Annex A
Consultation response form for the Research Excellence Framework

1. Respondents should complete the form below.

2. Responses should be e-mailed to refconsultation@hefce.ac.uk by Thursday 14 February 2008. HEIs in Northern Ireland should send a copy of their response to research.branch@delni.gov.uk

3. Institutions wishing to express an interest in taking part in the pilot of the bibliometrics indicator should e-mail their details to refconsultation@hefce.ac.uk by Thursday 31 January 2008.

4. We will publish an analysis of responses to the consultation. Additionally, all responses may be disclosed on request, under the terms of the Freedom of Information Act. The Act gives a public right of access to any information held by a public authority, in this case HEFCE. This includes information provided in response to a consultation. We have a responsibility to decide whether any responses, including information about your identity, should be made public or treated as confidential. We can refuse to disclose information only in exceptional circumstances. This means responses to this consultation are unlikely to be treated as confidential except in very particular circumstances. Further information about the Act is available at www.informationcommissioner.gov.uk.

Respondent’s details

Are you responding: On behalf of an organisation
(Delete one)

Name of responding organisation/individual The Institute of Physics

Contact name Professor Peter Main

Position within organisation (if applicable) Director, Education and Science

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Consultation questions

(Boxes for responses can be expanded to the desired length.)

Consultation question 1a: Do you endorse our proposals for defining the broad group of science-based disciplines, and for dividing this into six main subject groups, in the context of our new approach to assessment and funding?

The Institute of Physics represents physicists working in physics departments, but also those working in other departments such as mathematics or engineering, and those based outside Higher Education Institutions (HEIs).

i) The broad group
According to paragraph 22 (of the consultation document), researchers should be put forward for either of the two broad groups by their HEI. The lack of clarity over how those on the continuum between the broad groups should be treated could force HEIs to take a tactical approach to the way they define these researchers. ‘Game playing’ will be encouraged, and there is a danger of similar work being assessed in different ways.

There is a problem with the proposed boundary between ‘science-based’ and ‘other’ disciplines because of the exclusion of mathematics and statistics from the broad group of ‘science-based’ disciplines. There are many theoretical physicists working in mathematical areas, such as string theory, and there is not a clear line between mathematics and theoretical physics. Many physicists are employed in mathematics departments and publishing in both mathematics and physics journals.

It was suggested in Next Steps¹ that the relationship between research income and quality would apply differently to subjects which are not laboratory based. However, the same reasoning does not necessarily apply to bibliometric indicators. While there are a lower average number of citations per paper in mathematics compared to ‘science-based disciplines’, this does not appear to be an adequate justification for its separate treatment: citation rates are comparable to mechanical and civil engineering, which are both included in the broad group, and to linguistics or archaeology, both of which are excluded². Furthermore, various problems raised by the use of research income as an indicator are dealt with in answer to question 4. While HEFCE will undoubtedly need to arrange different funding mechanisms for these areas, it is not clear that quality assessment should be significantly different.

ii) The six main subject groups (physical sciences)
It is not clear why the six main subject groups are necessary or helpful in a system that does not rely on peer review. In the RAE there was a need to introduce some degree of comparability between cognate subjects, but in the metrics-based REF, there will be a

² Citation Counts: are they good predictors of RAE Scores, Mahdi et al, 2008; as shown in figure 3.
need to look at the comparability of fields, so the role of an overarching subject group is less obvious. Paragraph 23 does not make this clear.

‘Physical sciences’ separates most of physics from engineering, and groups it with earth sciences and chemistry. There are many researchers working in physics departments and publishing in what might be classed as engineering journals. This is particularly true of areas such as electronic engineering, accelerator physics and radio astronomy, and of the fields of nuclear science, acoustics and thermodynamics which are not part of the physical sciences group. Another example is that physics departments receive a significant proportion of grants allocated via EPSRC’s materials programme, demonstrating the connection between physics and materials, which is placed within ‘Engineering and Computer Science’. Much medical physics will also be separated from the rest of physics.

