to any additional sources of bibliometric analysis, including journal impact factors.

Criteria and level definitions

68. This section provides a descriptive account of how the sub-panels in Main Panel C will interpret the generic criteria for assessing outputs – originality, significance and rigour – and will apply them at each of the starred quality levels. This descriptive account expands on and complements the generic criteria and definitions in Annex A of 'guidance on submissions', but does not replace them.

Interpretation of generic criteria

69. The criteria for assessing outputs will be interpreted as follows:

- **Originality** will be understood in terms of the innovative character of the research output. Research outputs that demonstrate originality may: engage with new and/or complex problems; develop innovative research methods, methodologies and analytical techniques; provide new empirical material; and/or advance theory or the analysis of doctrine, policy or practice.

- **Significance** will be understood in terms of the development of the intellectual agenda of the field and may be theoretical, methodological and/or substantive. Due weight will be given to potential as well as actual significance, especially where the output is very recent.
- **Rigour** will be understood in terms of the intellectual precision, robustness and appropriateness of the concepts, analyses, theories and methodologies deployed within a research output. Account will be taken of such qualities as the integrity, coherence and consistency of arguments and analysis, such as the due consideration of ethical issues.

70. Sub-panel 18 (Economics and Econometrics) will use citation information, where available and appropriate, as part of the indication of academic significance to inform its assessment of output quality. These arrangements are discussed at paragraphs 65-67.

Interpretation of generic level definitions

71. In assessing outputs, the sub-panels will look for evidence of originality, significance and rigour and apply the generic definitions of the starred quality levels as follows:

- In assessing work as being **four star** (quality that is world-leading in terms of originality, significance and rigour), sub-panels will expect to see evidence of, or potential for, some of the following types of characteristics:
 - outstandingly novel in developing concepts, techniques or outcomes
 - a primary or essential point of reference in its field or sub-field
 - major influence on the intellectual agenda of a research theme or field
 - application of exceptionally rigorous research design and techniques of investigation and analysis, and the highest standards of intellectual precision
 - instantiating an exceptionally significant, multi-user data set or research resource.
 - In assessing work as being **three star** (quality that is internationally excellent in terms of originality, significance and rigour but which falls short of the highest standards of excellence), sub-panels will expect to see evidence of, or potential for, some of the following types of characteristics:
 - an important point of reference in its field or sub-field
- contributing important knowledge, ideas and techniques which are likely to have a lasting influence
 - application of robust and appropriate research design and techniques of investigation and analysis, with intellectual precision
 - generation of a substantial, coherent and widely admired data set or research resource.
- In assessing work as being **two star** (quality that is recognised internationally in terms of originality, significance and rigour), sub-panels will expect to see evidence of, or potential for, some of the following types of characteristics:
 - providing valuable knowledge to the field or sub-field and to the application of such knowledge
 - contributing to incremental and cumulative advances in knowledge in the field and sub-field
 - thorough and professional application of appropriate research design and techniques of investigation and analysis.
- In assessing work as being **one star** (quality that is recognised nationally in terms of originality, significance and rigour), sub-panels will expect to see evidence of, or potential for, some of the following types of characteristics:
 - useful knowledge, but unlikely to have more than a minor influence in the field
 - an identifiable contribution to understanding, but largely framed by existing paradigms or traditions of enquiry
 - competent application of appropriate research design and techniques of investigation and analysis.
- Research will be graded as 'unclassified' if it falls below the quality levels described above or does not meet the definition of research used for the REF.

Section C3: Assessment criteria: impact

Introduction

72. This section should be read alongside 'guidance on submissions' (in particular, Section 3, Annex A, Annex C and Annex G), which sets out the generic definition of impact for the REF, the requirements for submitting impact case studies and a completed impact template, the associated eligibility guidelines, and the generic assessment criteria and level definitions. The sub-panels will assess impact in accordance with this framework.

73. This section provides information which adds to and complements, but does not replace, 'guidance on submissions' with the intention of assisting institutions in developing their submissions for this new element of research assessment.

74. Main Panel C wishes to encourage the disciplines submitting in its UOAs to showcase the impact that their research has achieved outside academia during the assessment period. The panel anticipates that impact will have been felt by a wide range of beneficiaries, and encourages units to submit case studies in any sphere consistent with the general guidance in 'guidance on submissions' (Section 3 and Annex C).

75. Since assessment of impact as part of the REF constitutes a new element of the research assessment process, the main panel recognises that institutions will be considering how to ensure that they prepare case studies which represent their strongest extra-academic impacts. In drawing up its assessment criteria and the advice to submitting institutions, the main panel strongly advises institutions that the guidance provided here, particularly regarding examples of impacts and evidence and/or indicators for those impacts, should not be read as exhaustive, prescriptive or limiting. It also recognises that the examples provided may fit under headings other than those to which they have been presented in the tables below. It wishes to encourage the submission of a wide range of types of impact outside academia, as evidence of the strength and diversity of the impact of research from Main Panel C disciplines, and anticipates that extremely strong impact case studies will be submitted which do not relate to any of the examples provided in the guidance. The examples are offered to assist institutions, not to constrain them.

76. The main panel also acknowledges that there are multiple ways of achieving impact. Impact may arise from individual research projects or from collaborations within or between a range of organisations, within higher education and beyond. The resultant impact may be achieved by a variety of possible models: from individuals, to inter-institutional groups, to groups including both academic and non-academic participants.

The relationship between research and impact may be neither direct nor linear. The main panel has determined that no one model or relationship will be considered intrinsically preferable, and each impact case study will be assessed on its own merits.

Range of impacts

77. As noted above, the sub-panels in Main Panel C welcome case studies that describe any type(s) of impact which fulfil the definition of impact for REF (see 'guidance on submissions', Annex C). The main panel acknowledges that impact within its remit may take many forms and occur in a wide range of spheres. These may include (but are not restricted to): creativity, culture and society; the economy, commerce or organisations; the environment; health and welfare; practitioners and professional services; public policy, law and services. The categories used to define spheres of impact, for the purpose of this document, inevitably overlap and should not be taken as restrictive. Case studies may describe impacts which have affected more than one sphere.

78. Impact of any type may be local, regional, national or international, in any part of the world. The beneficiaries of impact may include (but are **not** restricted to) community/ies, the environment, individuals and organisations. The panel will treat all forms and spheres of impact and any beneficiaries described on an equal basis, assessing them according to the generic REF criteria of reach and significance.

79. HEIs are reminded that impacts on research or the advancement of academic knowledge within the higher education sector (whether in the UK or internationally) **are excluded**. Other impacts within the HE sector that meet the definition of impact for the REF **are included** where they extend significantly beyond the submitting HEI. (See 'guidance on submissions', Annex C.)

80. The main panel particularly acknowledges that there may be impacts arising from research within Main Panel C disciplines which take forms such as holding public or private bodies to account or subjecting proposed changes in society, public policy, business practices, and so on to public scrutiny. Such holding to account or public scrutiny may have had the effect of a proposed change not taking place; there may be circumstances in which this of itself is claimed as impact. There may also be examples of research findings having been communicated to, but not necessarily acted upon, by the intended audience, but which nevertheless make a contribution to critical public debate around policy, social or business issues. The main panel also recognises that research findings may generate critique or dissent, which itself leads to impact(s). For example, research may find that a government approach to a particular social or economic issue is not delivering its objectives, which leads to the approach being questioned or modified.

Table C1 Examples of impact⁹**Impacts on creativity, culture and society:**

Impacts where the beneficiaries are individuals, groups of individuals, organisations or communities whose knowledge, behaviours, practices, rights or duties have been influenced

- Enhancements to heritage preservation, conservation and presentation; the latter including museum and gallery exhibitions.
- Production of cultural artefacts, including for example, films, novels and TV programmes.
- Public or political debate has been shaped or informed; this may include activity that has challenged established norms, modes of thought or practices.
- Improved social welfare, equality, social inclusion; improved access to justice and other opportunities (including employment and education).
- Improvements to legal and other frameworks for securing intellectual property rights.
- Enhancements to policy and practice for securing poverty alleviation.
- Influential contributions to campaigns for social, economic political and/or legal change.
- Enhanced cultural understanding of issues and phenomena; shaping or informing public attitudes and values.

Economic, commercial, organisational impacts:

Impacts where the beneficiaries may include new or established businesses, or other types of organisation undertaking activities which create wealth

- Changed approach to management of resources has resulted in improved service delivery.
- Development of new or improved materials, products or processes.
- Improved support for the development of 'small scale' technologies.
- Improved effectiveness of workplace practices.
- Improvements in legal frameworks, regulatory environment or governance of business entities.
- Better access to finance opportunities.
- Contribution to improved social, cultural and environmental sustainability.
- Enhanced corporate social responsibility policies.
- More effective dispute resolution.
- Understanding, developing and adopting alternative economic models (such as fair trade).

Impacts on the environment:

Impacts where the key beneficiaries are the natural, historic and/or built environment, together with societies, individuals or groups of individuals who benefit as a result

- Specific changes in public awareness or behaviours relevant to the environment.
- Improved management or conservation of natural resources or environmental risk.
- Improved management of an environmental risk or hazard.
- Operations or practice of a business or public service have been changed to achieve environmental objectives.
- Improved design or implementation of environmental policy or regulation.
- Changed conservation policy/practice or resource management practices.
- Changes in environmental or architectural design standards or general practice.
- Influence on professional practice or codes.
- Changes in practices or policies affecting biodiversity.

⁹ This list is not designed to be prescriptive, limiting or exhaustive.

Table C1 Examples of impact continued**Health and welfare impacts:**

Impacts where the beneficiaries are individuals and groups (human or animal) whose quality of life has been enhanced (or harm mitigated) or whose rights or interests have been protected or advocated

- Development or adoption of new indicators of health and well-being.
- Development of policy and practice with regard to medical ethics, health services or social care provision.
- Influence on CPD.
- Influence or shaping of relevant legislation.
- Influencing policy or practice leading to improved take-up or use of services.
- Improved provision or access to services.
- Development of ethical standards.
- Improved standards in training.
- Improved health and welfare outcomes.

Impacts on practitioners and professional services:

Impacts where the beneficiaries may include organisations or individuals involved in the development and/or delivery of professional services and ethics

- Changed practice for specific groups (which may include cessation of certain practices shown to be ineffective by research).
- Influence on professional standards, guidelines or training.
- Development of resources to enhance professional practice.
- Use of research findings in the conduct of professional work or practice.
- Influence on planning or management of services.
- Use of research findings by professional bodies to define best practice, formulate policy, or to lobby government or other stakeholders.
- Practitioner debate has been informed or stimulated by research findings.
- Research has challenged conventional wisdom, stimulating debate among stakeholders.

Impacts on public policy, law and services:

Impacts where the beneficiaries are usually government, public sector and charity organisations and societies, either as a whole or groups of individuals in society through the implementation or non-implementation of policies, systems or reforms

- Legislative change, development of legal principle or effect on legal practice.
- Forms of regulation, dispute resolution or access to justice have been influenced.
- Shaping or influence on policy made by government, quasi-government bodies, NGOs or private organisations.
- Changes to the delivery or form of any service for the public.
- Policy debate has been stimulated or informed by research evidence, which may have led to confirmation of policy, change in policy direction, implementation or withdrawal of policy.
- Effect on the quality, accessibility, cost-effectiveness or efficiency of services.
- Impact on democratic participation.
- Influencing the work of NGOs or commercial organisations.
- Improved public understanding of social issues.
- Enabling a challenge to conventional wisdom.

Impacts arising from public engagement activity

81. Public engagement is an activity that may lead to the impact of research. Sub-panels will welcome case studies that include impact achieved in this way, either as the main impact described or as one facet of a broader range of impacts.

82. Case studies which include impacts that derive from engaging the public with research must:

- a. At least in part, be based on specific research or a body of research carried out in the submitted unit, and explain clearly which particular aspects of the research underpinned the engagement activity and contributed to the impact claimed.
- b. Include evidence of the reach of the impact. This should extend beyond simply providing the numbers of people engaged and may also, for example, include:
 - information about the types of audience
 - whether there was secondary reach, for example from follow-up activity or media coverage
 - other quantitative indicators such as evidence of sales, downloads of linked resources, and/or access to web content.
- c. Include evidence of the significance of the impact. This should include a description of the social, cultural or other significance of the research insights with which the public have engaged. Examples of the evidence that might be provided for this include:
 - evaluation data
 - critical external reviews of the engagement activity
 - evidence of third party involvement, for example how collaborators have modified their practices
 - user feedback or testimony
 - evidence of sustainability through, for example, a sustained or ongoing engagement with a group, a significant increase in participation in events or programmes or use of resources.

Case studies: evidence of impact

83. Case studies will be assessed in terms of the criteria of reach and significance (see paragraphs 102-104). In assessing impact case studies, sub-panels will consider both the chain of evidence linking excellent research within the submitting unit to the impact(s) claimed, and the evidence of the reach and

significance of the impact. Within their narrative account in the case study, institutions should provide the indicators and evidence most appropriate to the impact(s) claimed, and to support that chain. The sub-panels will use their expert judgement regarding the integrity, coherence and clarity of the narrative of each case study, but will expect that the key claims made in the narrative to be supported by evidence and indicators.

