

May 2022

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# Summary report across the four main panels

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## Introduction

1. The Research Excellence Framework (REF) is the system for assessing the quality of research in UK higher education institutions (HEIs). It is a process of expert review, carried out by expert panels for each of 34 subject-based units of assessment (UOAs)<sup>1</sup>. Expert panels are made up of practising researchers, international members, research users and experts in interdisciplinary research.
2. For REF 2021, submissions were made by HEIs in March 2021 and the 34 sub-panels conducted the assessment across the following year, working under the guidance of four main panels. The discipline areas covered by each of the main panels is broadly defined as follows:
  - **Main Panel A: Medicine, health and life sciences**
  - **Main Panel B: Physical sciences, engineering and mathematics**
  - **Main Panel C: Social sciences**
  - **Main Panel D: Arts and humanities.**
3. This report provides an overview of the assessment process across all four main panels and their constituent sub-panels. This includes summary information on submissions, key changes from the previous REF in 2014, the impact of Covid-19 on the process, and information on working methods as they applied across the four main panels. The report should be read in conjunction with the four main panel overview reports (see paragraph 34 for more information on these reports).



## Summary of submissions

4. Table 1 shows the total number of submissions made by HEIs to REF 2021 and in the previous exercise in 2014, at sector and main panel level, alongside the total and main panel full-time equivalent (FTE) Category A submitted staff, number of outputs, and number of impact case studies for each exercise. As the table shows, there has been a substantial increase in the FTE of staff returned in 2021, which is in line with changes to the way that staff are submitted (see paragraphs 13 to 16). The size of the increase varies across the main panels, with differing effects on the total number of outputs and case studies received compared to REF 2014. Further consideration of these effects is provided below, in paragraph 16.

**Table 1 (page 4).**

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<sup>1</sup> The full list of UOAs is available at [www.ref.ac.uk](http://www.ref.ac.uk) under 'Panels'.

**Table 1: Submission summary data**

	Number of submissions (2021)	Number of submissions (2014)	Category A submitted FTE (2021)	Category A submitted FTE (2014)	% change in FTE	Number of outputs (2021)	Number of outputs (2014)	Number of impact case studies (2021)	Number of impact case studies (2014)
<b>UK Sector</b>	1,878	1,911	76,132	52,061	46%	185,594	191,950	6,781	6,975
<b>Main Panel A</b>	312	312	19,983	13,608	47%	48,872	50,298	1,460	1,621
<b>Main Panel B</b>	354	403	18,393	13,347	38%	45,153	49,317	1,483	1,667
<b>Main Panel C</b>	658	614	23,451	14,413	63%	56,649	52,212	2,260	2,040
<b>Main Panel D</b>	554	582	14,305	10,691	34%	34,920	39,321	1,578	1,647

5. The overall and sub-profiles in Table 2 show the FTE-weighted average percentage of submitted activity judged to meet each of the quality levels for the UK sector.

**Table 2: UK sector overall and sub-profiles**

Profile	Percentage of activity judged to meet the standard for:				
	4*	3*	2*	1*	Unclassified
<b>Overall</b>	41	43	14	2	0
<b>Output</b>	35.9	46.8	15.4	1.6	0.3
<b>Impact</b>	49.7	37.5	10.8	1.7	0.3
<b>Environment</b>	49.6	36.9	11.6	1.9	0

6. The average overall and sub-profiles are weighted by staff FTE to take into account the relative size of submissions in the overall outcome. They are produced by weighting the proportion of activity at each starred level for each submission by the FTE of Category A submitted staff. Presenting the data in this way provides a UK-wide picture of the quality of submitted research activity.

7. The outcomes in Table 2 show a substantial proportion of activity judged as world leading (four star) or internationally excellent (three star), totalling an impressive 84 per cent of submitted activity. As described further in the individual main panel reports, the highest quality levels were found in submissions of all sizes and in diverse types of HEI.

- Detailed observations on the assessment of each element (output, impact and environment) are provided in the main and sub-panel reports. The paragraphs below draw together some of the key observations emerging across the four main panels.