The proposed subject group division is not coherent in terms of cognate subjects and the cross-over of researchers and journals, nor does it fully reflect the differing citation practices across various sections of ‘physical sciences’ and ‘engineering and computer science’. This is likely to lead to an inconsistency of treatment. The ‘physical sciences’ group is also too large. Under the RAE, physics has been assessed on its own merits, and there is no reason why an HEI with an excellent physics department should have an excellent chemistry department and vice versa. The aggregation at this level disconnects the REF from departments and from cost centres.

The significance and implications of the division of the six main subject groups will depend on how researchers will be assigned to them: whether HEIs will have a role in deciding, as for the broad group, or whether the main subject groups will be assigned automatically according to fields, as set out in paragraph 41. In the latter case this will cause problems as mentioned in paragraphs 35, 41 and 42: it will not be clear how to deal with the large number of researchers who publish in more than one field.

iii) Divisions within the sub-group ‘physical sciences’

The divisions at field level, within the sub-group, present various concerns. We understand that the proposed division would include the following ten fields in physics:

- optics
- physics, applied
- physics, atomic molecular and chemical
- physics, condensed matter
- physics, fluids and plasmas
- physics, mathematical
- physics, multidisciplinary
- physics, nuclear
- physics, particles and fields
- astronomy and astrophysics.

A significant concern about using divisions at this level to normalise citation counts is in accounting for the very different publication and citation practices between theoretical
and experimental approaches to physics. This is particularly pronounced in areas such as particle physics, where theoretical and experimental research represent two distinct communities. It should also be noted that only the theoretical aspects of some of the ten fields will be represented at some HEIs, while only experimental aspects will be represented at others. We would expect the expert review of these fields, proposed in paragraph 41, to find that a significantly higher level of granularity is needed.

Biophysics, biological physics and medical physics are examples of the problems presented by these fields. Biophysics is included in basic life sciences, but work in this area could easily be classified as condensed matter or multidisciplinary physics, both of which are very large and diverse ‘fields’.

While it is stated in paragraph 27 that bibliometric techniques are robust ‘particularly when applied at the broad level of the proposed subject groups’, and it can be shown that minor variations will cancel each other out across a whole field, this will not be the case for individual departments or researchers. We are very concerned about the proposed broad-brush approach, which in practice may go against the principle set out in paragraph 32, that individual researchers will not be graded. The scheme may well be used for a range of purposes for which it has not been designed, particularly given that HEIs must have the opportunity to verify HEFCE’s data and calculations.

This could have a particularly significant impact on smaller departments, where the number of researchers will not be sufficient for variations to be averaged out. For example, at one HEI with no chemistry department and a small physics department, there is a maximum of 17 staff eligible for the ‘physical sciences’ group, and fewer still if the theoretical physicists are placed with mathematics. We are yet to be convinced that any ‘unfair’ advantages to a department such as this will be equal to the disadvantages.

It is suggested in paragraphs 16-17 that the REF should be able to smooth out any inconsistencies in funding to individual HEIs, and that further consultation is expected on this issue. However, this question would appear to be crucial in judging whether or not to endorse the current proposals for subject groupings.

Consultation question 1b: Are there issues in relation to specific disciplines within this framework that we should consider?

Some of the issues relating to physics have been outlined in answer to question 1a, in particular the distinction of theory and experiment. At present, peer review panels are able to deal with such distinctions, but it is not clear how metrics can accommodate them effectively.

At various points in the proposal and the scoping study, evidence may have been generalised from studies confined to particular disciplines to all ‘science-based disciplines’; or conversely from studies which apply in the broader case but not in more
specific cases. In many cases this may not have been appropriate, and could lead to false conclusions for other areas of research.

i) Documents included
There is significant variation in the role of different types of publication in different fields. Care must be taken in choosing whether and how to include these in citation analyses.

One example is conference proceedings. In some areas these are primarily a training activity for PhD students and young researchers, but in others they are a priority means of publication.

