

UoA 29 Summary Report

The main changes which the 2001 panel noted, when conducting the assessments, compared to the 1996 exercise, were:

- Reduced number of departments (65 to 45) submitted to our UoA.
- Many departments reduced the number of staff they submitted or returned (but this was not uniform as some departments did increase their ARS numbers).
- There was a growth well beyond inflation in the level of income returned, particularly from industrial sources.
- In general the top research groups demonstrated a good balance between research council and industry income.
- In general the publications cited were of a higher standard and many departments submitted 100% substantive papers in well recognised quality journals.
- In general RA5 and RA6 submissions were better presented than in 1996.
- The cross-referral process worked well and we were able to obtain external validation of parts of returns from other panels, both cognate and diverse with respect to our discipline.
- Our request that staff were returned by research group or activity made it much easier to judge the significance and standing of a department's research. It also gave a very good measure of the organisation that departments apply when co-ordinating and publicising their research activities.
- We also in 2001 matched the panel members by their own expertise to read the returns from the different departments, rather than use random allocations. We also deployed a minimum of three panel members to take the lead in assessing the small departments, rising to six panel members for the larger departments. This was considered by the panel to offer a fairer and more objective assessment but the entire panel contributed to the final grading on all departments (except for those who had to withdraw).
- Umbrella panels were valuable for setting our assessments with a frame of reference in cognate disciplines.

We used the spreadsheet marking approach that was used in 1996, with some differences. In particular, the ranges of the weightings for RA2, RA3, RA4, RA5 and RA6 were constrained by the Umbrella group and the Manager. The RA2 data was less discriminatory than in any of the previous exercises, a trend that was noted in the 1996 report in which it was suggested that six outputs should be returned for a four-year period. As only four outputs were returned for a five-year period on this occasion, the RA2 data was of even less use than before and hence it was given the minimum permitted weighting of 30%. As in 1996, the RA3 data was the least correlated with the final rankings. This was due to a deficiency in the submission rules, in which there was no requirement for the research-active staff in the return to have been involved with the research students (or studentships and graduations) returned. It is recommended that in future only those research students (or studentships and graduations) should be returned for whom the named supervisor was one of the research-active staff. This also applies, to a lesser extent, to the RA4 data, where it was only required that the research-active staff in the return should be associated with the research income. In future, they should be the named grant holders. RA3 and RA4 were therefore given the minimum weightings of 10% and 20% respectively. The RA5 and RA6 data were the best correlated with the final rankings, and were given equal ratings of 20%.

As in 1996, all the panel conducted a training exercise in assessing five test departments prior to analysing all the 45 returns. We subsequently assessed all 45 departments and used the final summed mark from this list to initially rank the 45 departments. The entire panel then examined individual departments, one at a time, and by checking against the published criteria, they were awarded a provisional grade. When conducting this assessment we made careful note and corrected for panel members who were relatively generous or, alternatively, severe markers, to ensure consistency in marking across the panel. The Umbrella panel meeting clearly indicated that this UoA was marking on the hard side so the panel took this into

account when arriving at its final grades. When conducting this we noted on occasion that a block of 5-6 departments all had very close final scores and these straddled a boundary between grades. This was resolved by examining more closely the international status and standing of the departments as a final discriminator. No major inconsistencies were reported by the non-UK based international advisers in their examinations of our assessments. They were sent all 5* and 5 departments and a selection of grade 4 departments.

In assessing the overall performance, the panel observed that many departments were adopting dubious techniques to maximise their ratings, for example by returning only part of their actual research staff as research-active. Because of the deficiencies in the submission rules for RA3 and RA4 noted above, this had the effect of artificially inflating the RA3 and RA4 factors when the data was normalised by the number of FTE research-active staff. It also allowed departments to selectively omit research staff from those returned as research-active according to their perception of the effect on the RA2, RA5 and RA6 factors, one result of which was the reduction of the sensitivity of the RA2 factor also noted above. The percentage of submitted staff was not a factor when taken into account by the panel in reaching its judgement and the spreadsheet scores were used only as a guide when arriving at the final grades. Unless these anomalies are rectified, the relative assessments of those departments returning high proportions of their research staff and those returning low proportions of their research staff will continue to be biased and unfair. Most panel members were very concerned about the above point.

