

Research Assessment Exercise 2014

Panel 05 – Computer Science / Information Technology **Specific Criteria and Working Methods**

(February 2014)

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Introduction

1. Panels of the Research Assessment Exercise (RAE) 2014 have formulated panel-specific guidelines to provide advice on the criteria and working methods in assessing submissions to the RAE 2014. This document sets out the specific criteria and working methods that the Computer Science / Information Technology Panel will apply. It should be read alongside the General Panel Guidelines. In areas where the panel-specific criteria do not provide further information, this is because the provisions in the General Panel Guidelines prevail and apply to the Panel without further elaboration or amplification.

2. The panel-specific guidelines may also assist institutions and staff members with the process of arranging submissions for assessment. These guidelines do not replace or supersede the requirements for submissions that are set out in the Guidance Notes for the RAE 2014.

3. The RAE 2014 is an expert review exercise. Panel members will exercise their knowledge, judgement and expertise to reach a collective view on the quality profile of research.

Section A: Submissions

Cost Centres under the Panel

4. The Computer Science / Information Technology Panel acknowledges the mapping of cost centres in Appendix B of the General Panel Guidelines, also in Appendix F of the Guidance Notes. The Panel covers the following cost centre:

33 computer studies/science (incl. information technology (IT))

5. Computer Science and Information Technology includes the study of methods for acquiring, storing, processing, communicating and reasoning about information, and the role of 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.

Weighting the Elements of the Assessment

6. The Panel will attach the following weighting to the three elements of the assessment when determining the overall quality profile for each cost centre:

- Research outputs : 80%
- External competitive peer-reviewed research grants : 10%
- Esteem measures : 10%

Research Strategy Statements

7. Following paragraphs 2.15, 2.16 and 3.2 of the Guidance Notes and paragraph 15 of the General Panel Guidelines, Research Strategy Statements submitted by each institution and individual cost centres of each institution will provide contextual information for the Panel when assessing the submissions.

8. The Computer Science / Information Technology Panel would expect the factual description of research activities in each Cost Centre's Research Strategy Statement to cover activities in the assessment period.

Output Types

9. The Panel will consider the eligibility of research outputs as described in paragraph 18 of the General Panel Guidelines and paragraphs 5.8 to 5.12 of the Guidance Notes.

10. The Panel will assess the quality of each eligible item on its own merits and not in terms of its publication category, medium or language of publication. The Panel will study each item in detail and will not assess outputs mechanistically according to the medium of publication. The Panel recognises that there can be work of the highest quality in various output forms, and no distinction will be made between types of output submitted nor whether the output has been made available electronically or in a physical form.

11. Forms of research outputs that are admissible and specifically relevant to the Computer Science / Information Technology Panel include the following examples. This should not be regarded as an exhaustive list. Equally, there is no implication of priority or importance in the ordering of examples in this list:

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

12. Research outputs will be assessed for the quality of original research they include. The Panel 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 their original research or novelty of insight.

Co-authored/Co-produced Outputs

13. The Panel confirms the principles on assessing co-authored/co-produced research outputs as set out in paragraphs 31 to 33 of the General Panel Guidelines.

Double-weighted Outputs

14. Paragraphs 29 and 30 of the General Panel Guidelines and paragraphs 5.13 to 5.14 of the Guidance Notes indicate that in exceptional cases an academic may request that outputs of extended scale and scope be double-weighted in the assessment. However, given the publication patterns in Computer Science and Information Technology this Panel does not expect to receive any items proposed for double-weighting.

Section B: Assessment Criteria: Research Outputs

Criteria and Quality Levels

15. Panel members will use their professional judgement with reference to international standards in assessing research outputs.

16. In assessing outputs, the Panel will look for evidence of originality, significance and rigour, and will grade each item into one of the five categories of quality level as set out in paragraph 19 of the General Panel Guidelines. The Panel will use the generic description of the quality levels as set out in paragraph 20 of the General Panel Guidelines.

17. In addition, the Computer Science / Information Technology Panel provides the following advice on their understanding of the quality definitions adopted for assessing research outputs:

The Panels will look for evidence of some of the following types of characteristics of quality, as appropriate to each of the quality levels:

- significant 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
- significance of work to advance knowledge, skills, understanding and scholarship in theory, practice, education, management and/or policy

In reaching these judgements the assessor may consider:

- the scope and content of the output
- evidence of rigorous third-party peer review
- the standing of the outlet, relative to others in the same field
- citations of the output, relative to others of similar age in the same field
- evidence that the work has established a new area of study
- evidence of significant practical applications of the work

Taking all the evidence into account, the assessor will use their professional judgement to assign an overall score to the output.

Additional Information on Outputs

18. Other than the data as specified in the Guidance Notes, and unless specifically required by the Panel, no other information should be provided, and the Panel will take no account of any such information if submitted.