Archive-published, non-peer reviewed journals, internet publishing, open access and other alternative publishing methods are already significant in some fields, such as particle physics and astronomy. It will be important to bear in mind the changing publishing landscape, and it is not clear though how HEFCE would assess the integrity of research papers and their associated citations in such formats. These issues will affect the REF at a field or sub-field level.

ii) Citation database used
The limitations of Thomson Web of Science (WoS) coverage for areas other than physics are acknowledged in paragraph 37. However, the WoS will not be appropriate for all areas of physics. For particle physics, the primary citation database is SPIRES (the Stanford Public Information REtrieval System); and for astronomy and astrophysics, the primary citation database is the Astrophysical Data System (ADS). While it is stated on page 15 of the scoping study that most of the natural sciences have 80-95% coverage, we have found cases in the physics community where the WoS covered only around 40% of a department’s citations compared to those covered by SPIRES, or where 25% of an individual researcher’s citations have simply been missed.

As addressed on pages 41-2 of the scoping study, other citation databases could be included in the citation analysis. We are concerned that further studies should be carried out as proposed in paragraph 37, to investigate whether and how the inclusion of more than one citation database can be achieved, as this is highly important to some areas of physics. All of natural and medical sciences are referred to in the scoping study as ‘fields where bibliometric analysis can be applied without substantial problems’; however, we are not convinced that this is accurate when examined at a finer level of detail. It would not be acceptable to employ a system where substantial proportions of citations could be missed.

We have further concerns about relying solely in the WoS, such as the impact this will have on journal publishers, and the increased pressure to publish in and cite from listed journals. The reliance on any citation database will have an impact on the use of new journals. It may be that researchers are unable to support new journal launches as these publications will not contribute to their profile. Even if new journals are subsequently included in the WoS, under the current system citations from the earlier issues would be
missed. This could be solved in part if Thomson Scientific were retrospectively to include any issues published within the time-window of the REF.

In relation to our concerns outlined in answer to question 1a, point (iii), we are concerned that the WoS field categorisation is not sufficiently fine grained, and can be rather crude. This will mean that publications in some journals come out with a low number of citations compared to the average when normalised for that field. For instance, the Journal of Neural Engineering is in the neuroscience category, a group with very high citations. It could be better placed in the biomedical engineering category, and compared to titles with much lower citations. Again, it is not clear that a broad-brush approach to this concern will be appropriate for individual departments and researchers.

As Thomson Scientific is a company with its own reasons for choices of which journals to include and how to categorise them, we would like further information about how HEFCE will handle its relationship with the WoS.

### iii) International impact

The scoping study suggests that there is no evidence for US academics over-citing work from other US authors or journals. However, it has been suggested that there are particular journals and research areas which may be exceptions to this. For example, the US community is thought to over-cite The Astrophysical Journal significantly. Furthermore, subject-specific data could help to confirm the scoping study’s claims that this is not a concern. The study by Moed et al, 2005, cited in the scoping study, found ‘no conclusive evidence that US scientists excessively cite papers originating from their own country’. However, this may be an example of the generalisation from specific fields, or all fields, to each field.

### Consultation question 2a: Do you agree that bibliometric indicators produced on the basis that we propose can provide a robust quality indicator in the context of our framework?

The Institute does not believe that the proposed bibliometrics, without some sort of peer review, can provide a robust indicator of research quality. While they form a starting point with clear advantages, we are not confident that appropriate fields can be defined adequately for bibliometric measures to be normalised effectively, both in terms of the boundaries chosen and the granularity of the fields. The robustness of bibliometrics is highly dependent on this granularity.

### i) ‘Cleanliness’ of bibliometric data

Although this is not a problem in principle, the available citation data may well make the proposed strong dependence on the accuracy and relevance of bibliometric data unreliable. A large number of errors can arise, such as changes in spelling or of name, duplicated names and HEIs. Some of these issues are discussed in the scoping study, and as stated in paragraph 28; more work is required to ensure the data is of a high quality.
If papers are to be attributed to relevant HEIs using the address at the time of publication rather than at the time of review, a proposal we would support, one suggestion would be to avoid searching author names altogether, and only use addresses. This could avoid some of the problems of accurate data, but is dependent on other issues.