## Outputs

- The panels observed high proportions of world-leading and internationally excellent research outputs in submitted material, with examples of excellence seen across all types and forms of research. Changes between REF 2014 and REF 2021 limit the extent to which comparisons can be drawn on the overall quality of outputs – further detail on these differences is below. There were many examples seen of excellence in interdisciplinary (IDR) research across the UOAs. While there is wide acknowledgement of the variability in the flagging of outputs as IDR by submitting units, the composition of the sub-panels ensured appropriate expertise for the equitable assessment of IDR, in some instances drawing on the expertise of another sub-panel as required. The increasing use of ‘big data’ of different types and sources was noted as a positive development emerging across many areas of research.

## Impact

- Across the exercise, panels continued to be impressed by the diversity and richness of the impacts described in case studies. There was clear evidence of the positive effect of HEI investment in supporting and enabling impact in the submitted case studies – as often evidenced in the environment statements. The benefits of this investment were seen both in the depth of unit’s partnerships beyond academia, as well as in the improved provision of impact evidence across many case studies. While the highest scores for impact were achieved by units of all sizes, across the panels there remained some concern about the effect of the requirement for two case studies for very small (and in some cases new) submitting units.

## Environment

- Evidence submitted in environment statements continued to demonstrate the diverse vitality and sustainability of research in many areas across the UOAs. Panels observed, in general, more developed evidence in relation to equality, diversity and inclusion within submitted statements, although there remains scope for continued improvement.
- Panels observed some mixed trends in the data reported for environment across the period, including in comparison with the previous exercise. The proportion of early career researchers (ECRs) identified in REF 2021 tended to be similar or lower to the proportions seen in REF 2014. While further investigation would be needed to understand the full reasons for this, differences in data collection methodology between the two exercises and the changes in the approach to submitting staff (see paragraphs 13 to 16) were considered as possible factors. The number of doctoral degrees awarded, both across the 2014 and 2021 periods as well as within the 2021 period, were widely seen to have increased – with the exception of the final year of the current period, where reflections on the impact of Covid-19 were sometimes made. There were particular

challenges in observing trends in income within the current period, due to changes in financial reporting practice in 2015. Furthermore, differences in the length of the 2014 and 2021 assessment period, and the effects of inflation, limited the degree to which comparisons could be drawn across the two exercises. Where comparisons are drawn across the 2014 and 2021 periods, mixed trends are observed, with some areas showing income remaining flat while other areas have seen some increases.



## Key differences from 2014

13. The REF was first carried out in 2014, replacing the previous RAE. The independent review of REF 2014, led by Lord Stern, introduced significant changes into the assessment framework, including the approach to submitting staff and outputs. These changes aimed to deliver an assessment that more fully reflected the breadth of research activity being undertaken across the sector, on a more comparable basis across institutions; they also aimed to give greater flexibility to institutions to build submissions, while investing in and undertaking more diverse forms of research activity.
14. These changes have delivered an exercise that provides a different overall picture of research quality, therefore, to REF 2014. This limits the extent to which meaningful comparisons can be drawn across the outcomes of the two exercises – for outputs in particular.
15. Key changes to staff and outputs include:
  - a. The requirement to submit all staff with significant responsibility for research (in contrast to a selective approach to staff submission in REF 2014)<sup>2</sup>.
  - b. The required number of outputs for return as based on the total FTE of submitted staff multiplied by 2.5 (in contrast to a requirement for 4 per staff member in 2014).
  - c. The decoupling of staff and outputs, allowing greater flexibility in the selection of outputs for return between a minimum of one and maximum of 5 for each staff member. The output pool could also include the outputs of former staff.
16. The effect of these changes on the number and size of submissions differs across the UOAs, reflecting in part the differences in how widely research is distributed across institutions of differing size and type. For example, in some UOAs where research tends to be more concentrated in a smaller number of large units, the percentage increase in FTE tends to be lower than the whole-exercise average of 46 per cent. Where this is the case, the total number of outputs and impact case studies returned will have decreased in comparison to 2014. Conversely, where there have been larger than average increases in the FTE returned in a given UOA, the total number of outputs (and in some instances, case studies) will have increased. Data summarising submissions in comparison with 2014 are provided in each of the main panel reports, and provide a more detailed insight into the differing effects of the changes to the exercise.