84. The main panel anticipates that impact case studies will refer to a wide range of types of evidence, including qualitative, quantitative and tangible or material evidence, as appropriate. Individual case studies may draw on a variety of forms of evidence and indicators. The main panel does not wish to pre-judge forms of evidence. It encourages submitting units to use evidence most appropriate to the impact claimed.

85. However, submitting units should ensure that, so far as possible, any evidence cited is independently verifiable. Where testimony is cited, it should be made clear whether the source is a participant in the process of impact delivery (and the degree to which this is the case), or is a reporter on the process. While it is recognised that the evidence for many significant and far-reaching forms of impact may be hard to define, greater weight may be placed on evidence of fact over evidence of opinion in determining the significance and reach associated with a claimed impact.

86. The main panel recognises that some of the evidence in case studies may be of a confidential or sensitive nature. The arrangements for submitting and assessing case studies that include such material are set out in Part 1, paragraphs 58-59.

87. The sub-panels in Main Panel C wish to understand how underpinning research activity links to impact or benefit, for which simple descriptions of the activity will not suffice. Acting as an adviser to a public body, for example, does not of itself represent impact. However, providing advice based on research findings from the submitted unit, which has influenced a policy, strategy or public debate would constitute impact if there is evidence that the advice has had some effect or influence.

88. In constructing a narrative account in a case study, there are many different types of indicators or evidence which could be used to demonstrate the links in the chain between the underpinning research and impact, and the reach and significance of the impact. No type of evidence is inherently preferred over another; judgements will be based on the extent to which the cited evidence provides a convincing link between the underpinning research and the

impact claimed, and convincing evidence of the reach and significance of the impact. The examples of evidence and indicators provided below are simply indicative, and are not designed to be exhaustive, limiting or prescriptive. Main Panel C recognises that different types of evidence are likely to be applicable across any or all spheres of impact. The examples provided are therefore in the format of a common list.

Table C2 Examples of evidence or indicators for impact

- Citation in a public discussion, consultation document or judgement.
- Citation by journalists, broadcasters or social media.
- Citation by international bodies such as the United Nations, UNESCO, IMF and so on.
- Evidence of citation in policy, regulatory, strategy, practice or other documents.
- Evidence of debate among practitioners, leading to developments in attitudes or behaviours.
- Public debate in the media.
- Parliamentary or other democratic debate.
- Visitor or audience numbers, or number of participants (for example, in the uptake of CPD).
- Media reviews.
- Measures of improved inclusion, welfare or equality.
- Independent documentary evidence of links between research and claimed impact(s).
- Documented evidence of influence on guidelines, legislation, regulation, policy or standards.
- Documented change to professional standards or behaviour.
- Satisfaction measures (for example, with services).
- Use in scrutiny or audit processes, such as Select Committees.
- Incorporation in training or CPD material.
- Outcome measures, including measures of outcomes for beneficiaries.
- Quantitative data relating, for example, to cost-effectiveness or organisational performance.

Further examples of evidence relating to impacts that derive from engaging the public with research are provided at paragraph 82.

Case studies: underpinning research

Underpinning research quality

89. Case studies must include references to research produced by the submitted unit that underpinned the impact, and provide evidence of the quality of the research. A case study will be eligible for assessment only if the sub-panel is satisfied that the underpinning research is predominantly of at least two star quality.

90. The main panel notes in particular that while the REF is a process for assessing the excellence of research in submitting units, there is a key difference in the assessment of impact: the excellence of the underpinning research for an impact case study is a threshold judgement (a level which has to be met in order for a case study to be eligible for assessment), but the quality of the underpinning research will not be taken into consideration as part of the assessment (or indeed the assigned quality profile) of the claimed impact.

91. Submitting units must ensure that each case study fulfils the threshold criterion on research quality (see 'guidance on submissions', paragraph 160). A sample of the research should be cited that is sufficient to identify clearly the body of work, or individual project, that underpins the claimed impact. Sub-panels do not expect to review underpinning research output(s) as a matter of course to establish that the threshold has been met. The onus is on the institution submitting case studies to provide evidence of this quality level. Some of the indicators of such quality might be (but are not restricted to): research outputs which have been through a rigorous peer-review process; research outputs which are the result of external grant funding that has been peer-reviewed (sources should be specified); end of grant reports referencing a high quality grading; favourable reviews of outputs from authoritative sources; prestigious prizes or awards made to individual research outputs of underpinning research; evidence that an output has been highly cited and has formed a reference point for further research beyond the original institution. It is noted that not all indicators of quality will apply to all forms of research output.

92. Such indicators will allow sub-panels to make an initial assessment as to whether the underpinning research meets the threshold quality criterion to make a case study eligible for assessment. Where there is doubt that the evidence provided confirms that underpinning research meets the required quality threshold, sub-panels may, exceptionally, decide to examine the outputs. This will be at the discretion of

the sub-panel, and submitting HEIs will need to be able to make the outputs available on request.

93. The sub-panels do not anticipate that submitting units will normally need to cite more than five references, and submissions should include references that best demonstrate the quality of the underpinning research.

94. Underpinning research referenced in a case study may also be included in a submission as an output (listed in REF2), without disadvantage. In these situations, the assessment of the impact case study will have no bearing on the assessment of the quality of the output. The assessment of the quality of the output may inform the assessment of the case study, only in terms of assuring the threshold for underpinning research quality.

Contribution of the underpinning research

95. The institution submitting a case study must have conducted research which has made a distinct and material contribution to the impact described in the case study. Sub-panels will expect to see clear narrative evidence of this in the case study. Main Panel C recognises that several groups or institutions may have made distinct research contributions to a given impact, and it wishes to see submitting institutions ensure both that their own contribution is specified clearly and that the contributions of others are acknowledged.

96. 'Guidance on submissions' (paragraph 160) makes clear that case studies should be underpinned by research conducted at the submitting institution. There will be many cases where a researcher has moved to a different institution during the period in which a body of research underpinning a case study was produced. Where this is the case, the submitting institution should make clear that the research undertaken during the period the researcher spent at that institution made a material and distinct contribution to the impact claimed.

Time frame for underpinning research

97. In line with the eligibility definitions in 'guidance on submissions' (sub-paragraph 158c), the research underpinning impact case studies should have taken place between 1 January 1993 and 31 December 2013.

98. For UOA 16 (Architecture, Built Environment and Planning), this time frame will be extended by five years, so that the eligibility period for research underpinning case studies in that UOA is 1 January 1988 to 31 December 2013. The main panel recognises the extended time frame is necessary, in some cases, for changes to the built environment to be delivered in practice, based on the findings of research from some areas of planning and architectural practice.

Impact template

99. The impact template (REF3a) presents submitting units with an opportunity to describe how they have sought to enable and/or facilitate the achievement of impact arising from their research and how they are shaping and adapting their plans to ensure that they continue to do so in the future. This is distinct from evidence provided in the environment template, which should describe how a unit supports the production of excellent research.

100. The evidence put forward should concentrate on how the unit has facilitated the achievement of impact. The main panel recognises that there may be support available to encourage the achievement of impact within the submitting unit's institution, but notes that submissions should specify how any institutional support has contributed to the unit's approach, rather than simply stating its existence.

101. The sections of the impact template should provide explanation of and evidence for:

- **Context.** Submissions should describe the main non-academic user groups, beneficiaries or audiences for the unit's research, the main types of impact specifically relevant to the unit's research, and how these relate to the range of research activity or groups in the unit.
- **Approach to impact.** Submissions should describe the unit's approach and its infrastructural mechanisms to support staff to achieve impact, during the period 2008-2013. This may include (but is not limited to):
 - how staff in the unit engaged with or developed relationships with key users in order to develop impact from the unit's research
 - evidence of the nature of those relationships
 - how the unit has specifically supported staff to enable impact to be achieved from their research
 - how the unit has made use of institutional support, expertise, or resources to provide support to its staff.
- **Strategy and plans.** Submissions should describe clearly stated goals and plans for maximising the potential for impact from current and future research.
- **Relationship to the case studies.** Submissions should describe the relationship between the support for impact described and the case studies (although the main panel acknowledges that impacts may have been serendipitous rather than planned, or may have arisen from research prior to the period 2008-2013). This could include details of

how, for example, particular case studies exemplify aspects of the approach adopted, or how particular case studies informed the development of the unit's approach.

Impact criteria

102. The sub-panels will assess impact according to the generic criteria and level definitions in 'guidance on submissions', Annex A, Table A3. The criteria will be understood as follows:

- a. **Reach** will be understood in terms of the extent and diversity of the communities, environments, individuals, organisations or any other beneficiaries that have benefited or been affected.
- b. **Significance** will be understood in terms of the degree to which the impact has enriched, influenced, informed or **changed** policies, opportunities, perspectives or practices of communities, individuals or organisations.

103. In considering reach, the potential domain for an impact will be taken into consideration. In other words, reach will be not be assessed in purely geographic terms, nor in terms of absolute numbers of beneficiaries, but rather in terms of the extent to which the potential number or groups of beneficiaries have been affected. It is, for example, recognised that a policy issue affecting one region of the UK uniquely has that region as the potential domain for the impact, and that defines the boundaries of the possible reach achievable.

104. Each case study will be assessed in terms of the reach and significance of the impact on a holistic basis, rather than assessing each criterion separately.

Section C4: Assessment criteria: environment

Environment template

105. 'Guidance on submissions' (paragraph 183) indicates the broad categories of information that institutions are required to provide about the research environment. Main Panel C provides more detailed guidance below on the areas which might be addressed, where relevant to the submitting unit, within the different headings of the template for REF5 (see Annex C). Evidence and indicators should be included where appropriate. This part of the unit's submission presents the opportunity to describe how the unit has supported the production of excellent research. This is distinct from evidence provided in the impact template (REF3a), which should describe how a unit encourages and facilitates the achievement of impact.

106. There is no requirement that the environment element of a submission relates to a single, coherent organisational unit.

107. Information is requested in five sections of the environment template:

- a. **Overview:** This section will not be assessed. It should be used to provide brief contextual information, describing what research groups or sub-units are covered by the submission, **and** how research is structured across the submitted unit. Neither the existence of groups, nor their absence, is, in itself, considered significant by the sub-panels.
- b. **Research strategy:** Evidence of the achievement of strategic aims for research during the assessment period, and details of future strategic aims and goals for research; how these relate to the structure described above; and how they will be taken forward. This may include:
 - an evaluation of the strategy or strategies outlined as part of RAE 2008 and subsequent changes, where appropriate
 - an outline of the main objectives and activities in research for five years following submission, and their drivers; methods for monitoring attainment of targets
 - new and developing initiatives not yet producing visible outcomes, or not yet performing at a national or international level, but nevertheless of strategic importance
 - identification of priority developmental areas for the unit, including research topics, funding streams, postgraduate research activity, facilities, staffing, administration and management.
- c. **People:** Staffing strategy and staff development within the submitted unit, including: evidence of how the staffing strategy relates to the unit's research strategy and physical infrastructure; support for early career researchers and career development at all stages in research careers; evidence of how the submitting unit support equalities and diversity. This may include:
 - i. **Staffing strategy and staff development:**
 - staffing policy and evidence of its effectiveness, including: recruitment objectives and successes; the balance between short-term and long-term contracts among Category A staff; the demographic profile of the unit and how it affects current and future management of research activity; the pattern of staff recruitment over the assessment period, noting recent recruits and how departures have affected research; succession planning, with particular reference to early career researchers; the role and involvement of joint appointments and fixed-term appointments; the relationship of staffing policy to strategy
 - prestigious/competitive personal research fellowships held by submitted staff during the assessment period, and how these have contributed to the development of the staff and the submitted unit
 - evidence that equality of opportunity is being effectively promoted and delivered in arrangements for developing the research careers of all staff (including, where appropriate, Category C staff) including: study leave (evidence may include numbers of staff and length of period of leave); opportunities extended to develop the research careers of part-time staff, staff whose research career has been interrupted for any reason, and those seconded from outside academia; the implementation of the Concordat to Support the Career Development of Researchers and evidence of its positive influence
 - where appropriate, the contribution of any Category C staff to the strength, coherence and research culture of the unit, and implementation of its research strategy
 - mechanisms by which standards of research quality and integrity are maintained (for example ethics procedures and authorship policies).

ii. **Research students:** Evidence of the quality of training and supervision of PGR students, which may include:

- prestigious/competitive studentships and how they have contributed to the PGR culture and research environment
- evidence of a strong and integrated PGR culture, indicating the contribution to the research environment of both PhD candidates and those on professional doctorates (where appropriate), including: support offered to PGR students (including employability skills), and the contribution of submitted staff to doctoral programmes.

d. **Income, infrastructure, facilities:** Information about research income, infrastructure and facilities. This may include:

- research funding, including that allocated as part of larger research consortia, links between research funding and high quality research output, and major and prestigious grant awards made by external bodies on a competitive basis
- strategies for generating grant income appropriate to the discipline
- evidence of infrastructure and/or facilities supporting a vital and sustainable research environment could include: the nature/quality of research infrastructure, including major infrastructure funding; university investment and policies to support the research environment; significant equipment; technical support staff; space/facilities available for PGR students and research groups, including library and IT provision.

e. **Collaboration and contribution to the discipline or research base:** Contributions to the wider research base, including work with other researchers outside the submitted unit whether locally, nationally or internationally; support for research collaboration and interdisciplinary research; and indicators of wider influence or contributions to the discipline or research base. This may include:

- interdisciplinary research, where appropriate, including what disciplines are involved, and arrangements to support interdisciplinary or collaborative research
- details of existing networks and clusters and of research collaborations with industry, commerce, third sector and other users of

research, and how these have enriched the research environment

- evidence of national and international academic collaborations including indicators of their success
- seminar series, contribution to journal editorship and preparation, conferences and research-based CPD
- contribution to professional associations or learned societies, and developmental disciplinary initiatives, both national and international
- co-operation and collaborative arrangements for PGR training, including whether these have received formal recognition nationally or internationally.