Given this fact the 5-year RAE exercise may be constraining our research and consideration should be given to streamlining the next RAE to reduce the time and effort required to prepare and assess the submissions.

A significant number of the strong research groups match the best researchers in the world in their field. One external assessor commented on the particular strengths in Mobile Communications in the UK. The panel noted that groups of less than four staff were sub-optimal and likewise groups of greater than 12-15 tended to split into sub-groups and here there was often evidence of differences in achievements and standing between the sub-groups.

There was a view among some members of the panel that the RAE exercise with its 69 UoAs still tends to emphasise specialisation rather than multidisciplinary research. EPSRC has several interdisciplinary initiatives but UoA 29 saw mainly discipline specific activities. However there was still a noted growth in interdisciplinary activities across the UoA. We referred out only a few groups to other UoAs for their assessment. We did note some incoming cross-referrals indicating that Electrical and Electronics activities were being conducted within other (e.g. Computer Science) departments in some universities.

Surprisingly we received only one (mandatory) cross-referral from General Engineering (26). Given that 16 of the smaller departments returned to UoA 29 in 1996 were referred to UoA 26 in 2001, and the wide range of activities within the UoA, we were surprised not to see these as incoming cross-referrals to our UoA. In view of the trend towards General Engineering being regarded as a conglomerate of different disciplines, rather than genuine inter-disciplinary activity, we believe that the best interests of the Electrical and Electronic discipline can only be served by subjecting those parts of it submitted to General Engineering to the same specialised scrutiny as that adopted by UoA 29. This may call for a redefinition of General Engineering in a future exercise.

In general we find a healthy dynamism in the way the Electronics and Electrical discipline is being managed in many universities. We have identified a number of world leading research groups who are highly regarded within the international community. We had general upwards movement in our 2001 results compared to 1996, over and above that which was to be expected from the withdrawal from our UoA of 16 departments previously rated 1, 2, 3b, 3a in 1996. We found clear growth in the achievements and international standing in many departments, with 53% of submissions improving on their 1996 gradings. On the other hand 14% departments were not

sufficiently innovative or active to retain their previous grade and they dropped in 2001, sometimes by two grade points! Our research community is not static, as shown by the fact that two-thirds of departments moved (either up or down) in their ratings during the 1996-2001 timeframe, and the value of monitoring this changing scene could be interpreted as vindication of the RAE.

We did have concerns with the support provided by the RAE team at Bristol, although we can confirm that the outcome was not affected by these issues. Prior to the assessment phase, the centrally provided spreadsheet failed to perform to our specifications and requirements, and it was necessary for individual panel members to provide the expertise necessary to overcome this. Although the central service for providing panel members with RA2 outputs from some of the more obscure sources was appreciated, the software for this crashed at a key time, causing unacceptable delays when panel members had already made their holiday arrangements. In contrast, the secretarial support was excellent, although we suspect that it must have incurred considerable lost time to their employers.

We believe that the UK RAE is the only such exercise which is conducted over all disciplines on a national scale. No other country performs such a comprehensive and exhaustive research assessment process. The UK RAE provides a full integration and assessment of national research activity over a five year period. It would be interesting now to see how well the awarded grades correlate with the recent distribution of support from the Research Councils.

For the future, we note that many large universities are moving to larger budget centres or planning units, comprising several former individual departments. Examples of these are Computing and Electronics, or merger of Electronics and Electrical Engineering with other conventional Engineering departments. Given the considerable cost to institutions in staff time to prepare submissions, there may be a desire to submit to fewer UoAs in future research assessment exercises, further increasing the move to General Engineering which was evident in 2001.

PMG
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