Paragraph 38 states that HEIs will have an opportunity to verify HEFCE’s data. This would no doubt lead to a significant workload for the community, raising doubts about one of the main reasons behind the proposed REF (i.e. to reduce the burden on the community); however, this will be necessary to ensure the confidence of the community.

In summary, without a significant amount of work being done on improving the data currently available, to rely solely on bibliometrics in the REF will not be a viable approach.

ii) Self-citation
While there are obvious and strong reasons for excluding self-citations, this could disadvantage both small and emerging disciplines, as well as research groups leading larger fields. Excluding self-citation is also problematic when papers have a large number of authors, for example in experimental particle physics where there may be several hundred authors for one paper. Various studies have looked into ways of including self-citation, and HEFCE may want to look into this further. Peer-review panels are able to judge when self-citation is valid, but a purely metrics approach would be unreliable.

iii) Author numbers
Most physics papers have multiple authors, with a substantial variation in the average number. Multiple authorship causes various problems for a metrics approach, with drawbacks to any suggested solutions. In assigning a proportional rating for joint authorship, there will be a question over major or minor authors: not all authors listed will have contributed the same amount of time or expertise to the paper.

In addition, if a proportional rating is assigned to each author, relative to the total number of authors on the paper, there may be a need for a lower threshold for the divisions available in the case of papers with a very large number of authors. It may be necessary to develop a different counting system for different areas of physics, particularly if both theory and experimental work are included in a single field. Including a fixed maximum number of papers presents one way around this problem.

If multiple authors from the same HEI can be counted separately, on the other hand, this would provide an easy opportunity for researchers to boost their rating by artificially exaggerating collaborations within their own HEI.

iv) Attribution of address
It remains undetermined in the current proposals whether publications will be identified by the author’s current HEI or their address at the time of publication (paragraph 35).
This will be affected by researchers changing jobs within academia, retiring or leaving research for other reasons.

The fairer approach would be to identify a paper with the HEI where the author was employed at the time of publication. It should prove easier to derive the statistics, given that changes of HEI will not have to be recorded additionally. Also, this approach would help to prevent strategic hiring of researchers and the potential development of an inflated market in researchers and their citations. It would also be able to account for the rolling character of research, and avoid any need retrospectively to remove counted citations when staff move to another HEI or retire. However, this approach could contribute to the already retrospective nature of the proposed REF, and would work against departments which are growing rapidly in quality.

Whichever approach is taken to the attribution of address, the REF does not include a mechanism to recognise rapid growth (or contraction) of a department’s research excellence. Given the delay between research being undertaken and cited, such a mechanism will be necessary. This could involve an explicit departmental plan, to be considered by expert panels. This issue is also dealt with in answer to question 5.

**v) Seminal papers and other anomalies**

Various anomalies in citation patterns are addressed in the scoping study. In most cases expert panels, with sufficiently specialised knowledge of the subject area, should easily be able to take account of these.

Papers with important results that are useful to a large number of researchers have citations rates that drop rapidly as the work simply becomes an accepted part of standard knowledge in that area. The impact of this will depend on where the proposed cap is set for the maximum number of citations to be counted for a given paper.

Other potential anomalies in citation rates could come from researchers responsible for maintaining a piece of equipment at a major facility/site, who will be highly cited regardless of research excellence.

**Consultation question 2b:** Are there particular issues of significance needing to be resolved that we have not highlighted?

**i) Citations per paper**

This approach could cause problems would be in accounting for publications in journals such as Physical Review Letters (PRL). These are typically shorter than a full paper, but very highly cited. If citations are averaged across papers, researchers would be discouraged from following up a PRL publication with a full, scholarly article in a more specialised journal.

Another consequence of averaging citations over papers would be that graduate students and early career researchers may be discouraged from submitting their work for
publication if there is a risk of lowering the department’s average citation count. This problem is raised in the scoping study, but a satisfactory solution is not presented.