Environment data

108. 'Guidance on submissions' (Part 3, Section 4) sets out quantitative data relating to the research environment to be included in submissions (REF4a/b/c). Sub-panels will use the data in the context of the information provided in the environment template (REF5), to inform their assessment. Data on research doctoral degrees awarded (REF4a) will be used to inform the sub-panels' assessment in relation to 'research students' (section c.ii). Data on research income (REF4b/c) will be used to inform the sub-panels' assessment in relation to 'income, infrastructure and facilities' (section d).

109. Data on both doctoral degrees awarded and research income will be considered in the context of the narrative provided in the REF5 template, and taking account of the size of the submitting unit, its areas of specialism, its research groups, research strategy and different levels of research funding available in different fields.

110. The sub-panels do not require these data to be presented by research group, and this information should not be provided.

111. For those UOAs indicated below, additional data are requested as part of the environment template (REF5). They are not required by any other sub-panel and should not be provided in any UOA other than those mentioned below.

112. **Sub-panel 19** (Business and Management Studies) and **Sub-panel 25** (Education) recognise the role of professional and other doctoral qualifications and their contribution to the vitality of the research environment. To obtain a clear understanding of the nature of the research environment, units submitting

in those two UOAs are asked to disaggregate the total number of doctoral degrees awarded as reported in REF4a for each year in the assessment period into PhDs and research-based professional doctorates. This information should be included as part of the 'People: research students' section of the REF5 template. The disaggregated data should be presented in tabular format, reported in academic years according to the standard data in section REF4a. The total disaggregated data should sum to the totals reported in REF4a.

113. **Sub-panel 26** (Sport and Exercise Sciences, Leisure and Tourism) wishes to consider whether PGR student research activity is growing in newer units and being sustained or developed further in more established units. The sub-panel recognises that some units that submit work for assessment in this UOA represent relatively 'young' discipline areas. Doctoral degree awards alone may, therefore, not present a full picture of this growing area of research. The combination of the number of postgraduate research student awards and doctoral registrations over the assessment period is therefore seen as a useful indicator of research capacity, sustainability and growth. Therefore, submissions in UOA 26 should include the FTE of postgraduate research students enrolled on doctoral programmes, broken down into the academic years of the assessment period (from 1 August 2008 to 31 July 2013). Only students registered and actively pursuing their research programme should be included (not, for example, students who are writing up their thesis for the whole of the year, or visiting from other institutions). This information should be included in tabular format as part of the 'People: research students' section of the REF5 template.

Environment criteria

114. The sub-panels will assess the environment according to the generic criteria and level definitions in 'guidance on submissions', Annex A, Table A4. The criteria will be understood as follows:

- **Vitality** of the research environment reflects the existence of a thriving, dynamic and fully participatory research culture based on a clearly articulated research strategy, displayed both within the submitting unit and in its wider contributions, and in terms appropriate to the scale and diversity of the research activity that it supports.
- The **sustainability** of the research environment will be understood in terms of the extent to which it is capable in the future of continuing to support and develop such research activity as defined in

the quality levels, both within the submitted unit and the discipline more generally.

115. In assessing the environment element of submissions, panels will apply the criteria in terms of both the research environment within the submitting unit, and its participation in and contribution to its subject discipline and academic community.

116. Sub-panels will develop a sub-profile for research environment, taking account of all of the narrative sections of the environment template, as well as the quantitative data (both standard and sub-panel-specific where requested, as stated in paragraphs 108-113). In forming the environment sub-profile sub-panels will attach equal weighting to the following components within the environment template:

- research strategy
- people (staffing strategy and staff development; and research students)
- income, infrastructure and facilities
- collaboration and contribution to the discipline or research base.

117. The assessment will be carried out in the context of the discipline area and in light of the range of research undertaken by the submitting unit. Having assessed the narrative and quantitative information, sub-panels will use their expert judgement to form an overall view about the graded environment sub-profile for each submission, based on all the relevant information provided in the submission.

Part 2D

Main Panel D criteria

Main Panel D covers the following sub-panels:

- 27 Area Studies
- 28 Modern Languages and Linguistics
- 29 English Language and Literature
- 30 History
- 31 Classics
- 32 Philosophy
- 33 Theology and Religious Studies
- 34 Art and Design: History, Practice and Theory
- 35 Music, Drama, Dance and Performing Arts
- 36 Communication, Cultural and Media Studies,
Library and Information Management

The following sections set out the criteria that Main Panel D and its sub-panels will apply in assessing submissions. These should be read alongside the guidance provided in REF 02.2011, 'Assessment framework and guidance on submissions' (hereafter 'guidance on submissions') and the generic statement of criteria and working methods provided in Part 1 of this document.

Section D1: Submissions and units of assessment

Section D2: Assessment criteria: outputs

Section D3: Assessment criteria: impact

Section D4: Assessment criteria: environment

Section D1: Submissions and units of assessment

Introduction

1. The main panel is charged with identifying excellence in the rich diversity of research covered by the units of assessment described below. It welcomes all outputs arising from this research, in whatever genre, medium or location, that can be demonstrated to meet the definition of research for the REF, as outlined in Annex C of 'guidance on submissions' and that have entered the public domain during the publication period. The sub-panels are committed to applying criteria and working methods that reflect the distinctive character, methodologies and full breadth of these disciplines (including interdisciplinary research), and that facilitate the formation of a balanced range of judgements, without privileging or disadvantaging any particular form of research output, research methodology or type of research environment.

2. The main panel and its sub-panels will operate according to the following principles:

- panels will assess submissions in the form that HEIs have chosen to present their research, within the REF framework
- panels will aim to identify excellence wherever they can find it.

Unit of assessment descriptors and boundaries

UOA 27: Area Studies

3. UOA 27 includes research across the spectrum of Area Studies, broadly defined to include the study of all regions of the world and the communities which are associated with or which inhabit them. The sub-panel takes an inclusive view of Area Studies, which we recognise to be a dynamic field, and the following list should be considered as indicative rather than exhaustive: African studies; American and Anglophone studies, including Canada and the United States, taken to include colonial North America; Asian studies, including Central Asian, North East Asian (including China), South Asian and South East Asian studies; Latin American and Caribbean studies; Australian, New Zealand and Pacific studies; European studies, including European Union studies and Russian and East European studies (including post-Soviet studies); Middle Eastern studies including Israel studies and Islamic world studies; and the interactions of these regions and peoples with the wider world, including African, Asian, Jewish, Muslim and other diasporas.

4. The sub-panel has expertise across the humanities and social sciences, and welcomes work from any disciplinary, interdisciplinary or theoretical perspective. It will assess submissions covering all aspects of the history, languages, cultures, literatures, religions, media, society, economics, human geography, politics and international relations of the above areas, as well as inter-regional and globalisation studies. The sub-panel is confident of its ability to assess a wide range of multi- and interdisciplinary work, but, given the broad scope of Area Studies, it recognises that submissions may be made in this UOA that include elements falling wholly or partially outside its members' expertise. It is therefore mindful of the need to liaise with, and where appropriate to cross-refer parts of submissions to, other sub-panels in Main Panel C and Main Panel D, as well as appoint assessors (as set out in Part 1, paragraphs 92-100). Submissions may cover one of the areas listed or a combination of areas.

UOA 28: Modern Languages and Linguistics

5. The UOA includes research on the languages, literatures, cultures and societies of all regions, countries and communities where Celtic, Germanic, Romance or Slavonic languages or other languages of Europe and Latin America are, or were, used. This includes areas where European Languages have interacted with other cultures and Languages, for instance, Latin America. The UOA also includes all areas of general, historical, theoretical, descriptive and applied linguistics; phonetics and translation studies and interpreting studies; regardless of the methodology used or the language to which the studies are applied. The sub-panel will take a broad view of what constitutes modern language studies. This will include, but not be limited to: literature and thought; cultural studies; theatre studies; film and media studies; visual cultures; language studies; translation studies and interpreting studies; political, social and historical studies; postcolonial studies; gender studies; editorial scholarship, bibliography, textual criticism and theory and history of the book; philosophy and critical theory; comparative literature and literature in relation to the other arts; creative writing. The sub-panel welcomes the submission of interdisciplinary research, and will ensure that such work is assessed with appropriate expertise.

6. Submissions may legitimately include areas of research which fall within the descriptors of other UOAs. The sub-panel recognises that submissions made in the UOA may include elements falling wholly or partially outside the membership's expertise and will apply the arrangements set out in Part 1, paragraph 92-100, where expertise needs to be

augmented. Submitting units whose research involves the study of these languages, societies, and cultures, but whose predominant focus is on a specific discipline in another UOA, are invited to submit their work in that UOA, or will be expected to be cross-referred when they will be more expertly assessed by other sub-panels.

UOA 29: English Language and Literature

7. The UOA includes: all aspects of language studies, including all areas of linguistics and of applied linguistics, with primary reference to any variety of English or Scots; the history of English or Scots; Old Norse/Icelandic (language, literature and linguistic studies); English literature from the early Middle Ages to the present day; North American literature; comparative literature; world literatures in English; colonial and postcolonial literatures and languages; women's writing; creative writing; life writing; children's literature; critical and cultural theory; cultural history; gender and sexuality studies; editorial scholarship, bibliography, textual criticism and theory, and history of the book; Irish literature in English; Scottish literature in English and Scots; Welsh literature in English; and applied, practice based, and pedagogical research in English.

8. The sub-panel will take a broad view of what constitutes English literature and language, and is aware that in some submitting units significant work will also be done in areas such as the following: theatre and performance studies; cultural studies; film, television and digital media studies; popular music; history; art history; philosophy; the linguistics of languages other than those mentioned above; translation studies. The sub-panel will apply the arrangements set out in Part 1, paragraphs 92-100, where its expertise needs to be augmented.

9. The sub-panel expects that interdisciplinary work will be submitted in this UOA which may include areas such as literature in relation to science and medicine, or creative technologies, and will ensure that such work is assessed with appropriate expertise.

UOA 30: History

10. The UOA includes all aspects of the study of the past except those specifically falling within the remit of other UOAs.

11. The sub-panel expects submissions in this UOA from all areas of history, including those listed below (in alphabetical order). This list is illustrative rather than exhaustive; it does not reflect any judgements about the relative significance of the subject areas, nor does it specify 'fields': business history; contemporary history; cultural history; economic history; environmental history; global history; heritage;

historiography; history and memory; history of Britain, Ireland and Continental Europe (late Roman to the present); history of ideas; history of North America, South America, Africa, Asia and Australasia; history of science, technology and medicine; history of sexuality; imperial/colonial history; international history; labour history; local and regional history; material history; media history; military history; oral history; political history; public history; religious history; social history; theory of history; transnational history; urban history; women's and gender history.

12. All ancient history will be automatically cross-referred to Sub-panel 31 (Classics); Byzantine history will also normally be cross-referred where it seems more appropriate for Sub-panel 31 to consider the output. The sub-panel may also cross-refer other submitted outputs as appropriate, for example to Sub-panel 27 (Area Studies).

13. The sub-panel welcomes the submission of interdisciplinary research, which may include areas such as history in relation to literature or art history. It expects to assess a significant proportion of such work but may cross-refer to other sub-panels where appropriate.

UOA 31: Classics

14. The UOA includes the language, literature, history, culture, art, archaeology and thought (including ancient science and philosophy) of Greece and Rome from the earliest times to late antiquity; Latin language and literature of the Middle Ages and subsequent periods; Ancient Egypt and the ancient Near East, Byzantine studies; modern Greek language, literature, history and culture; the classical tradition; and the reception of these periods and subjects.

15. Within the boundaries are the following: the Greek world from the Bronze Age to the fall of the Byzantine Empire; the Roman world from the Bronze Age to late antiquity; Greek lands, including the Diaspora, from the medieval period to the present; the philology and linguistics of Latin and Greek and of related and neighbouring languages; theory; comparative literature and such literature, literary theory, philosophy, political thought, material culture, art, film, performance, music, and such political, archaeological and other cultural activity as exploits in any way the history or cultural products of the Greek, Roman and Byzantine world; the pedagogy associated with learning and teaching in the subjects listed here.