<sup>2</sup> In REF 2021, staff eligibility was determined by contractual status on the REF census date. In some cases, this definition included a wider group of staff than those that have significant responsibility for research. Where this was the case, the institution could develop and apply a process for identifying which of the staff meeting the core eligibility criteria had a significant responsibility for research. The '% eligible staff submitted' is provided alongside the published outcomes for each submission, and shows the percentage of staff determined to have significant responsibility for research (and therefore submitted) out of all staff in the unit meeting the definition of eligible staff.

17. Further changes to the exercise since 2014 include the increased weighting for the impact element (from 20 per cent to 25 per cent). Assessment of the submitting unit's approach to enabling impact was considered within the environment element for REF 2021, replacing the separate 'impact template' that was assessed as part of the impact element in 2014. Full details of the key changes are set out in the 'Guidance on submissions' (REF 2019/01)<sup>3</sup>.



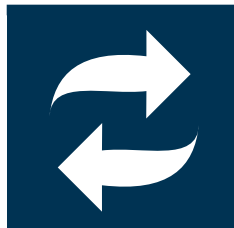
## Covid mitigations and effects

18. In July 2020, the REF team published the 'Guidance on revisions to REF 2021' (REF 2020/02)<sup>4</sup> setting out the revisions to the timetable, and the changes and additions made to the guidance to take account of the effects of Covid-19. The publication of this guidance followed a period of engagement with institutions and the panels during the spring and early summer of 2020.
19. The revisions included the option for institutions to submit outputs delayed by Covid and, where applicable, provide an affected output or case study statement. Institutions were also invited to provide a Covid-19 annex, describing the particular changes affecting the HEI-level environment as a result of Covid-19 and how the institution responded, in the final part of the assessment period. Many submitting institutions provided such a statement. Further mitigations for submitting institutions were introduced in January 2021, to support the final stages of the submission process in the context of increased disruption from Covid-19.
20. In undertaking the assessment, panels took account of the effects of Covid on submissions in line with the 'Guidance on revisions'. The main panel reports provide information as appropriate on this in relation to each of the three elements (outputs, impact and environment).
21. The pandemic also had significant effects on the assessment process itself. The timeframe for the assessment year was revised, and the meeting format largely switched to virtual, with some hybrid format meetings later on in the process. Individual effects for the panellists, panel advisers and administrative staff involved were considerable.
22. During the preparation meetings in late 2020 and early 2021, mitigations and contingencies were considered to protect the robustness of the process against the risks of further disruption. This included the appointment of additional assessors in some areas, to increase capacity on the panels, and adapting the existing meeting schedule to better suit a virtual format – primarily through increasing the frequency and shortening the duration of scheduled meetings. Additional resource for running meetings in a virtual format was also made available.
23. While there was some scope for panels to meet in a hybrid format in the later stages of the assessment (where appropriate for that panel) – with some attending in person and some attending online – most of the assessment was conducted online via Zoom. With adaptations to the schedule, as described above, the assessment was robustly delivered through this format, with some benefits noted. However, for some areas of the assessment, this was achieved through significant additional work and without some of the 'human' benefits that meeting in person provides. Overall, through the dedication of

<sup>3</sup> Available at [www.ref.ac.uk](http://www.ref.ac.uk), under 'Publications and reports'.

<sup>4</sup> Available at [www.ref.ac.uk](http://www.ref.ac.uk), under 'Publications and reports'.

the expert panellists and the steps taken to mitigate the effects of Covid, the assessment process was conducted with full rigour. Careful consideration should be given to the benefits and challenges of online meetings, to inform their role in a future exercise. Further information on the effects of Covid-19 on the assessment is provided in the main and sub-panel reports.