It would appear sensible to calculate a number of citations, rather than an average per paper, or perhaps to combine both factors. Using two or more factors in combination, such as a total number of citations and an average across a fixed maximum number of papers would appear to have an advantage in terms of making it harder for researchers and HEIs to manipulate their REF scores.

ii) Thresholds
Thresholds for the minimum and maximum number of citations to be counted are not straightforward. The issue of a lower threshold could potentially be removed if the REF did not rely solely on an average per paper count, but the upper limit needs careful consideration in either case.

It is not clear why the upper threshold should be set at three times the average number of citations for that field. It is stated on page 25 of the scoping study that a bibliometric approach is more successful at identifying quality at the highest end, compared to peer review. If this is the case, then the need to limit recognition of exceptionally high citation counts is not obvious.

In terms of acknowledging publications with low citation rates, a system should be developed where the inclusion of these can only raise an HEI’s score, or at least not disadvantage it. The latter could be achieved if the number of papers included were limited to a fixed maximum. This will be important in terms of the issues surrounding selecting researchers to include and the impact on early career researchers.

Care must be taken to account for citations of publications which have previously fallen into the unclassified category, if they gain an adequate number of citations in subsequent years, and to find a way of acknowledging references made to a paper prior to its publication.

iii) Period of review
Paragraph 34 refers to citations ‘over a period of between five and ten years’, and we understand that the most likely length will be eight to ten years for both publications and citations. The further work proposed on this issue will no doubt be informative.

The scoping study states on page 16 that on average citations peak in the 3rd and 4th years after publication, and that therefore a five-year window would be appropriate. However, this would depend on the type of average that is and what distribution usually appears. The conclusions for the appropriate time-windows are not obvious, and there appears to be no field-by-field analysis of these average times.

We understand that HEFCE is working under the assumption that ‘sleeping beauties’ are statistically insignificant. However, although this phenomenon is mentioned in the scoping study, its significance is not analysed and a solution to the problem is not
explicitly mentioned. It would appear that truly ground-breaking research may take a long time to be recognised. Furthermore, a ‘sleeping beauty’, along with any other statistical anomaly, will have a significant impact on ratings for smaller departments.

iv) Publication type
It is crucial that publications such as review papers, news and views articles can be normalised effectively against publications of the same type and should not be excluded from the exercise. These articles are important in communicating science and raising the profile of UK research, and researchers should not be discouraged from publishing them.

v) Behavioural effects on research topics
It would be naive to suppose that all the behavioural effects of using citations to allocate funding can be predicted. Also, crucially, while the pilot studies proposed in paragraph 29 will be highly valuable, it is important to realise that they will not be able to assess all the limitations of a bibliometrics approach when it comes to the impact of the REF on behaviour.

One potential impact which does not seem to have been considered fully is the potential pressure on researchers to choose lines of inquiry in more popular or well-established areas. Another potential impact will be the publication of ‘negative’ or ‘null’ results. Such findings by their nature can put a stop to lines of inquiry, and are therefore unlikely to be cited. They are however, important.

vi) Staff volume
It is not clear from the proposals how citation counts will be averaged across the number of research-active staff employed. Citations over FTE staff over a given time-window would make a more appropriate quality measure than citations over papers. Of two HEIs achieving the same output in terms of citations and papers, surely the one with fewer staff should be considered as performing to a higher standard. This is another issue which could be addressed by including a fixed maximum number of papers.

vii) Citation cartels
This seems an almost inevitable consequence of the use of bibliometrics. It is not clear from pages 34-5 of the scoping study how it will be appropriate to account for this.

Consultation question 3a: What are the key issues that we should consider in developing light touch peer review for the non science-based disciplines?

As outlined in answer to question 1a, if mathematics and theoretical physics are to be separated at this broad level, some mechanism will be required to ensure comparability of treatment.