16. The list above is illustrative rather than exhaustive. It does not reflect any judgements about the relative significance of the subject areas, nor does it specify 'fields'.

17. UOA 31 spans boundaries with all the UOAs within Main Panel D and with Sub-panel 17 (Geography, Environmental Studies and Archaeology). The sub-panel will apply the arrangements set out in Part 1, paragraphs 92-100, where its expertise needs to be augmented.

UOA 32: Philosophy

18. The UOA includes all areas and styles of, and approaches to, philosophy. The sub-panel expects to receive submissions from all areas of philosophy, and considers the following subjects (listed alphabetically), among others, to be within the remit of the UOA: 19th and 20th century European philosophy including phenomenology, existentialism, critical theory, hermeneutics, and deconstruction; aesthetics; applied philosophy; epistemology; ethics, including applied ethics and meta-ethics; environmental philosophy; feminist philosophy; history of philosophy including ancient, medieval, modern and recent; logic; metaphysics; non-Western philosophy; philosophy of education; philosophy of language; philosophy of law; philosophy and history of mathematics; philosophy of mind; philosophy of religion; philosophy and history of science, technology and medicine; political and social philosophy; teaching philosophy; theories of collective and individual rationality. The areas mentioned are illustrative rather than exhaustive, and do not reflect any judgement about the relative significance of the subject areas.

19. Because philosophy engages with conceptual and foundational issues raised by other disciplines, it spans boundaries with a number of other UOAs, including but not limited to all the other UOAs within Main Panel D and the following UOAs within other main panels: UOA 2 (Public Health, Health Services and Primary Care), for example, medical ethics; UOA 4 (Psychology, Psychiatry and Neuroscience), for example, cognitive science; UOA 10 (Mathematical Sciences), for example, mathematical logic; UOA 18 (Economics and Econometrics), for example, social choice theory and game theory; UOA 20 (Law), for example, jurisprudence; UOA 21 (Politics and International Studies), for example, political theory; UOA 23 (Sociology), for example, social theory.

20. The Philosophy sub-panel aims to be inclusive, and welcomes the submission of interdisciplinary outputs. As stated above, its remit covers all types of applied philosophy relating to practical issues both within and outside academia. The remit also covers work concerned with philosophical questions raised by other disciplines, for example work concerned

with the foundations, methods, epistemic status, or interpretation of findings or theories in the other disciplines. The sub-panel may consider that work that merely references philosophical ideas without engaging with them philosophically will have its excellence best assessed by another sub-panel, and will consider cross-referral accordingly.

UOA 33: Theology and Religious Studies

21. The UOA encompasses all research in theology and religion, and is inclusive of all disciplinary approaches adopted in the field, including philosophical, theological, historical, philological, literary, phenomenological, psychological, sociological and anthropological methodologies. It encompasses the study and interpretation of religious institutions, movements, texts, laws, practices, ethics, beliefs, symbols, media, social relations, material objects, spaces and flows, both historical and contemporary. It includes all religious traditions, spiritualities and sacralised forms of commitment and their expression in different cultural media – for example, film, art, music and literature, in whatever genre or media. The study of varieties of secularism and secularity which reference religion explicitly or implicitly is also included. It also covers work concerned with theological and religious questions raised by other disciplines.

22. Theology and Religious Studies is an inherently multi- and cross-disciplinary subject, and religion intersects with many other aspects of society, politics, and culture. In recognition of this, the sub-panel will welcome submissions which overlap with the remit of other UOAs; or for which UOA 33 is not the only appropriate one; or from those undertaking relevant research in academic units not classified as theology, divinity or religious studies; or from academic units which specialise in only one area of the field.

23. Interdisciplinary and multi-disciplinary work is welcome. Given the multi-disciplinary reach of UOA 33, it is anticipated that a substantial portion of submissions received will overlap with other UOAs, for example with Sub-panel 17 (Geography, Environmental Studies and Archaeology), Sub-panel 20 (Law), Sub-panel 21 (Politics and International Studies) and the sub-panels within Main Panel D. Sub-panel 33 contains considerable linguistic, methodological and cross-disciplinary expertise, but will apply the arrangements set out in Part 1, paragraphs 92-100, where expertise needs to be augmented. Sub-panel 33 continues to welcome innovative and cross-disciplinary approaches to the study of religion as well as more traditional methods.

UOA 34: Art and Design: History, Practice and Theory

24. The UOA includes research from all aspects of the history, theory and practice of art and design. The sub-panel will consider outputs, in whatever genre or medium, that meet the definition of research (as outlined in 'guidance on submissions', Annex C). The sub-panel acknowledges the diversity and range of related methods of academic study and artistic practice, and therefore adopts an inclusive definition of its remit.

25. **Practice** encompasses all disciplines within art and design, in which methods of making, representation, interrogation and interpretation are integral to their productions. **History and Theory** encompass the history, criticism, theory, historiography, pedagogy and aesthetics of architecture, art, craft, and design in their widest chronological and geographical framework. The UOA may also embrace fields such as anthropology, archaeology, cultural, social and gender studies, entrepreneurship, innovation, management and business studies, media studies, museology, and urban planning, where these relate to visual, material and spatial cultures. In a number of cases, the fields of work may be interdisciplinary, and thus have no firm or rigidly definable boundaries. For this reason the sub-panel expects to assess submissions that do not necessarily map onto institutional structures. The sub-panel is committed to applying criteria and working methods that are appropriate to all submitting units, whatever their size or structure, without privileging any particular form of research output or environment.

26. The following is an illustrative list of subject areas within practice, theory and history of art and design that the sub-panel expects to assess: animation; applied and decorative arts; architecture; conservation, the study of materials and techniques; crafts; creative and heritage industries; critical, historical, social and cultural studies; entrepreneurship and enterprise; film and broadcast media; fine arts; landscape and garden design; museology and curatorship; photography; policy, management and innovation studies; product design; spatial, two- and three-dimensional design; textile, dress and fashion; time-based and digital media; visual and material culture.

27. Sub-panels 34, 35 and 36 recognise that much research relating to a range of media platforms could readily meet the remit of any of them, and might sit in the wide boundaries that imprecisely separate the three areas of assessment responsibility. It will be the aim of these sub-panels to ensure that a decision to submit to any one of them should not advantage or

disadvantage any research. This will be ensured by a common approach to assessment within the three sub-panels, and cross-referral between them where appropriate.

UOA 35: Music, Drama, Dance and Performing Arts

28. The sub-panel will assess research from all areas of music, drama, dance, theatre, performance, live art, film and television studies, and anticipates that outputs will span a range of writings, edited publications and research-led creative practices, as well as artefacts and curatorial outputs. The sub-panel expects to evaluate research that encompasses analytical, applied, ethnographical, historical, pedagogical, practice-led, scientific, technological and theoretical approaches to the widest domains of dance, drama, music, performing and screen arts, and covers the broadest understanding of the subject disciplines within any cultural, geographical or historical context.

29. Sub-panels 34, 35 and 36 recognise that much research relating to a range of media platforms could readily meet the remit of any of them, and might sit in the wide boundaries that imprecisely separate the three areas of assessment responsibility. It will be the aim of these sub-panels to ensure that a decision to submit to any one of them should not advantage or disadvantage any research. This will be ensured by a common approach to assessment within the three sub-panels, and cross-referral between them where appropriate.

30. Sub-panel 35 predicts further overlaps with other UOAs, including those in Main Panels A and C, as well as Sub-panel 9 (Physics); Sub-panel 11 (Computer Science and Informatics) and Sub-panel 13 (Electrical and Electronic Engineering, Metallurgy and Materials), Sub-panel 28 (Modern Languages and Linguistics) and Sub-Panel 29 (English Language and Literature), and a degree of cross-referral may take place as appropriate.

31. The sub-panel expects to appoint assessors in areas where it anticipates a high number of outputs (as with composition) or where it would benefit from further areas of expertise.

UOA 36: Communication, Cultural and Media Studies, Library and Information Management

32. The sub-panel recognises the rich diversity of research in communication, cultural and media studies, library and information management, and welcomes all outputs arising from this research, in whatever genre or medium, that can be demonstrated to meet the definition of research for

the REF (as outlined in 'guidance on submissions', Annex C). In setting out its remit, the sub-panel recognises that the UOA descriptor covers two broad fields of research which are often distinct both organisationally and academically, and welcomes submissions that reflect this. It also recognises that the activities covered by its remit, even within its two broad fields of coverage, are often rooted in quite distinct research traditions or infrastructures. It will assess research on its merits, with no penalty for research which is plainly within a distinct tradition within the sub-panel's remit. It will nonetheless welcome research which seeks to engage with questions and concerns, such as the 'information society', heritage (both cultural and museum aspects), networks or convergence, which may transcend field boundaries.

33. The UOA includes research that addresses or deploys theory, history, institutional, policy, textual, critical and/or empirical analysis, or practice within communication, culture, media, journalism and film studies. Within UK higher education much, but not all, of this work is likely to emanate from units or departments in communication studies, cultural studies, media studies, journalism, or film and television studies. This work will include research on print media, broadcasting and the moving image, and will include computer-mediated communication, popular culture, and diverse information and communication technologies, which will be variably titled and organised. Much will also be conducted in units or departments situated elsewhere within the social sciences, arts or humanities. The sub-panel will assess research as defined above which addresses (but is not confined to): policy for regulation of culture and the media; the organisation, institutions, political economy and practice of cultural production; media and cultural texts, forms and practices; and media and cultural audiences, consumption and reception, including questions of power, identity and difference.

34. The UOA also includes research concerned with the management of information and knowledge in all formats, namely librarianship and information science, archives and records management, and information systems. This may include: research on the generation, dissemination and publication, exploitation and evaluation of information and knowledge; information policy; information media; information literacy; systems thinking; systems development; knowledge management systems; information retrieval; preservation and conservation; impact assessment; digital humanities; and historical and cultural aspects of the disciplines.

35. The sub-panel will adopt an inclusive approach, and considers that it has the expertise to assess work

in all of the areas covered by the UOA descriptor. Where research is at the boundaries of the UOA, submitting units are encouraged to submit their strongest work irrespective of the form of output or the extent of its interdisciplinary nature.

36. Sub-panels 34, 35 and 36 recognise that much research relating to a range of media platforms could readily meet the remit of any of them, and might sit in the wide boundaries that imprecisely separate the three areas of assessment responsibility. It will be the aim of these sub-panels to ensure that a decision to submit to any one of them should not advantage or disadvantage any research. This will be ensured by a common approach to assessment within the three sub-panels, and cross-referral between them where appropriate.

37. The sub-panel also anticipates likely overlap of areas within its remit with the concerns of other sub-panels both within Main Panel D and without, including for example Sub-panel 11 (Computer Science and Informatics), Sub-panel 19 (Business and Management Studies) and other social sciences panels. The sub-panel will apply the arrangements set out in Part 1, paragraphs 92-100, where its expertise needs to be augmented.

Interdisciplinary research and work on the boundaries between UOAs

38. The main panel recognises that the UOAs described above do not have firm or rigidly definable boundaries, and that aspects of research are naturally interdisciplinary or multi-disciplinary or span the boundaries between individual UOAs, whether within the main panel or across main panels.

39. The arrangements for assessing interdisciplinary research and submissions that span UOA boundaries – including through the appointment of assessors and, where necessary, cross-referring specific parts of submissions between sub-panels – are common across all main panels and are described in Part 1, paragraphs 92-100.

40. In addition, Main Panel D recognises that there are research areas which may be undertaken in a range of different contexts, and some of these therefore occur in the descriptors of a number of UOAs. These areas include but are not limited to: applied linguistics, critical theory, cultural history, digital cultural heritage, digital humanities, film studies, gender studies, history of science and technology, television studies and museology. The main panel takes the view that institutions active in such areas are free to submit their research in the way that represents the activity most effectively. Panels' working methods will accommodate such instances.

Pedagogic research

41. Research on pedagogy and educational issues within higher education that relate to the disciplines covered by Main Panel D may be submitted in the UOA to which it relates or in UOA 25 (Education), as deemed appropriate by submitting HEIs. Main Panel D anticipates that individual sub-panels will assess such research where it relates to higher education in the sub-panel's discipline area.

42. Research into teaching in other education sectors or general educational issues should be submitted in UOA 25, or will be cross-referred to Sub-panel 25 as appropriate.

Multiple submissions

43. 'Guidance on submissions' (paragraphs 50-52) sets out the arrangements whereby institutions may exceptionally, and only with prior permission of the REF manager, make more than one submission (multiple submissions) in the same UOA. These exceptions include situations where a sub-panel considers there is a case for multiple submissions in its UOA, given the nature of the disciplines covered.

