

**Future Arrangements for Research Assessment:  
the Research Excellence Framework**

**Progress Report to the Welsh Assembly Government  
(October 2008)**

**Introduction**

- 1 This report provides the Welsh Assembly Government with an update on the new arrangements for research assessment which are being developed by the UK higher education funding bodies for implementation after the 2008 Research Assessment Exercise.

**Background**

- 2 The *Science and Innovation Framework 2004-2014: Next Steps*, published in 2006 by the DfES, DTI and Treasury, stated that the UK Government has a firm presumption that, after the 2008 RAE, the system for assessing research quality and allocating QR funding will be mainly metrics based. The then Secretary of State for Education subsequently directed HEFCE in December 2006 to develop a bibliometric method of measuring research quality in science, engineering, technology and medical subjects, to be introduced from 2010/11 in England. He also indicated that HEFCE should invite the other UK higher education funding bodies to take part in the development of the new method.
- 3 Jane Davidson wrote to the Chair of HEFCW in December 2006 to ask HEFCW to engage closely with the other funding bodies in this work. She also requested that WAG should be kept informed of developments.

**Main Features of New Method**

- 4 The current system of research assessment, the Research Assessment Exercise (RAE), is based on peer review. Institutions identify four items of research output for each member of staff submitted and also provide information on the unit's research income, research student numbers, research strategy and esteem indicators. This material is reviewed by panels of leading academics and research users working in just under 70 subject-based panels (Units of Assessment - UoAs). The outcomes are expressed as quality profiles.
- 5 The work on the development of the new metrics-based arrangements which will replace the RAE after 2008 has been led by the Higher Education Funding Council for England (HEFCE), working in consultation with the other funding bodies. A Steering Group, consisting of representatives of all of the funding

bodies, has been established to co-ordinate activities, and there has been an initial consultation with the UK higher education sector.

- 6 As a result of this work, the main features of the new assessment arrangements have been established. These will be as follows:
  - There will be a unified assessment framework for all subjects, to be known as the **Research Excellence Framework (REF)**. This will make greater use of quantitative indicators in the assessment of research quality than the present system, while taking account of key differences between disciplines.
  - For those subjects for which it is appropriate, the quality of research outputs will be assessed primarily using bibliometrics – a quantitative indicator based on the number of citations which publications receive. The subjects for which bibliometrics are most appropriate are science-based ones. (Further information about bibliometrics is provided in the next section.) For those subjects for which bibliometrics are not appropriate, the quality of research outputs will continue to be assessed by a form of expert review.
  - For all subjects, the outcomes of bibliometrics or expert review of research outputs will be supported by other quantitative indicators and/or supplementary qualitative information, selected to be appropriate to the discipline.
- 7 This will result in a spectrum of assessment approaches along a continuum as follows:
  - Some subjects may be assessed through bibliometrics in combination with other quantitative indicators only (where this approach is sufficiently robust to be used without the need for qualitative elements or expert review of outputs).
  - For subjects where bibliometrics and other quantitative indicators are partially informative, they will be used in combination with qualitative elements and possibly some expert review of outputs.
  - For subjects where bibliometric indicators are not sufficiently mature to be informative, expert review of outputs will be used in combination with other suitable indicators and qualitative information.
- 8 The additional quantitative indicators and qualitative information to be used in the assessment process are currently being identified. However, the quantitative indicators are likely to include factors such as research income and research students numbers, and the qualitative information may include material such as evidence of esteem and research strategies.
- 9 In all cases, assessment will be overseen by expert panels. These will advise on which indicators are appropriate for their disciplines, and will also interpret and combine these indicators (together with peer review judgements where applicable) to produce overall quality profiles.

- 10 As indicated in paragraph 4 above, there are currently around 70 Units of Assessment in the RAE. Under the new approach, the subjects covered by bibliometrics (i.e. many of the science subjects) will be divided into around six subject groupings. These groupings will be substantially larger than the present RAE UoAs, but this level of aggregation is necessary in order for the outcomes of the bibliometrics to be robust. It is envisaged that the groupings for the subjects assessed by a form of expert review will also be rather fewer and larger in number than the present RAE units of assessment.

## **Bibliometrics**

- 11 This section provides some further information about bibliometrics which, as indicated above, will be used to assess the quality of research outputs in those subjects for which this approach is appropriate.
- 12 Bibliometrics are based on the principle that new research builds on previous work, and researchers acknowledge this by citing earlier papers. These citations can be measured and used to produce proxy indicators of quality.
- 13 As the first stage of the developmental work, HEFCE commissioned the Centre for Science and Technology Strategies at Leiden University to undertake a thorough scoping study on the use of bibliometrics in research assessment. It also commissioned Evidence Limited to investigate the implications for interdisciplinary research. As a result of that work, it was concluded that bibliometrics will provide a reliable basis for research assessment in a range of subjects.
- 14 The bibliometric indicator to be used in the Research Excellence Framework will show how frequently papers are cited compared with the world average for the subject concerned.
- 15 The subjects included in the bibliometrics approach (principally science-based subjects) will be divided into around six groupings. Citation rates will then be calculated for publications which have been produced in that grouping over a period of years. Since there are significant variations in citation behaviour between different fields of study, the number of citations will be normalised by fields of study.
- 16 A diagrammatic summary of how the citation indicators will be produced is shown at **Appendix A**.
- 17 The outcomes for each subject grouping at each institution will be presented as “citation profiles”, reflecting the proportions of work which have citation rates above and below the worldwide norms. An illustrative example of how these outcomes might be presented for an institution is shown below.