Consultation question 3b: What are the main options for the form and conduct of this review?
Consultation question 4: Is there additional quantitative information that we should use in the assessment and funding framework to capture user value or the quality of applied research, or other key aspects of research excellence? Please be specific in terms of what the information is, what essential element of research it casts light on, how it may be found or collected, and where and how it might be used within the framework.

i) Impact and excellence
It is important to recognise that the true user value of research goes well beyond immediate or short-term economic impact. There are lots of examples (such as lasers, MRI, the web, giant magneto-resistance, psycho-acoustics or atomic clocks) where apparently curiosity-driven work has had a revolutionary impact on industry. In practice, companies, particularly larger ones, often use HEIs to engage in the blue-skies research that they don't have the capabilities of performing themselves, and these capacities should be supported. If user value and impact are to be included in the REF, the emphasis must be at this end of the spectrum. It would be absurd to develop a framework which encourages HEIs to undertake service work for industry such as routine materials testing, as this is not ‘research excellence’ and HEIs should not receive additional funding from HEFCE for this type of work.

Taking short-term economic or social impact as a measure of research quality is a highly questionable approach.

It would be useful to find a way of ensuring that work with industry or charities, does not damage an academic’s standing in their field or future grant funding. However, this applies equally to other activities such as communication, outreach, teaching or university administration. It is not clear that the QR funding stream is the appropriate place to account for work with industry.

ii) Quantitative measures
There are no suitable, output-based measures for quantifying the value of interactions between academia and industry. Research income in particular, although it may be peer- or user-reviewed, is input-based and should not be included in the assessment of research excellence. Of two comparable projects, research income could favour the expensive over the efficient, and routine service work, which is not research, could be rewarded.

Other potential output-based measures such as the size of spin-outs or the number of patents filed and exploited are equally unsuitable as measures of research excellence. There are many variables influencing them beyond the original piece of research, and the timescales involved can be significantly longer than the impact measured from citations.
Similarly, research council grants and postgraduate student numbers are also input measures, and not robust measures of research excellence. There is a fundamental flaw in using financial and other inputs, instead of research output, as an indicator of research quality. While there may have been a strong correlation between overall research income and QR income, correlations obviously do not imply cause and effect. Besides, these correlations are only seen in large HEIs, and not in small and medium sized HEIs. It is not clear why attempts are being made to find a formula-driven method of assessment for this element of the REF. Many factors such as industrial relevance, future planning of research, outreach and scientific advice activities, are best assessed by a peer review panel.

iii) Subject groupings
It is proposed in paragraph 57 that different measures of user value could be applied to each of the six main subject groupings, but not to separate fields within these. This appears arbitrary, since there is likely to be a wide variation in the immediate uses of research in each of the subject groupings. It is hard to see how different systems for each subject grouping will be able to account for any of the genuine variations.

Applied research in some areas of physics may be further from commercial exploitation than similar work in engineering fields. This raises a serious question of how to judge such work on a sufficiently long timescale to appreciate its worth and on a sufficiently short timescale to have some currency. There should be no risk that pure research in physics should be disadvantaged against subjects with more immediate, but not necessarily greater economic or societal impacts.

iv) Other
Esteem factors such as conference talks are a useful indicator of research activity, and may be particularly significant for early-career researchers, or those involved in very long-term research projects. A fixed number of these activities could be submitted to the expert panels for consideration.

Information about the forward momentum of a department should also be included here. This is discussed further in answer to question 8.

Consultation question 5: Are our proposals for the role of expert panels workable within the framework? Are there other key issues on which we might take their advice?

Further work is required to understand what involvement of subject experts is required to ensure a robust process. Given the breadth of the subject groups, it cannot be expected that panel members will have first-hand knowledge of all disciplines included. It is our feeling that expertise will be required at the field level, and we would like to see this

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3 This is explained fully in the IOP’s response to the DfES consultation on the Reform of HE research assessment and funding, 2006, available at http://www.iop.org/activity/policy/Consultations/Higher_Education/page_2923.html
investigated. If expert panels were to operate at the field-level, they could play a much more significant role. The scoping study itself proposes, on page 32, that metrics be used in combination with peer review.

*Next Steps* stated that the panels should ‘provide an extra level of verification for the results generated by metrics. The panels would not be expected to hold their own information-gathering exercise’⁴. Further clarification is needed on how the results of metrics could be verified without at least some further information or checks on the details which have been included.

**Consultation question 6**: Are there significant implications for the burden on the sector of implementing our new framework that we have not identified? What more can we do to minimise the burden as we introduce the new arrangements?