44. The following sub-panels in Main Panel D consider that there is a case, based on the nature of the disciplines covered by their UOAs, for multiple submissions in these UOAs and would expect to receive requests:

- Sub-panel 27 (Area Studies)
- Sub-panel 28 (Modern Languages and Linguistics)
- Sub-panel 34 (Art and Design: History, Practice and Theory)
- Sub-panel 35 (Music, Drama, Dance and Performing Arts)
- Sub-panel 36 (Communication, Cultural and Media Studies, Library and Information Management)

45. Requests for multiple submissions may be made in other UOAs within Main Panel D but are expected to be a rare occurrence. All such requests will be considered according to the criteria and procedures at paragraph 50 of 'guidance on submissions'.

46. When single submissions contain clearly identifiable distinct organisational units or areas of research, in accordance with 'guidance on submissions' (paragraph 52) and where sub-panels consider it appropriate, sub-panels will provide feedback to the head of institution relating to those distinct units or areas of research.

Section D2: Assessment criteria: outputs

Output types

47. The main panel welcomes all forms of research output that fulfil the eligibility criteria for the REF (set out in paragraphs 105-117 of 'guidance on submissions' and in Part 1, paragraphs 43-44 of this document.)

48. The sub-panels will neither advantage nor disadvantage any type of research or form of output, whether it is physical or virtual, textual or non-textual, visual or sonic, static or dynamic, digital or analogue.

49. Outputs that embody research may include, but are not limited to (in no particular order):

- books (authored or edited)
- chapters in books
- journal articles
- working papers
- published conference papers
- electronic resources and publications
- exhibition or museum catalogues
- translations; scholarly editions
- creative writing and compositions
- curatorship and conservation
- databases
- grammars
- dictionaries
- digital and broadcast media
- performances and other types of live presentation
- artefacts
- designs and exhibitions
- films, videos and other types of media presentation
- software design and development
- advisory report
- the creation of archival or specialist collections to support the research infrastructure.

50. Sub panels expect to receive anthologies, edited books and curatorial projects where the researcher has made a demonstrable contribution to the research published (in addition to any article published in the same work). Where such a research contribution is part or all of the output to be assessed, the whole work (anthology, edited book or curatorial project)

should be submitted. Submitting units may provide a statement (of up to 100 words) to clarify the nature of the individual's research contribution.

51. Substantial dictionary or encyclopaedia entries and groups of short items including groups of entries (where such work embodies research as defined for the purposes of the REF in 'guidance on submissions') may be submitted as a single output, along with an explanation of the rationale for grouping the such items (maximum 100 words).

52. In accepting the widest range and types of research output, the sub-panels will employ assessment methodologies appropriate to all of these outputs and judge them entirely on research quality.

53. No output will be privileged or disadvantaged on the basis of the publisher, where it is published or the medium of its publication.

Outputs with significant material in common

54. The sub-panels recognise that there may be cases where two or more research outputs listed against an individual in a submission include significant material in common. The sub-panels will use their professional judgment in assessing these outputs such that they will assess each output taking account of the common material only once. In circumstances where the overlapping material is excessive, this could result in one of the outputs being graded as 'unclassified', so that the other can be assessed in full.

55. Where a submitted output includes significant material in common with an output published prior to 1 January 2008, as stated in Part 1, paragraph 44, submissions should explain how far the earlier work was revised to incorporate new material (maximum 100 words).

Co-authored/co-produced outputs

56. The sub-panels welcome the submission of co-authored or co-produced outputs, and will judge the output on its research quality regardless of the number of contributors.

57. Where a co-authored or co-produced output is submitted for assessment, it must be listed against an individual member of staff who made a substantial research contribution to the output. Information may be requested through an audit to verify this, and where it cannot be verified the output will be graded as 'unclassified'.

58. With the exception of the arrangements for the submission of a co-authored output twice in the same submission, detailed at paragraph 61, the sub-panels do not require the submission of textual information

about the individual co-author's contribution to a co-authored output and, if received, will take no account of such statements.

59. Once the sub-panel accepts that the author has made a substantial research contribution to the output, the sub-panel will assess the quality of the output taking no further regard of the member of staff's individual contribution. The quality of each output will be judged on its merits independent of authorship arrangements.

Listing a co-authored output multiple times within the same submission

60. Where two or more co-authors of an output are returned in **different** submissions (whether from the same HEI or different HEIs), any or all co-author(s) that made a substantial research contribution to the output may list the same output.

61. Institutions may list a co-authored output against up to two members of staff returned **within the same** submission. In such cases, the panel requires the submitting institution to provide a brief statement (up to 100 words) explaining the substantial and distinctive contribution of each of the submitting authors.

62. Once the sub-panel has determined that each co-author made a substantial contribution to the output, it will assess the quality of the output as a whole, taking no further regard of each individual co-author's contribution. If a sub-panel does not accept the justification for listing the output twice, one occurrence of the output will be graded as 'unclassified'.

Double-weighted outputs

63. The sub-panels recognise that there will be cases where the scale and/or scope of a research output required a research effort equivalent to that required to produce two or more single outputs and that may, in some cases, have limited the ability of an individual researcher to produce four substantial outputs within the assessment period. The sub-panels want to recognise and double-weight such outputs in the assessment; in other words for them to count as two outputs both in a submission and in the calculation of the outputs sub-profile.

64. The sub-panels have identified the following characteristics which might apply to the research effort associated with a double-weighted output:

- The generation of a particularly extensive or complex concept or thesis.
- The collection and analysis of a considerable body of material.
- The use of primary sources which were especially extensive, complex or difficult to access.

- The presentation of a critical insight or argument which was dependent upon the completion of a lengthy period of data collection.
- The production of a research output which was contingent upon the completion of particularly complex and extensive period of workshop/studio practice.

65. Institutions should request that an output is treated as double-weighted by submitting a supporting statement to justify the claim, explaining in what ways the output embodies the characteristics described in paragraph 64, or embodies other, similar, characteristics (maximum 100 words).

66. Sub-panels will assess the claim for double-weighting separately from assessing the quality of the output, and there is no presumption that double-weighted outputs will be assessed at higher quality grades. When assessing claims for double-weighting, the sub-panel will not privilege or disadvantage any particular form of research or type of output.

67. No more than two outputs listed against an individual may be requested for double-weighting. Co-authored outputs may in principle be identified as double-weighted by one or more of their authors, bearing in mind that the double-weighting claim should apply to the effort of the individual submitting author. However, requests for double-weighting may not be made for co-authored outputs that have been listed twice in a single submission (as set out in paragraph 61).

68. Given the publication practices in Main Panel D disciplines, and in view of the main panel's wish to give full recognition to outputs of extended scale and scope, institutions may (but are not required to) include a reserve output for each double-weighting request. The reserve output will be assessed only if the sub-panel does not accept the request for double-weighting. If no reserve output is included and the request for double-weighting is not accepted by the sub-panel, then the 'missing' output will be graded as 'unclassified'.

69. As the number of outputs submitted for assessment cannot sum to more than four per staff member submitted, no more than two outputs listed against an individual may be requested for double-weighting. In other words, the maximum number of outputs listed against a member of staff will comprise one of the following:

- four single outputs
- two single outputs plus one double-weighted output, plus the option to include one further output identified as a reserve

- two double-weighted outputs plus the option to include a reserve output for each.
70. Given that sub-panels will assess submissions in the form that HEIs have chosen to present their research within the REF, they will double-weight outputs only where requested by the submitting institution (and the request is accepted by the sub-panel), and will not double-weight any output for which a request has not been made by the institution.

Submission of outputs

71. In order to form an expert judgment on the quality of each research output, sub-panel members will examine such evidence as needed. Where the research content of the output may not be self-evident, submitting units should supply additional information as specified in b below. A 'portfolio', as specified in c below, should **only** be included where the research output and 'information about the research process and/or content', together, do not provide material sufficient to assess the output. Institutions should, therefore, submit only such evidence as they deem necessary to enable sub-panel members to properly assess a research output, within the following guidelines:

- Research output:** This should be submitted without additional material where the output is in itself deemed to constitute sufficient evidence of the research.
- Information about the research process and/or content:** Submitting units may include a statement of up to 300 words in cases where the research imperatives and research process of an output (such as an artefact, curation, database, digital format, installation, composition, performance or event, screening, tape, creative writing, database, textbook, translation or video) might further be made evident by descriptive and contextualising information. Where the location or medium of the output is essential to a proper understanding of the research being presented this should be explained in the 300 words. The sub-panels will ignore any additional material that includes evaluative commentary on the perceived quality of a research output.
- Portfolio:** In cases where the research output is: ephemeral (for example, time-based, non-material, or no longer available); is one in a series of interconnected works (for example, performances or installations); or cannot fully represent its research dimensions through the evidence provided in a and b above, a portfolio in either digital or physical form may be submitted. This material must be sufficiently substantial to constitute evidence which will

allow sub-panel members to access the research dimensions of the work. The expectation is that a portfolio is likely to include complementary evidence about the processes and outcomes of the work, for example DVDs, tapes (video and audio), photographs, sketchbooks, web-sites, catalogues, interviews or programme notes. The material should be presented with the sole purpose of assisting panel members to access fully the research dimensions of the work.

Additional information on outputs

72. For research outputs in languages other than English ('guidance on submissions', paragraphs 128-130), a short abstract in English should be provided to describe the content and nature of the work. This abstract does not form part of the assessment of the submitted output. This requirement is waived for outputs submitted in UOA 28 (Modern Languages and Linguistics) if the output is produced in any of the languages within the remit of that UOA: that is, all Celtic, Slavonic, Germanic and Romance languages.
73. A summary of all the additional information about outputs required by Main Panel D is at Annex A.

Citation data and bibliographic indicators

74. The sub-panels within Main Panel D will neither receive nor make use of any citation or bibliometric data to inform their judgements.
75. In assessing the quality of outputs, the sub-panels in Main Panel D will not privilege any journal or conference rankings/lists, the perceived standing of the publisher or the medium of publication, or where the research output is published. Where, however, the site-specific location of a research output is essential to an understanding of the research, this information should be presented as detailed in paragraph 71b.

Criteria and level definitions

76. This section provides a descriptive account of how the sub-panels will interpret the generic criteria for assessing outputs – originality, significance and rigour – and will apply them at each of the starred quality levels. This descriptive account expands on and complements the generic criteria and definitions in Annex A of 'guidance on submissions', but does not replace them.

Interpretation of generic criteria

77. When assessing the quality of outputs, the sub-panels will apply the same criteria to all outputs regardless of their form. In so doing they will seek to identify the highest quality research wherever it exists, with four star being a realistic and attainable quality level in all components of the assessment.

78. The criteria for assessing outputs will be interpreted as follows:

- **Originality:** a creative/intellectual advance that makes an important and innovative contribution to understanding and knowledge. This may include substantive empirical findings, new arguments, interpretations or insights, imaginative scope, assembling of information in an innovative way, development of new theoretical frameworks and conceptual models, innovative methodologies and/or new forms of expression.
- **Significance:** the enhancement or deserved enhancement of knowledge, thinking, understanding and/or practice.
- **Rigour:** intellectual coherence, methodological precision and analytical power; accuracy and depth of scholarship; awareness of and appropriate engagement with other relevant work.

Interpretation of generic level definitions

79. The terms 'world-leading', 'international' and 'national' will be taken as quality benchmarks within the generic definitions of the quality levels. They will relate to the actual, likely or deserved influence of the work. There will be no assumption of any necessary international exposure in terms of publication or reception, or any necessary research content in terms of topic or approach. Nor will there be an assumption that work published in a language other than English or Welsh is necessarily of a quality that is internationally benchmarked.

80. In assessing outputs, the sub-panels will look for evidence of originality, significance and rigour and apply the generic definitions of the starred quality levels as follows:

- a. In assessing work as being **four star** (quality that is world-leading in terms of originality, significance and rigour), sub-panels will expect to see evidence of, or potential for, some of the following types of characteristics across and possibly beyond its area/field:
 - a primary or essential point of reference
 - of profound influence
 - instrumental in developing new thinking, practices, paradigms, policies or audiences
 - a major expansion of the range and the depth of research and its application
 - outstandingly novel, innovative and/or creative.
- b. In assessing work as being **three star** (quality that is internationally excellent in terms of originality, significance and rigour but which

falls short of the highest standards of excellence), sub-panels will expect to see evidence of, or potential for, some of the following types of characteristics across and possibly beyond its area/field:

- an important point of reference
 - of lasting influence
 - a catalyst for, or important contribution to, new thinking, practices, paradigms, policies or audiences
 - a significant expansion of the range and the depth of research and its application
 - significantly novel or innovative or creative.
- c. In assessing work as being **two star** (quality that is recognised internationally in terms of originality, significance and rigour), sub-panels will expect to see evidence of, or potential for, some of the following types of characteristics across and possibly beyond its area/field:
 - a recognised point of reference
 - of some influence
 - an incremental and cumulative advance on thinking, practices, paradigms, policies or audiences
 - a useful contribution to the range or depth of research and its application.
 - d. In assessing work as being **one star** (quality that is recognised nationally in terms of originality, significance and rigour), sub-panels will expect to see evidence of the following characteristics within its area/field:
 - based on existing traditions of thinking, methodology and/or creative practice
 - a useful contribution of minor influence.
 - e. A research output will be graded '**unclassified**' if it is either:
 - below the quality threshold for one star; **or**
 - does not meet the definition of research used for the REF.