	Citation rates relative to worldwide norms (% of papers in each citation category)					
Subject Group	Uncited	Far below world average	Below world average	Around world average	Above world average	Far above world average
Clinical Medicine	8%	15%	18%	33%	14%	12%
Health Sciences	10%	20%	22%	35%	8%	5%
Subjects Allied to Medicine	14%	25%	23%	36%	2%	0%
Biological Sciences	8%	16%	20%	50%	6%	0%
Physical Sciences	15%	25%	30%	15%	10%	5%
Engineering & Computer Science	20%	20%	15%	40%	5%	0%

*Note: The actual subject groups have still to be finalised, but may be broadly as shown above.*

- 18 The data for the citation indicators will be taken from one or both of the two main databases which currently capture publication and citation information across a broad range of disciplines. These are the ThomsonReuters' Web of Science and Elsevier's Scopus.
- 19 These databases focus mainly on journals (particularly those of international interest) and some other materials, such as conference proceedings. The types of media used for publishing research vary greatly between different disciplines, and consequently the citation databases cover very different proportions of research in different disciplines. In broad terms, their current coverage is:
- i. A large majority of research outputs are covered in the biological, physical and medical sciences and in psychology
  - ii. There is generally moderate coverage in the health sciences, engineering, computer science and geography
  - iii. Most social sciences, the humanities and the arts generally have limited coverage
- 20 On this basis, it is likely that the subjects in group (i) are those whose research outputs will be assessed by bibliometrics; that the research outputs of the subjects in group (ii) are likely to be assessed by a combination of bibliometrics and expert review; and that the research outputs of those in group (iii) will be assessed by expert review. Decisions on the allocation of subjects to each of the above categories will be taken following completion of a pilot project which is currently being conducted (see below) and further consultation with the sector.

## Next Steps

- 21 The UK higher education funding bodies published their initial proposals for the Research Excellence Framework for consultation in November 2007 (HEFCW Circular W07/48HE refers). As a result of this consultation, two modifications to the proposals were agreed:
- The initial proposals envisaged a much sharper distinction between the assessment arrangements for the science-based subjects for which bibliometrics is appropriate and the non-science subjects. Respondents urged the funding bodies to develop a more integrated approach, and this is reflected in the arrangements described in paragraphs 6 to 10 above.
  - To allow time for the development of this more flexible approach, the timetable previously announced for England was extended by twelve months.
- 22 Having established the broad outlines of the new approach, the funding bodies are currently undertaking a programme of work to develop the operational detail. This includes the following elements:
- A pilot exercise on the bibliometric indicator. This involves a representative sample of 22 institutions, including one from Wales (Bangor University). The pilot will help determine issues such as: the subjects to be included in the bibliometrics approach; the timeframe and frequency of bibliometric exercises; whether institutions should continue to select staff for assessment, or whether all staff in relevant subjects should be automatically included. The pilot will also test the processes for collection and analysing data.
  - Arrangements for the expert review of research outputs in those subjects for which bibliometrics are not currently appropriate.
  - Identification of the other quantitative indicators and qualitative information which are to be used alongside the citation indicators or expert review of research outputs.
  - Sector impact assessment, to establish the potential accountability burden, behavioural incentives, equal opportunities and sustainability implications.
- 23 The inclusion of Bangor University in the pilot exercise will enable HEFCW to establish whether the bibliometrics approach raises any issues in relation to the Welsh language. It is currently not anticipated that this will be the case, as the vast majority of research outputs published in the medium of Welsh are produced in arts and social science subjects and will therefore continue to be assessed by expert review rather than bibliometrics.
- 24 The overall timetable for the Research Excellence Framework is shown below. The timetable for the implementation currently applies only in England.

April 2008 – spring 2009	Pilot of bibliometric indicators and development of other operational details.
December 2008	Results of 2008 RAE published
Spring - summer 2009	Consultation with the sector on operational details of the REF.
Late summer 2009	Decisions on the operational details of the REF.
<b>Note:</b> <i>The following implementation timetable currently applies in England only</i>	
Calendar year 2010	First bibliometrics exercise undertaken in appropriate subjects.
2011-12	Metrics begin to inform an element of funding in appropriate subjects.
Calendar year 2012	Submissions to 2013 light touch expert review process
2013	Full assessment process undertaken for all subjects including light touch expert review
2014-15	Funding for all subjects driven entirely by REF

### Decisions in Wales

- 25 HEFCE was instructed by the Secretary of State for Education to develop a bibliometrics-based method of research assessment for those subjects for which this is appropriate, and to phase it in for funding purposes in England from a specified date (now extended to 2011-12). These instructions do not apply in other parts of the UK, and HEFCW and the other funding bodies will therefore need to take their own decisions on whether to implement the new arrangements and, if so, from what date.
- 26 HEFCW is keen that there should continue to be a robust, UK-wide system of quality assessment for research, and this view was strongly endorsed by HEIs in Wales in the 2007 consultation exercise. The research-led HEIs in Wales were also strongly of the view that they would wish to join the new arrangements at the same time as institutions in England.
- 27 HEFCW's current view, therefore, is that the Research Excellence Framework should be adopted in Wales, and that it should be introduced at the same time as in England – i.e. in 2010. The way in which the assessment outcomes will be used to inform funding allocations in Wales, and the timing for phasing in the new funding arrangements, would, however, be likely to differ from England and, as at present, would be determined by HEFCW in the light of local circumstances and policies.
- 28 Decisions on whether to proceed with the REF will be required in Summer 2009, following completion of the current programme of developmental work and further consultation with the sector. In order for HEFCW to be able to take a timely decision at that point, it is suggested that, if the Welsh Assembly

Government wishes to engage in dialogue with HEFCW about the new arrangements, this should be undertaken between now and Spring 2009.

## Diagrammatic Representation of how Citation Indicators are Produced