Metrics

19. While the Panel will study each item in detail for the assessment, the Panel may informally use citation data to inform its consideration of individual items. However, such data will not be used in any algorithmic or deterministic way for the evaluation of research quality. The Panel is aware of the limitations of citation data, in particular their variability within as well as between disciplines, and the need to consider that some excellent work takes time to achieve its full impact.

Section C: Assessment Criteria: External Competitive Peer-reviewed Research Grants

20. This Panel will review the completed proforma on external competitive peer-reviewed grants and the listing of the competitive peer-reviewed grants as described in paragraphs 7.2 to 7.4 of the Guidance Notes.

21. Pursuant to paragraphs 45 to 47 of the General Panel Guidelines, factors relevant to the Panel's evaluation of the submitted data are as follows:

- a. The value of research grant per staff member as an important indicator.
- b. The level of competition and success rates involved in gaining different awards.

- c. The overall balance of funding sources.
- d. The total number of grants as well as the total value of grants, relative to the numbers of submitted staff.
- e. That some areas of research within its remit are less resource-intensive than others.
- f. Constraints on eligibility to gain research funds.

Section D: Assessment Criteria: Esteem Measures

22. This Panel will assess esteem measures according to paragraphs 7.5 and 7.6 of the Guidance Notes. Esteem measures should be recognition conferred by an external body. They may include, but are not limited to, editorship of academic journals, research-based awards, honours or prizes, significant grants or donations for research, which are not competitive or peer-reviewed (e.g. industry research grants), government consultancy awarded through tender process.

23. Indicators of esteem that are of particular relevance to the Computer Science / Information Technology Panel include, but are not limited to, the following in no particular order:

- awards, fellowships of learned societies, prizes, honours and named lectures
- personal research awards and fellowships
- keynote and plenary addresses at conferences
- significant professional service
- positions in national and international strategic advisory bodies
- industrial advisory roles
- editorial roles
- research co-ordination
- conference organisation (e.g., programme chairs and programme committee memberships, including continued membership of a programme committee over several years).

24. The Panel would particularly welcome the following esteem indicators for individuals:

- election to fellowship of the Association for Computing Machinery, Institute of Electrical and Electronics Engineers, and fellowships of learned societies
- best paper award at a major conference

- programme chair of a major international conference in a relevant research area
- funded research fellowship by a national organisation
- invited keynote speaker at an international or national conference in another country.

25. The Panel would particularly welcome the following research group or cost centre level esteem indicators:

- Exemplars of collaborations with industry or other end-users of research, including in particular long-standing partnerships and knowledge transfer
- Exemplars of commercialisation activity in terms of patents awarded, creation of spin-outs or other forms of wealth creation
- Exemplars of the impact of research activity on policy, practice and the quality of life.

26. This Panel will make an overall judgement about the indicators of esteem relating to individual academics and groups according to paragraphs 48 to 50 of the General Panel Guidelines.

Section E : Working Methods

Allocation of work

27. The Convenor, consulting the Deputy Convenor and other panel members as appropriate, will allocate work to members and if necessary external reviewers in light of their expertise and workload, and taking into account any potential conflicts of interest. All panel members will take account of the requirements of the General Panel Guidelines to ensure that the exercise is conducted fairly and transparently.

Use of Sub-Groups

28. The Computer Science / Information Technology Panel does not intend to establish sub-groups.

Assessment Process

29. Panel members will examine the submitted outputs in detail, and put forward a recommendation to the panel for a collective decision on the final grading. To ensure fairness and consistency, each research output will

be assessed in detail by at least two members, one of whom should be a non-local member to the extent possible. Similarly, for those cost centres which are only housed at one or two local institutions, submissions should be assigned to at least one non-local member in order to ensure fair and impartial assessment.

30. Subject to conflicts of interest, the assessment of external peer-reviewed research grant and esteem measures will be undertaken by each member of the Panel and grading will be a collective decision of the Panel.

External Reviewers

31. This Panel will follow the procedure in paragraph 42 of the General Panel Guidelines when referral to external reviewers becomes necessary for panel assessment.

Cross Referral

32. This Panel will follow the process described in paragraphs 37 to 41 of the General Panel Guidelines when initiating and assessing cross-referrals by another panel.

33. Generally, research on pedagogy and education issues submitted to this Panel will be assessed by panel members or external reviewers with expertise in pedagogy. Exceptionally, such work may be cross-referred to Panel 13, Education.

Trial Assessment

34. Following paragraphs 67 and 68 of the General Panel Guidelines, the Panel will conduct a trial assessment using a sample of around 2% of the submitted outputs from different academic staff members submitted to the Panel. The sample submissions will be selected to ensure no conflicts of interest for Panel members and will be trial assessed by all members of the Panel. The trial assessment will also cover the general principles for evaluating external competitive peer-reviewed research grants and esteem measures.