Section D3: Assessment criteria: impact

Introduction

81. This section should be read alongside ‘guidance on submissions’ (in particular, Section 3, Annex A, Annex C and Annex G), which sets out the generic definition of impact for the REF, the requirements for submitting impact case studies and a completed impact template, the associated eligibility guidelines, and the generic assessment criteria and level definitions. The sub-panels will assess impact in accordance with this framework.

82. This section provides information which adds to and complements, but does not replace, ‘guidance on submissions’ with the intention of assisting institutions in developing their submissions for this new element of research assessment.

83. Research across the arts and humanities (understood in their broadest definition) has consequences for individuals and groups in the UK and internationally, challenging imaginations and enriching lives economically, culturally, spiritually and educationally. The impact of such research is powerful, pervasive and ubiquitous, influencing civil society and the quality of life. Impact may be the

result of individual or collective research (or a combination of these), including collaboration with researchers beyond the UK. The impact of research may be foreseen or unforeseen. It can emerge as an end product, but can also be demonstrated during the research process. Impact takes place through a wide variety of mechanisms. The links between research and its consequences may be direct and causal, or diffuse and non-linear. It may effect change or enrichment for local, national or international communities, groups or individuals. Consequently public engagement may be an important feature of many case studies, typically as the mechanism by which the impact claimed has been achieved. The sub-panels will take all these factors into account as appropriate when weighing the evidence provided.

Range of impacts

84. Table D1 is intended to illustrate some of the wide variety of areas in which impact from research across Main Panel D may be found to have a positive influence on the quality of life of individuals and communities locally, nationally and internationally. **These are indicative only**, and in practice much of the impact will cross boundaries between them or go beyond them. Case studies are not expected to be classified in this way by submitting units.

Table D1 Indicative range of impacts

Civil society	Informing and influencing the form and content of associations between people or groups to illuminate and challenge cultural values and social assumptions.
Cultural life	Creating and interpreting cultural capital in all of its forms to enrich and expand the lives, imaginations and sensibilities of individuals and groups.
Economic prosperity	Applying and transferring the insights and knowledge gained from research to create wealth in the manufacturing, service, creative and cultural sectors.
Education	Informing and influencing the form or the content of the education of any age group in any part of the world where they extend significantly beyond the submitting HEI.
Policy making	Informing and influencing policy debate and practice through interventions relating to any aspect of human or animal well-being or the environment.
Public discourse	Extending the range and improving the quality of evidence, argument and expression to enhance public understanding of the major issues and challenges faced by individuals and society.
Public services	Contributing to the development and delivery of public services or legislation to support the welfare, education, understanding or empowerment of diverse individuals and groups in society, including the disadvantaged or marginalised.

85. **Examples of impact.** The following list offers submitting institutions some examples of impact that derive from research across the broad range of subjects covered by arts and humanities (and beyond). It is provided to stimulate ideas about the kinds of impact that could be developed into case studies where they meet the definition of impact set out in Annex C of 'guidance on submissions'. The examples below are indicative only and do not articulate the expectations of any one sub-panel:

- Generating new ways of thinking that influence creative practice.
- Creating, inspiring and supporting new forms of artistic, literary, linguistic, social, economic, religious, and other expression.
- Contributing to innovation and entrepreneurial activity through the design and delivery of new products or services.
- Contributing to economic prosperity via the creative sector including publishing, music, theatre, museums and galleries, film and television, fashion, tourism, and computer games.
- Informing or influencing practice or policy as a result of research on the nature and extent of religious, sexual, ethnic or linguistic discrimination.
- Research into the languages and cultures of minority linguistic, ethnic, religious, immigrant, cultures and communities used by government, NGOs, charities or private sector to understand and respond to their needs.
- Helping professionals and organisations adapt to changing cultural values.
- Contributing to continuing personal and professional development.
- Preserving, conserving, and presenting cultural heritage.
- Developing stimuli to tourism and contributing to the quality of the tourist experience.
- Influencing the design and delivery of curriculum and syllabi in schools, other HEIs or other educational institutions where the impact extends significantly beyond the submitting HEI, for example through the widespread use of text books, primary sources or an IT resource in education.
- Contributing to processes of commemoration, memorialisation and reconciliation.
- Contributing to a wider public understanding of basic standards of wellbeing and human rights conceptions.

- Informing or influencing the development of expert systems in areas such as medicine, human resources, accounting, and financial services.
- Influencing the methods, ideas or ethics of any profession.
- Providing expert advice to governments, NGOs, charities and the private sector in the UK and internationally, and thereby influencing policy and/or practice.
- Engaging with and mediating between NGOs and charities in the UK and internationally to influence their activities, for example in relation to health, education and the environment.
- Contributing to widening public access to and participation in the political process.

86. HEIs are reminded that impacts on research or the advancement of academic knowledge within the higher education sector (whether in the UK or internationally) **are excluded**. Other impacts within the HE sector that meet the definition of impact for the REF **are included** where they extend significantly beyond the submitting HEI. (See 'guidance on submissions', Annex C.)

Case studies: evidence of impact

87. An impact case study for the purposes of the REF is necessarily a written submission (see 'guidance on submissions', paragraph 147b and Annex G). The sub-panels see the narratives in the case studies as a crucial part of the text; they will link the underpinning research to the impact or benefit claimed, and they will be the main contextualisation in each case study for the types of evidence of impact provided.

88. It is fully accepted that not all potential evidence might be available to submitting institutions. The integrity, coherence and clarity of the narrative accompanying each case study will be essential to the panels when forming their judgements, and key claims made in the narrative should be capable of corroboration.

89. The main panel recognises that some of the evidence in case studies may be of a confidential or sensitive nature. The arrangements for submitting and assessing case studies that include such material are set out in Part 1, paragraphs 58-59.

90. While it is expected that narratives will differ according to the nature of the impact claimed, case studies should clearly articulate the relationship between the underpinning research and the impact. This is likely to be evident in the nature and extent of external engagement and dissemination, as well as in the types of individuals, groups or organisations

engaged with. Case studies then have to demonstrate the reach and significance of the impact itself. This is typically evident in the outcomes of that process of engagement and dissemination. Evidence of dissemination on its own will not be sufficient.

91. Evidence for the relationship between the underpinning research and the impact claimed and evidence for the impact itself may include **but not be limited to** items in the following indicative list:

Table D2 Examples of evidence of impact

Quantitative indicators	<ul style="list-style-type: none"> • Publication and sales figures both in the UK and overseas, audience or attendance figures (including demographic data where relevant), broadcasting data and other forms of media, download figures, or database and web-site hits over a sustained period. • Funding from public or other charitable bodies. • Evidence of use of education materials arising from the research (where they extend significantly beyond the submitting HEI). • Tourism data, including audience figures and visitor numbers at exhibitions, events, performances. • Growth of small businesses in the creative industries. Generation of new products. Sales figures and income generated. Employment data (for example, evidence of jobs created).
Critiques or citations in users' documents	<ul style="list-style-type: none"> • Citations in reviews outside academic literature. Independent citations in the media, including in online documents. Reviews, blogs and postings. Programme, exhibition or catalogue notes. Prizes. Translations. Recorded feedback. • Inclusion in teaching materials or teaching bibliographies. Replication of work in structure of courses. • Evidence of uptake of research in documents produced by public or commercial bodies; citations in policy documents and reviews, or other published reports on policy debates.
Public engagement	<ul style="list-style-type: none"> • Information about the number and profile of people engaged and types of audience. Follow-up activities or media coverage. Evidence of sales, downloads of linked resources or access to web content. • Descriptions of the social, cultural or other significance of the research insights with which the public have engaged. Evaluation data. User feedback or testimony. Critical external reviews of the engagement activity. Evidence of third party involvement, for example how collaborators have modified their practices, contributions (financial or in-kind) by third parties to enhance services or support for the public, or evidence of funds from third parties to enhance or extend the engagement activity. Evidence of sustainability, through, for example, a sustained or ongoing engagement with a group, a significant increase in participation in events or programmes, continuing sales, downloads, or use of resources.
Policy engagements	<ul style="list-style-type: none"> • Evidence of influence on a debate in public policy and practice through membership of or distinctive contributions to expert panels and policy committees or advice to government (at local, national or international level). • Formal partnership agreements or research collaboration with major institutions, NGOs and public bodies. Consultancies to public or other bodies that utilise research expertise. • Evidence of engagement with campaign and pressure groups and other civil organisations (including membership and activities of those organisations and campaigns) as a result of research. • Changes to professional standards and behaviour.
Independent testimony	<ul style="list-style-type: none"> • Acknowledgements in annual reports or other publications of NGOs, charities and other civil society organisations. Testimony of experts or users who can attest to the reach and/or significance of impact. Third-party evidence of changed policies, practices, processes, strategies.
Formal evaluations	<ul style="list-style-type: none"> • Professional evaluations of exhibitions, performances or other outputs. Formal peer reviews of funded impact-relevant research. Studies on the social return on investment.

92. The sub-panels recommend that institutions refer to the following list of characteristics when preparing case studies:

- All the material required to make a judgement should be included – no further reading should be required.
- There should be a clear definition of the beneficiaries, or what had changed as a result of the research.
- The narrative should be coherent, clearly explaining the relationship between the research and the impact, and the nature of the changes or benefits arising (noting that narratives differ according to the areas of impact claimed).
- Indicators used should be relevant, contextualised and precise in support of the case study, and the evidence focused and concise.
- There should be a brief explanation of what is original or distinctive about the research insights that contributed to the impact.
- The case study should include details of the names of researchers, their position in the HEI, and the dates and locations of the research activity.
- Specific and appropriate independent sources of corroborating information should be supplied.
- Where the research was carried out in collaboration with other HEIs, or was part of a wider body of research, this should be acknowledged and the specific input of the submitting unit's research clearly stated.

Case studies: underpinning research

93. Sub-panels need to be assured that the impact claimed is based on research (at least equivalent to two star, as defined in 'guidance on submissions', sub-paragraph 160b). Submitting units are required to identify the underpinning research (which may be a body of work produced over a number of years by one or more individuals, or may be the output or outputs of a particular project).

94. The main panel notes in particular that while the REF is a process for assessing the excellence of research in submitting units, there is a key difference in the assessment of impact: the quality of the underpinning research for an impact case study is a threshold judgement (a level which has to be met in order for a case study to be eligible for assessment), but the quality of the underpinning research will not be taken into consideration as part of the assessment of the reach and significance of the claimed impact.

95. A sample of the underpinning research should be cited that is sufficient to identify clearly the body of work, or individual project that underpins the impact. The onus is on the institution submitting case studies to provide evidence of this quality level. Some of the indicators of such quality might be (but are **not** restricted to): research outputs which have been through a rigorous peer-review process; end of grant reports referencing a high quality grading; favourable reviews of outputs from authoritative sources; prizes or awards made to individual research outputs cited in the underpinning research; evidence that an output is a reference point for further research beyond the original institution. Not all indicators of quality will apply to all forms of output.

96. Such indicators will allow sub-panels to make an initial assessment as to whether the underpinning research meets the threshold quality criterion to make a case study eligible for assessment. Where the evidence provided is insufficient to confirm that the underpinning research meets the required quality threshold, sub-panels may decide to examine the outputs in more detail. This will be at the discretion of the sub-panel, and submitting HEIs will need to be able to make the outputs (including a portfolio if relevant) available on request.

97. Underpinning research referenced in a case study may also be included in a submission as an output (listed in REF2), without disadvantage. In these situations, the assessment of the impact case study will have no bearing on the assessment of the quality of the output. The assessment of the quality of the output may inform the assessment of the case study, only in terms of assuring the threshold for underpinning research quality.

Impact template

98. General information relating to the impact template is detailed in 'guidance on submissions' (paragraphs 149-155), and submitting units should refer to these guidelines in the first instance.

99. The main panel believes that excellent impact can be achieved from within a wide variety of research contexts and resulting from a wide diversity of approaches, and it has no pre-formed view of the ideal context or approach. It will judge each submission on the basis on which it has been presented, as appropriate to the work of the submitted unit and without the expectation that the submission refers to a single, coherent organisational unit.

100. Submitting units should distinguish between collaboration in order to carry out research, which should be explained in the environment template; and

collaboration in order to ensure that research has an impact, which should be explained in the impact template.