There will be a burden associated with the current quality of available bibliometric data, as explained in answer to question 2a. Although responsibility for this will lie elsewhere, this will place an additional burden on HEIs unless they can have confidence that their papers and citations will not be missed. Given additional factors such as the removal of self-citations and appropriate categorisation of review papers, this process will be complex. HEIs will need to keep track of all staff ratings, given that there will be a choice to be made as to which researchers are entered.

The burden of this process will depend on the efficiency of the new technology proposed in paragraph 38. Since an annual return is suggested for the REF, as opposed to the five year period of the RAE, this will lead to a more frequent, if lighter, burden on HEIs. We understand that after the initial rounds of the REF, it will only be necessary to add 2-3 years worth of data to what has been calculated previously, each time the REF is carried out. It is not clear how this will help if additional citations from previously included papers are to be added to the total count. It would appear that it would be necessary to re-count citations and re-calculate averages each time.

There will be an additional burden to the sector associated with adapting to any new system, which cannot be avoided. While the REF is being phased in, this will be on top of the existing work towards the current RAE.

Information about where research excellence is based will also be lost under the current proposals. The outward face of research excellence is at a department level, which impacts on issues such as undergraduate admissions, but the REF will only provide information at the level of the subject group.

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⁴ *ibid*, paragraph 4.16
Consultation question 7: Do you consider that the proposals in this document are likely to have any negative impact on equal opportunities? What issues will we need to pay particular attention to?

In principle, the new REF should be no more discriminatory than the RAE. In fact, a bibliometric approach may have some potential for removing unconscious discrimination.

There may be various reasons why minority groups within a subject area can be less highly cited than their colleagues. However, where this is symptomatic of broader inequalities, these should themselves be resolved through other means. For example, if the number of citations achieved depends, in part, on networking, promoting one’s own work, arguably these activities should be encouraged as they contribute to the value obtained from research.

It may be necessary to consider that a career break for maternity leave will have a major effect on research capability beyond the period of leave. While a broad-brush approach is appropriate over a whole field, the impact will be greater in smaller departments, and if the REF is used as a management tool.

i) Early career researchers
The potential negative impact on early career researchers is discussed in the scoping study on page 36. The argument put forward is that if PhD students are discouraged from publishing, this will impact equally on all HEIs and should therefore not be a problem. Unfortunately, this does not address the real issue, which is the health of research disciplines, the attractiveness of careers in them and the treatment of individuals. The REF could have negative consequences in this area.

Consultation question 8: Do you have any other comments about our proposals, which are not covered by the above questions?

The lack of detail in the current proposals has limited our ability to answer the consultation questions. Many parts of the answers in this response are contingent on how various issues are resolved. Furthermore, many of the issues we have raised relate to more than one consultation question. We would welcome further opportunities to input to the development of the bibliometric component of the REF.

Overall, beyond the issue of bibliometrics, the REF appears to lack a clear vision. Firstly, in terms of what behaviours it should and will encourage, and secondly, in terms of the meaning of research quality (many of the details count against the measurement of research quality for funding purposes, particularly the proposed use of income measures, and the short-term view of assessing industrial relevance). Given how crucial the detail is in a formula-based approach, there is a danger that in order to achieve a manageable workload for carrying out the exercise, the goals will actually be lost. The REF may in fact, prove impractical.
Apart from determining funding allocations, the RAE served to monitor and feed back to departments on their management and planning, and this had a positive impact on HEIs. Issues such as future planning, the HEI-department relationship and internal investment decisions, and the age or gender profile of staff, could be considered. It is suggested in paragraph 48 that bibliometric information outside of the metric in use could be provided for management purposes, but it is not clear that this information will be useful. Such factors can only be assessed by a panel of peers, and are missing from the REF proposals so far. Bibliometric analysis can only attempt to replace the RAE’s assessment of outputs, which represents 60% of assessment marks, and a greater part of the workload to departments and panels. Not enough consideration has been given, so far, to the consequences of an algorithmic approach in terms of the management tool it provides.