

January 2010

**Submission to**

***Science and Technology Select Committee***

***Enquiry into Science Funding and Research Funding Cuts***

**NATURE OF THIS SUBMISSION**

- i) This submission is by the executive Committee of ***The Society for the Study of Artificial Intelligence and Simulation of Behaviour*** (SSAISB or AISB), which is the main academic society in the UK for the discipline of Artificial Intelligence (<http://www.aisb.org.uk>).
- ii) Founded in 1964, the society has an international membership drawn from both academia and industry, and from a wide range of disciplines, such as Philosophy and Psychology, as well as Computing. It is a member of the ***European Coordinating Committee for Artificial Intelligence*** (ECCAI) (<http://www.eccai.org>).
- iii) We make references in various places to the HEFCE proposal / consultation document concerning the proposed new ***Research Excellence Framework (REF)*** at [http://www.hefce.ac.uk/pubs/hefce/2009/09\\_38/09\\_38.pdf](http://www.hefce.ac.uk/pubs/hefce/2009/09_38/09_38.pdf).
- iv) Comments on this submission should go to the main author and society chair, Prof. John Barnden ([J.A.Barnden@cs.bham.ac.uk](mailto:J.A.Barnden@cs.bham.ac.uk)), School of Computer Science, University of Birmingham, B15 2TT, tel: 0121-414-3816.

**EXECUTIVE SUMMARY**

- 1) Some impact measurement may be reasonable in the REF, but it should not insist on academic departments themselves converting their own research results into impact.
- 2) Two different things should be distinguished and (possibly) assessed:  
  
***ability to produce impactful research***  
  
***ability to convert research results (one's own or of others) into impact.***
- 3) Our points on this matter are based not just on what appears to us logical, but also on (a) the pragmatics of assessment, and, most importantly, (b) properly serving the governmental policy aims that impact assessment is intended to serve in the first place.
- 4) There is a grave need for the HEFCE proposal to be augmented with safeguards concerning conflicts of interest of research “users” such as companies who are

involved in impact assessment and who could benefit from particular assessments of impact.

## **DETAILED COMMENTS**

- 5) In the following we put aside grave concerns we have about an excessive amount of weight being given to whether an academic department has already demonstrated the economic/social impact of (some of) its research. By inevitably making departments concentrate on research whose impact can be securely demonstrated in a 10-15 year period, this could constrain research in such a way as to militate in the long term against the very sort of impact that the public would understandably like to see from academia.
- 6) However, in the rest of this document we assume that impact assessment is in some way to be included in the REF (Research Excellence Framework).
- 7) We applaud the careful thought that has gone into several aspects of the proposed REF scheme, and especially the avoidance of an expectation that every researcher should be engaged in impact generation.
- 8) However, the currently proposed scheme is in parts inadequate, confused or counterproductive, for the following reasons.

### **Confusion of Two Aspects of Impact**

- 9) Paragraph 68 of the HEFCE proposal is exactly wrong in the view encapsulated in the following segment:

We do not envisage that a unit [e.g. academic department] could claim credit for impact which was based on research undertaken in the unit but which was exploited or applied through the efforts of others, without a demonstrable contribution by the unit to that exploitation.

This mixes up two things: having the research excellence to be able to generate ideas that turn out to have important and solid impact; and having the ability to convert research ideas (whether one's own or other people's) into impact. It seems to us entirely unjustifiable that the originators of an idea with major impact should fail to get credit just because they have not themselves done the exploitation. This is especially important point in view of contributions academics in the Computer Science area make to open-source software. More generally, the route to market often passes through a chain of academic and industrial researchers.

- 10) But conversely, we feel that conversion even of others' ideas into impact is worthwhile and should be credited.
- 11) Thus, the current scheme is doubly unfair and illogical. We strongly urge adoption of a scheme that separately measures both *impactfulness* - the extent to which a department or other unit's research has led to impact (however, whenever, wherever and by whomever achieved) - and the extent to which the unit is

engaged in *conversion* into impact (wherever the ideas came from and however old they are).

- 12) This separation would have several pragmatic benefits for the REF assessment process, apart from being fairer and more logical. It would help to some extent with the time-lag problem of deciding how far back the exploited research ideas can go, as this issue would only be relevant to assessing impactfulness (it simply does not matter in the case of conversion how old the ideas are). It would help by encouraging separate sets of rules, criteria and indicators for impactfulness and conversion, rather than mixing them up together.
- 13) Also, the current mixing-up of the two aspects is potentially dangerous to the very policy that impact assessment is meant to serve. Chasing conversion to impact could inhibit the production of the very sorts of ideas that could have long-lasting, sustainable, revolutionary, ... impact. Equally, requiring conversion to be based on a unit's own ideas could inhibit the very sort of conversion activity the government would like to encourage.