101. The sub-panels request the following information in each section. Where possible, relevant illustrative examples with verifiable references should be given rather than broad general statements:

- a. **Context:** Who are the main non-academic user groups, beneficiaries or audiences for the research in the submitting unit? What are the main types of impact specifically relevant to the unit's research? How do these relate to the range of research activity or research groups in the unit?
- b. **Approach to impact:** What was the unit's approach to interacting with non-academic users, beneficiaries or audiences (during the period 2008-2013)? This may include interactions where, for example, the impacts may not have been anticipated when the research was first undertaken; or there was a planned or direct impact; or the subsequent pathways to impact were diffuse and non-linear. Details could include (but are not limited to), for example:
 - How staff in the unit interacted with, engaged with or developed relationships with key users, beneficiaries or audiences to develop impact from the research carried out in the unit (as distinct from research collaborations detailed in the environment template).
 - Evidence of the nature of those relationships and interactions.
 - Evidence of follow-through from these activities to identify resulting impacts.
 - How the unit specifically supported and enabled staff to achieve impact from their research.
 - How the unit made use of institutional facilities, expertise or resources in undertaking these activities.
 - Other mechanisms deployed by the unit to support and enable impact.
- c. **Strategy and plans:** What are the goals and plans for the unit to support impact from research in the future? How is the unit developing its strategy for impact?
- d. **Relationship to case studies:** How do the selected case studies relate to the unit's approach to achieving impact, as described in b above? This could include details of, for example, how particular case studies exemplify aspects of the

approach, or how particular case studies informed the development of the approach. The main panel recognises that case studies are underpinned by research over a time frame that is longer than the assessment period, and that individual case studies may, therefore, not relate directly to the approach set out in b above.

Impact criteria

102. The sub-panels will assess impact according to the generic criteria and level definitions in 'guidance on submissions', Annex A, Table A3. The criteria will be understood as follows:

- **Reach:** The extent and/or diversity of the organisations, communities and/or individuals who have benefited from the impact.
- **Significance:** The degree to which the impact enriched, influenced, informed or changed the policies, practices, understanding or awareness of organisations, communities or individuals.

103. In assessing the impacts described in case studies, the sub-panels will form an overall view about their reach and significance taken as a whole, rather than assess each criterion separately. While case studies need to demonstrate both reach and significance, the balance between them may vary at all quality levels. The sub-panels will exercise their judgement without privileging or disadvantaging either reach or significance.

104. In considering reach, the potential domain for an impact will be taken into consideration. In other words, reach will not be assessed in purely geographic terms, nor in terms of absolute numbers of beneficiaries, but rather in terms of the extent to which the potential number or groups of beneficiaries have been affected. The criteria will be applied wherever the impact has been felt, regardless of geography or location, and whether in the UK or abroad.

105. Each of the case studies will be separately assessed against the criteria and quality levels set out for impact, with no greater or lesser rigour being applied than for outputs or environment.

Section D4: Assessment criteria: environment

Environment template

106. The main panel believes that excellent research can be undertaken in a wide variety of research structures and environments, and that the health of the disciplines represented within Main Panel D is well served by that variety. The main panel has no preferred view of the ideal size or organisational structure for a research environment, and will judge each submission on the basis on which it has been presented as appropriate to the work of the organisation.

107. In this context, sub-panels will assess the vitality and sustainability of the submitting unit and its contribution to vitality and sustainability of its discipline. Sub-panels recognise that the health of the disciplines requires appropriate infrastructures and activity at HEI level to maintain and develop individuals and groups of researchers, and to train new generations of researchers.

108. Given that there is no expectation that the environment element of submissions relates to a single coherent organisational unit, submissions should explain any distinct groups or units covered, particularly where discrete organisational units form part of a single submission.

109. The following specific information is requested in the five sections of the environment template:

- a. **Overview:** This section should briefly describe the organisation and structure of the submitting unit, to set the context for sub-panels assessing the submission. This section will not be assessed. Note that there is no expectation that this section needs to refer to a single 'department' or coherent organisational unit.
- b. **Research strategy:** This section should provide evidence of the achievement of strategic aims for research during the assessment period, and details of future strategic aims and goals for research; how these relate to the structure described in the overview section, and how they will be taken forward. This may include (but is not limited to) evidence of:
 - Where relevant, the submitting unit's position with reference to research plans described in RAE 2008, including reasons for any significant change of direction/strategy or profile.
 - The submitting unit's plans and aspirations for developing its research over the next five years (2014 to 2019), having due regard to sustainability and the wider research context, and including how these plans and aspirations

will be realised. This should cover the areas outlined by sections c to e below.

- Support for interdisciplinary and collaborative research (where appropriate).

c. People:

- i. **Staffing strategy and staff development:** This may include (but is not limited to):
 - Staff development strategy, for all staff pursuing a career in research (including research assistants and postdoctoral researchers), at all stages of their careers, including the use of mentoring, probation and appraisal and training, and the unit's implementation of the Concordat to Support the Career Development of Researchers.
 - Evidence of how individuals at the beginning of their research careers are being supported and integrated into the research culture of the submitting unit, such as through lighter loads for early career researchers.
 - The policy for research leave/sabbatical leave, for all staff at all stages of their careers (including fixed-term and part-time staff).
 - Clear procedures for career progression of staff at all stages of their careers (including fixed-term staff and part-time staff).
 - The contribution of post-doctoral researchers to the unit (where appropriate, the size and type of submitting unit will be taken into account when considering such information).
 - Evidence of commitment to equal opportunities in the recruitment and support of research staff; as well as evidence of the submitting unit's strategies, activities and collaborations that support diversity and enable staff drawn from a wide cross-section of society to engage in research.
 - Evidence of procedures to stimulate and facilitate exchanges between academia and business, industry or public or third sector bodies, for example, through the recruitment or secondment of research staff.
- ii. **Research students:** This may include (but is not limited to):
 - Evidence of the development of a research culture into which research students are

fully integrated and are prepared for further research activity.

- Strong recruitment of doctoral research students and evidence of studentships from major funding bodies (for example, RCUK), although sub-panels recognise the challenges of recruiting doctoral students in the current funding environment.
- Evidence of support for equal opportunities in the recruitment and support of research students.
- Evidence of procedures to stimulate and facilitate exchanges between academia and business, industry or public and third sector bodies, for example, through the recruitment or secondment of research students.
- Details of monitoring and support mechanisms linked to evidence of progress and of successful completions.
- Details of the support provided to research students in terms of skills development and preparation for their future career.

d. **Income, infrastructure and facilities:** This may include (but is not limited to):

- Evidence of the successful generation of research income – although allowance will be made for disciplines that find it more difficult to attract research funding because of the nature of the research, and where more early career researchers are involved. In particular submissions should detail funding that has been received through sources not reported in Higher Education Statistics Agency returns, such as commissions from artistic organisations.
- Scholarly infrastructure supporting research – including significant archives and collections, with a description of their development and use.
- Organisational infrastructure supporting research, for example, evidence of areas where there has been significant investment, or through the development of research clusters that focus on distinctive areas of work.
- Operational infrastructure supporting research within the submitting unit (and, **where relevant**, within the institution more widely) including technical and support staff as well as estate and facilities; advanced equipment; or IT resources.
- The strategy by which an appropriate balance between the scholarly, organisational and operational infrastructures is established, and

by which these elements are prioritised and maintained.

- e. Collaboration and contribution to the discipline or research base: This may include (but is not limited to) collaborative arrangements, partnerships, networks and joint research projects with academic colleagues in other institutions, locally, nationally and internationally, including where these arrangements are interdisciplinary; membership of Research Council or similar national and international committees; involvement on university research advisory panels, or national/international research strategy or review boards; leading positions in professional subject associations and learned societies; editorial positions; examination of doctorates; organisation of conferences and scholarly encounters; refereeing academic publications or research proposals; HEI consultancies; scholarly awards or fellowships; invited keynotes, lectures and/or performances.

Environment data

110. 'Guidance on submissions' (Part 3, Section 4) sets out quantitative data relating to the research environment to be included in submissions (REF4a/b/c). Sub-panels will use the data in the context of the information provided in the environment template (REF5) to inform their assessment. Data on research doctoral degrees awarded (REF4a) will be used to inform the sub-panels' assessment in relation to 'research students' (section c.ii). Data on research income (REF4b/c) will be used to inform the sub-panels' assessment in relation to 'income, infrastructure and facilities' (section d).

111. Both doctoral degrees awarded and research income data will be considered in the context of the narrative provided in the REF5 template, and taking account of the size of the submitting unit, its areas of specialism, its research groups, research strategy and different levels of research funding available in different fields.

112. The sub-panels do not require these data to be presented by research group, and this information should not be provided.

Environment criteria

113. The sub-panels will assess the environment according to the generic criteria and level definitions in 'guidance on submissions', Annex A, Table A4. The criteria will be understood as follows: :

- **Vitality:** The extent to which the research environment supports a research culture characterised by intellectual vigour, innovation and positive contribution within the discipline(s) and profession.

- **Sustainability:** The extent to which the research environment ensures the future health and well-being of the unit and the discipline(s).

114. In assessing the environment element of submissions, sub-panels will apply the criteria in terms of both the research environment within the submitting unit, and its participation in and contribution to the discipline and profession. References to contributions outwith the discipline/profession do not refer to material more properly considered within the impact template, but to research-focused activity.

115. In forming the environment sub-profiles, the sub-panels will attach equal weight to each of the following five components of the environment template, taking account of the environment data as stated in paragraphs 110-111:

- research strategy
- people: staffing strategy and staff development
- people: research students
- income, infrastructure and facilities
- collaboration and contribution to the discipline or research base.

Annex A

Summary of additional information about outputs

1. This annex provides a summary table of all the additional information about outputs that are required in submissions (in form REF2). It should be read alongside, and does not replace, the guidance provided in ‘guidance on submissions’ and in the relevant parts of the panel criteria statements, as indicated in ‘Summary of additional information required about outputs’. It is intended for institutions’

ease of reference in identifying the requirements for additional types of information about outputs, across the four main panels.

2. The word limits for the additional information about outputs are common across the four main panels, as set out in on page 99.

Summary of additional information required about outputs

	Main Panel A	Main Panel B	Main Panel C	Main Panel D
a. Request to double-weight an output (‘guidance on submissions’ paragraphs 123-126)				
Panel requirements:	All main panels: A supporting statement to justify the request			
Reference:	Part 2A, paragraphs 44-48	Part 2B, paragraphs 46-51	Part 2C, paragraphs 50-56	Part 2D, paragraphs 63-70
b. Information about the research process and/or content (‘guidance on submissions’ paragraph 127a)				
Panel requirements:	Statement where this is not evident within the output (for non-text or practice-based outputs)	Statement where this is not evident within the output (for non-text or practice-based outputs) Identification of the original research or new insights reported (for reviews)	Statement where this is not evident from the output itself (for any type of output)	Statement for any output where the research imperatives and process might further be made evident Statement where the location or medium of the output is essential for a proper understanding of the research Contribution of the individual to an anthology, edited book or curatorial project (maximum 100 words) Rationale for grouping short items as a single output (maximum 100 words)
Reference:	Part 2A, paragraph 49	Part 2B, paragraphs 52-53	Part 2C, paragraph 60	Part 2D, paragraphs 50, 51, 71 and 75

Summary of additional information required about outputs continued

	Main Panel A	Main Panel B	Main Panel C	Main Panel D
c. Factual information about the significance of the output ('guidance on submissions' paragraph 127b)				
Panel requirements:	None	In UOAs 11, 12, 13, 14 and 15: Factual statement wherever available None in UOAs 7, 8, 9 and 10.	Factual statement about prizes or similar recognition	None
Reference:	n/a	Part 2B, paragraphs 54-57	Part 2C, paragraphs 61-62	n/a
d. Outputs that include significant material published prior to 1 January 2008 (Part 1 paragraph 44)				
Panel requirements:	All main panels: Statement on how far the earlier work was revised to incorporate new material			
Reference:	Part 2A, paragraphs 30-31	Part 2B, paragraphs 35-36	Part 2C, paragraphs 40-41	Part 2D, paragraphs 54-55
e. The researcher's contribution to a co-authored or co-produced output – where the output is listed once within the submission ('guidance on submissions' paragraph 120-122 and 127d; Part 1 paragraph 45)				
Panel requirements:	Affirmation of the author's contribution to the output (selected from the statements provided) only where the author is not the lead or corresponding author and the output has six or more co-authors	In UOA9 only: Statement about the author's contribution only where there are more than 10 authors None in UOAs 7, 8 and 10-15	None	None
Reference:	Part 2A, paragraphs 34-37	Part 2B, paragraphs 37-39 and 45	n/a	n/a
f. The researcher's contribution to a co-authored or co-produced output – where the output is listed twice within the submission ('guidance on submissions' paragraph 120-122 and 127d; Part 1 paragraph 46)				
Panel requirements:	All main panels: Statement on the contribution of each of the authors within the submission, against whom the output is listed			
Reference:	Part 2A, paragraphs 41-43	Part 2B, paragraphs 40-44	Part 2C, paragraphs 46-49	Part 2D, paragraphs 60-62
g. Abstract for outputs in languages other than English ('guidance on submissions' paragraphs 128-130)				
	All main panels: For all outputs in languages other than English, a short abstract to describe the nature and content of the work. (This requirement is waived for outputs submitted in UOA 28 in a language within that sub-panel's remit – see Part 2D, paragraph 72)			

Word limits for additional information about outputs

Type of information	Word limit
a. Request to double-weight an output	Maximum 100 words
b. Information about the research process and/or content	Maximum 300 words
c. Factual information about the significance of the output	Maximum of 100 words for each of c-f Information of types b-f will be provided in the same text box on the REF submission system. If information is required about b in addition to any of c-f for an output, the maximum word limit is 300.
d. Outputs that include significant material published prior to 1 January 2008	
e. and f. The researcher's contribution to a co-authored or co-produced output	
g. Abstract for outputs in languages other than English	Maximum 100 words

Annex B

Impact template (REF3a)

1. This annex provides the template for REF3a. The template for use in preparing submissions will be provided in Word, along with templates for REF3b and REF5, on the REF submission system.
2. Guidance on completing the template is available in Part 3, Section 3 of 'guidance on submissions', and in Section 3 of each of the main panel criteria statements

(Part 2 of this document). Each of the main panel criteria statements set out the information requested under each heading (a-d) of the impact template.