## Cross-main panel working methods

24. To support appropriate consistency across the four main panels, review progress and consider key issues arising, the chairs of the four main panels, the advisory panels – the Equality and Diversity Advisory Panel (EDAP) and Interdisciplinary Research Advisory Panel (IDAP – and the Institutional-level Pilot Panel (ILEPP), together with the panel advisers and the REF Director, were established as a formal group.
25. The main, advisory and pilot panel chairs' group (MAP) met regularly throughout the exercise. During the criteria-setting phase and throughout the assessment phase, the meetings were scheduled at key intervals between the meeting rounds of the main and sub-panels. The MAP group also met during the assessment-preparation stage of the process, in both early and late 2020. There were three further, exceptional meetings of the group in 2020 and early 2021, related to the development of Covid-19 mitigations for REF 2021, as described in the above section.

## Calibration of assessment standards

26. Cross-main panel calibration exercises were conducted for all three elements of the assessment (outputs, impact and environment). Each exercise was conducted after the completion of the main and sub-panel calibration exercises for that element, across all four main panels, in order to review the consistency with which grade boundaries had been drawn.
27. In addition to MAP group members, two to three further members from each main panel joined each of the cross-main panel calibration exercises. Across all three elements, this included representation from main panel interdisciplinary leads, international members, research user members and sub-panel chairs. A sample of material for review and discussion was selected from among the material used in each of the four main panel exercises. The selection of material sought to minimise the inclusion of items from institutions with which members had conflicts; members did not participate in the discussion of any items with which they were conflicted.
28. Each exercise provided reassurance that the grade boundaries across the four main panels were being drawn consistently and supported consistent resolution of assessment issues arising.



## Consistency in assessment approach and application of standards

29. The regular meetings of the MAP group held throughout the assessment phase enabled key oversight of consistency in the assessment processes and application of assessment standards. This role was carried out through review and discussion of emerging main panel profiles and analyses of scoring trends, and through discussion of detailed working methods – including on the approach to meeting format in response to the evolving Covid-19 restrictions.
30. As required, advice provided by the MAP group was reported to the REF Steering Group, informing decision-making processes. The four main panel chairs attended the REF Steering Group midway through the assessment phase to report on progress and raise assessment issues for discussion. The chair of the steering group attended the final MAP meeting.

## Fairness in REF assessment

31. As a new measure introduced into the process for REF 2021, all panel members and assessors on the expert panels undertook tailored training in fair assessment and bias mitigation. This was initially provided to all those involved in panel selection decisions; during the assessment preparation period in 2020, the training was extended to all expert panel members and assessors – including panellists newly joining thereafter.
32. As a key step in continuing the process of bias mitigation and to embed fairness across the assessment process, the main and sub-panels developed Fairness in REF intention plans, which were adopted as standing items on meeting agendas. These supported the operation of detailed working methods that sought to mitigate bias as far as possible, for example, through randomising reading order. Such measures were in addition to the wider framework of the exercise, in which the focus of the assessment is the submitted unit and not on individuals. Sub-panels did not have access to data regarding the protected characteristics of submitted staff. Further details on the implementation of the intention plans within the main and sub-panels is provided in the main panel overview reports. An exemplar intention plan will be included in the EDAP report.
33. To help inform a wider understanding of fairness in REF assessment, the REF team is working with experts across the main panels and EDAP on an equality analysis in relation to output scores. The findings from this work will be published later in 2022.



## Main panel overview reports

34. Each of the four main panels and its sub-panels have produced an overview report detailing how they carried out the assessment, and providing observations about the assessment and the state of submitted research within their discipline areas. These reports have been authored by and therefore tailored towards the different subject communities covered by the sub-panels; the reports therefore reflect appropriate differences across the main panels. These reports can be accessed via the REF website: [www.ref.ac.uk](http://www.ref.ac.uk), under 'Publications and reports'.
35. From June 2022, reports will also be available on the work of the EDAP and the IDAP during the assessment year.



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