### **Who is Responsible for Conversion?**

- 14) We also wish to draw attention to two matters of general policy where we feel that most discussion about impact, knowledge transfer etc. is naïve, misguided and misdirected.
- 15) First, whether an attempt at impact succeeds is often dependent on matters beyond the control of researchers or even whole universities, making it invidious to compare different attempts without taking all relevant external factors into account, such as the politics of the day, the general economic climate, volatile technological fashions, etc.
- 16) Secondly, the impact assessment scheme in the HEFCE proposal falls into the trap that many have fallen into in the past of imagining that it is primarily the responsibility of universities to do conversion into impact. Conversion is at most a responsibility *shared* with industry and government, and indeed is arguably more the responsibility of *the latter* two organs.
- 17) Rather, it is impactfulness, as opposed to conversion, that universities might be expected to provide.

### **User Involvement in Impact Assessment**

- 18) We are worried by the statement in para 96(c) of the HEFCE proposal that it is mainly user members of panels who would assess impact submissions. Users should certainly be strongly involved, but academics need also to be strongly involved, to ensure that the claimed impact is genuinely founded in research ideas rather than only having a superficial connection to a body of research. It is very easy for someone who is not an academic expert in the discipline to have a wrong

idea of the nature or significance of ideas within the discipline. The HEFEC proposal is naïve as to the wisdom and vision of “users”.

- 19) We are also concerned about how problems of users' conflicts of interest will be adequately dealt with, given that users will be allied with particular sectors of the economy, etc. and with particular companies, etc. The REF scheme's careful attention to such ethics-related matters as the panel nomination process and to equality and diversity issues in returned-staff selection needs to be matched by proper safeguards concerning user conflicts of interest when assessing particular departments, projects, etc.

### **Breadth of Impactfulness**

- 20) Paragraph 72 of the Hefce REF proposal says:

The expert panels will assess the evidence against two criteria for impact:

- their reach (how widely the impacts have been felt)
- how significant or transformative the impacts have been.

They will also consider how far a submitted unit has successfully achieved impact across the full range of activities and contexts appropriate to its field of activity; it should not be possible to achieve the highest score by concentrating narrowly on only a part of the territory that the unit might have been expected to cover. Through the pilot exercise we will refine these criteria.

We believe that this is wrongheaded in penalizing departments that exert impact only in a "[narrow] part of the territory that the unit might have been expected to cover". The unit could well be able to be much more effective this way than attempting breadth. Surely what is important that *the university system as a whole* (and not even a particular whole university, let alone a single department) cover the breadth of possible impact, rather than that each department do so. The provision in the paragraph could actually be detrimental to the success of government policy in deriving impact from the university system.

### **Impact Weighting and its Uniformity**

- 21) Paragraph 84 of the HEFCE proposal is wrongheaded in imposing (great) uniformity of weighting of research outputs, impact and environment across different academic areas. The importance of impact (especially) could be radically different across different areas. Decisions on the issue should not be based just on simplicity of assessment.
- 22) Also, we question why a university's decision to place a department in one area for REF purposes versus another on the basis of weighting differences should be pejoratively labelled as "tactical". If the research in question can validly be assessed in two different areas, then it can validly be subject to different

provisions for those areas. Why should the choice not be viewed as universities acting in a responsible, strategic way?

- 23) As regards the actual weightings proposed, 60% for the actual research outputs seems low for a **Research** Excellence Framework. We would suggest 70% for research outputs. The remainder should be divided in a discipline-sensitive way between impactfulness, conversion to impact, and research environment, with 10% each as a guide.

### **Significance Component of Research-Output Assessment**

- 24) A further problem in the currently proposed scheme is that the "significance" component in research-output assessment allows for economic/social/... impact as well as academic impact/significance. This seems entirely illogical now that there is a separate impact arm of assessment. The impact part of a submission to REF could refer to relevant research outputs. Removing economic/social/... impact from research-output significance would also have the pragmatic benefit of easing the task of academics in assessing outputs and would reduce or eliminate the possible need for complex provisions for "users" to be involved in research-output assessment as opposed to impact assessment.