3. Each completed template must be submitted according to the guidance on formatting and page limits set out at Annex F of 'guidance on submissions'.

Impact template (REF3a)

Institution:
Unit of assessment:
a. Context
b. Approach to impact
c. Strategy and plans
d. Relationship to case studies

Annex C

Environment template (REF5)

1. This annex provides the template for REF5. The template for use in preparing submissions will be provided in Word, along with templates for REF3a and REF3b, on the REF submission system.
2. Guidance on completing the template is available in Part 3, Section 5 of 'guidance on submissions', and in Section 4 of each of the main panel criteria statements

(Part 2 of this document). Each of the main panel criteria statements set out the information requested under each heading (a-e) of the environment template.

3. Each completed template must be submitted according to the guidance on formatting and page limits set out at Annex F of 'guidance on submissions'.

Environment template (REF5)

Institution:
Unit of assessment:
a. Overview
b. Research strategy
c. People, including: <ol style="list-style-type: none"> i. Staffing strategy and staff development ii. Research students
d. Income, infrastructure and facilities
e. Collaboration and contribution to the discipline or research base

Annex D

Managing conflicts of interest

1. The primary purpose of the 2014 REF is to produce overall quality profiles for each submission made by institutions, which will be used by the UK higher education funding bodies in determining the main grant for research to the institutions which they fund. The REF is governed by the principles of equity, equality and transparency. To ensure these principles are adhered to, we set out below arrangements for recording declarations of interest and avoiding potential conflicts of interest.
2. It is the responsibility of all main panel chairs and members, sub-panel chairs and members, panel advisers and panel secretaries, observers and assessors (hereafter collectively referred to as 'panel members') to declare any interests in accordance with this policy. The procedure to be followed depends on whether an interest is a major interest or a minor interest. If a panel member is unsure whether they have an interest that should be declared, they should seek advice from the panel secretariat.

Declarations of major interest

3. All panel members are asked to make a declaration of their major interests through the REF panel members' web-site. For the purpose of REF, major interests are defined as:
 - a. Any UK higher education institution(s) at which the individual is employed.
 - b. Any UK higher education institution(s) at which the individual has been employed since January 2008.
 - c. Any UK higher education institution(s) at which the individual has been engaged in substantial collaboration since the start of the assessment period (1 January 2008). This might include organisations at which the individual has visiting lecturer/fellow/professor or similar status, or has worked on a commercial contract or consultancy basis (except where these constitute minor interests listed at paragraph 11 below).
 - d. Any UK higher education institution(s) at which the individual's partner and/or immediate family member is employed or is engaged in substantial collaboration.
 - e. Any financial or commercial interest in a UK higher education institution(s).

- f. Any minor interest(s) ruled by a panel chair to be treated as a major interest.

Panel procedures for major interests

4. A complete list of the declared major interests of panel members will be prepared by the REF team and made available to panels when they start their work.
5. Panel members will be asked to update the REF team regularly on any additional interests, through the REF panel members' web-site. Complete lists of declared interests will be updated and circulated accordingly on an ad hoc basis.
6. Panel members may not take part in the assessment of submissions from institutions in which they have declared a major interest. Panel members must ensure their declarations of major interests are up to date in advance of any meeting at which any institution(s) in which they have a major interest is to be discussed. Panel members must withdraw from that part of the meeting at which the institution in which they have a major interest is to be discussed. Withdrawals due to major interests shall be minuted.

Requests for information

7. Panel members are likely to receive numerous invitations to discuss issues concerned with REF 2014. Although the REF team seeks improved clarity and transparency during this exercise through the dissemination of information, we do not wish panel members to compromise their position by entering into discussions which could be perceived to give a particular individual or institution an unfair advantage.
8. Therefore panel members should not discuss issues concerning individual departmental or institutional submissions that in any way break the confidentiality agreements they have entered into in order to work on the REF. However, they may accept invitations to talk at meetings where a number of different institutions are represented, for example those arranged by a professional body or subject association to discuss the REF process in general terms. If any member has concerns over a potential conflict of interests or the propriety of a proposed action they should discuss it with the REF manager. Panel members are not expected to suspend normal relations with their colleagues and peers during the exercise. They should not feel in any way obliged, for

example, to withdraw from external examining, or participation in appointment committees. They are, however, asked to exercise caution in dealings with individual departments, or with subject associations or similar bodies, where there is an actual or clearly inferable connection with their panel membership.

Declarations of minor interests

9. Any interest that could lead a reasonable observer to doubt the impartiality of a panel member's assessment of work that has been allocated to them, that is not a major interest, must be declared by that panel member as a minor interest. Minor interests should be declared on an ad hoc basis to the chair of the relevant main panel or sub-panel. Declarations of minor interests shall be minuted.

10. In each case it shall be for the chair to decide what effect the existence of a minor interest shall have on a panel member's participation in the assessment. Depending on the nature of the minor interest, the sub-panel chair may decide:

- That the minor interest should be noted by the sub-panel, but that it should not affect the panel member's participation in assessing the submission.
- That the panel member should not take sole or lead responsibility for assessing the particular aspect of the submission affected by the minor interest, but may otherwise be involved in assessing the submission.
- That the panel member should take no part in assessing the particular aspect of the submission affected by the minor interest, but may otherwise be involved in assessing the submission.
- That the minor interest – or a group of minor interests relating to an institution – held by a panel member shall be treated as a major interest, and the panel member should play no role in assessing the submission.

These decisions shall also be minuted.

11. Minor interests could include, for example:

- A panel member supervises or co-supervises one or more doctoral students from the submitting institution, or who went on to become an academic staff member within the submitting institution.
- A panel member was supervised as a doctoral student by a staff member who is returned within the submission.
- A panel member is co-investigator or co-holder of a grant with the submitting institution.

- A panel member, or their partner or immediate family member, is employed by a 'user' organisation that is the focus of an impact case study.
- A panel member is on the editorial board of a journal series published by the submitting department or unit, or has co-organised a conference or conference series with the submitting department.
- A panel member has acted during the assessment period as a member of an appointment or promotions committee for the submitting institution.
- Prior to their appointment to the REF panel but during the assessment period, a panel member has acted as an external advisor to the submitting institution on their research or REF strategy.
- A panel member acts as an external examiner for research degrees for a submitting department or unit.

Annex E

Confidentiality and data security arrangements for REF panels

Introduction

1. This document sets out arrangements for the 2014 Research Excellence Framework (REF) panels to maintain the confidentiality and security of information they generate and have access to throughout the REF process (referred to throughout this annex as 'confidential information'). All REF main and sub-panel chairs, members, assessors, secretaries, advisers and observers are bound by the terms set out below. For the purpose of this annex and Annex D, we refer to these people as 'panel members'.
2. This annex deals only with the relationship between the four UK higher education funding bodies on the one hand and panel members on the other. It does not give rise to any rights or obligations to or from higher education institutions participating in the REF.

Purpose

3. The objectives of the confidentiality arrangements are:
 - a. Subject only to any legal obligations on the UK higher education funding bodies to disclose further information, in order to properly manage the REF we wish to ensure that the only public comment from REF panels and their constituent members on individual submissions is limited to:
 - the overall assessment outcomes awarded to each submission (comprising the overall quality profile and the three sub-profiles for outputs, impact and environment); and
 - the concise written feedback on submissions provided in confidence to heads of institutions.
 - b. Subject to any overriding legal obligation, we wish to avoid any situation in which parties not involved in the assessment process approach or place pressure on panel members to disclose information about the panel's discussion of particular submissions. In other words, maintenance of confidentiality is essential if panel members are not to be inhibited from expressing their opinions freely in panel discussions, which is essential to the effective operation of the REF as an expert review exercise.
 - c. Given the nature of the information that panel members will have access to, the confidentiality

arrangements also set out measures to prevent acts by a panel member which might, in certain circumstances, lead to a claim being made against them or the UK higher education funding bodies for: breach of data protection legislation; breach of a common law duty of confidentiality; defamation; infringement of intellectual property rights in research outputs; or otherwise give rise to financial or reputational losses for which a legal claim is made.

Panel members' obligations

General obligations

4. Acceptance of the obligations owed to each of the four UK higher education funding bodies set out in this annex is a condition of appointment as a panel member. By accepting the appointment, panel members agree to these terms. The chief executives of the four UK higher education funding bodies reserve the right to terminate appointments in the event of any breach of these terms.
5. Panel members shall only use confidential information for the purposes of the REF. Confidential information must be handled in accordance with reasonable instructions given by the REF team. In particular, the REF team may require the deletion of any confidential information or all copies of confidential information, or to take such additional reasonable steps to preserve the security of the confidential information as the REF team may determine. Panel members must promptly comply with any such instructions.
6. Confidential information shall not be disclosed to any other person except panel members and the REF team. All reasonable steps shall be taken to ensure that other people cannot have access to the information, whether held in paper or electronic copy. In particular:
 - a. It is important to remember that computer systems, and specifically e-mail, are not necessarily secure, and panel members shall agree to exercise appropriate caution when using them.
 - b. Information will be made available to members via the REF panel members' web-site. This is a secure, password-protected web-site and passwords must not be divulged to any other person.

7. Nothing in this agreement prevents panel members from disclosing information after it becomes freely available in the public domain (without the breach of any obligation of confidentiality), or that which they are required by law to disclose, or that which was already known and not subject to confidentiality obligations before being disclosed in the context of the REF. It would be prudent, however, to contact the REF manager in advance to discuss any such disclosure.

8. Some confidential information may have to be disclosed by the UK higher education funding bodies under the Freedom of Information Act 2000 or other legislation. If any requests for information are received, these must be passed to the REF manager immediately for consideration and action, and should not be responded to by panel members.

9. If there is any doubt with regard to any issue of confidentiality, either in general terms or in relation to a particular piece of information, panel members should seek advice from the REF manager.

10. The obligations set out in this annex will subsist indefinitely.

Specific obligations during the criteria-setting phase (2011)

11. During the course of the criteria-setting phase, REF panels will be provided with a range of information, such as draft guidance documents, and sample citation data or sample 'impact case studies' relating to specific institutions.

12. Where such confidential information has not already been made public by the REF team, copies shall not be made except as is necessary to carry out functions as a panel member. Originals and any copies that may be made of such confidential information shall be destroyed, or returned to the REF manager, as soon as they are no longer needed for that function or on the request of the REF manager, whichever is sooner. This provision applies equally to paper copies or those stored in electronic or other non-paper formats.

Specific obligations during the assessment phase (2013-14)

13. During the assessment phase panel members will have access to a range of confidential information, including information provided by institutions in their submissions and information generated by the panels when assessing those submissions.

14. In accordance with paragraph 5 of this annex, the REF team will set out detailed confidentiality and data security arrangements for the assessment phase of the REF in advance of it commencing. Compliance

with these expanded arrangements by panel members will be a condition of continuing as a REF panel member.

15. We expect that the detailed obligations will cover the following broad areas:

a. **Information contained in REF submissions.**

Institutions will submit a range of information to the REF team for assessment by the REF panels. We will develop arrangements for access to, storage, retention and destruction of such information by panel members. Within their submissions, institutions will be able to identify specific items as particularly sensitive (for example, for commercial reasons). We will develop specific arrangements for the treatment of such information by panel members (for example, the handling of material which is patented or patentable).

b. **Information generated by REF panels when assessing submissions.** We will develop arrangements for:

- the storage, retention and destruction of panel members' notes and provisional assessment scores that are generated in developing the profiles to be awarded to submissions
- restricting panel members' discussion of submissions or information deduced from submissions with anyone who is not a panel member.

16. Further guidance will be included on ensuring the security of confidential information through panel members' access to or use of the REF panel members' web-site, e-mail, personal notes, and printed and electronic copies of information.

Annex F

List of abbreviations

CPD	Continuing professional development
EDAP	Equality and Diversity Advisory Panel
FTE	Full-time equivalent
HE	Higher education
HEI	Higher education institution
NGO	Non-governmental organisation
PGR	Postgraduate research
RAE	Research Assessment Exercise
REF	Research Excellence Framework
UOA	Unit of assessment

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