UK COMPUTING RESEARCH COMMITTEE

Strategic Science Provision in English Universities

Comments to the House of Commons Science & Technology Select Committee

Response from UKCRC[1] to a request for evidence from The House of Commons Science and Technology Committe

The UK depends for its future economic success, national security and wellbeing of its citizens on the quality of S&T teaching and research in its Universities. In the 21st century ICT is an essential and indispensable part of the S&T portfolio. The UK produces ICT graduates of the highest calibre, carries out world class research and is investing in programmes such as e-Science that are the envy of other countries.

However, along with other subjects ICT is seeing a decline in UK students applying to carry out undergraduate and postgraduate degrees. The UK needs a highly trained and professional ICT workforce. Our universities are the principal means to secure this workforce.

ICT is well spread across UK Universities. Almost every UK University teaches the subject and there is a strong core of Universities researching the area. ICT has traditionally been a good recruiting ground for students but recent years have seen a dramatic decline in application numbers. Last year some of the strongest ICT Departments in the UK resorted to clearing. There is every chance that ICT courses will close and a number of Universities are reviewing the status of their ICT Departments.

The Select committee invited comments on a number of particular points and we set out our responses below.

1. HEFCE's research funding formulae, as applied to Research Assessment Exercise ratings, has had a significant impact on the financial viability of university ICT Departments. In particular Departments dropping from 5 to 4 will have seen dramatic reductions in their HEFCE research income.
2. In common with S&T funding in general a relatively small cohort of Universities attract a large proportion of the research funding available. Over 50% of the EPSRC's general S&T funding is secured by 12 universities. The EPSRC is also the largest funder of UK ICT research which in this case includes electronics and photonics. Currently 10 Departments take well over 50% of all available research funds. There has been an increasing trend towards concentration in fewer larger research groups.
3. The implications for university science teaching of changes in the weightings given to science subjects in the teaching funding formula has had a direct impact on computer science. HEFCE moved it from the higher B band to C band funding. This has been injurious particularly to those courses with a high laboratory based element. The single band does not discriminate between courses with a high laboratory component and those without.
4. The optimal balance between teaching and research provision in universities will vary across institutions. In a context of strong application numbers then teaching-only departments are viable. They become much more difficult to sustain at current application levels. It is always desirable where possible that teaching be informed by research. The exposure of students to the latest work in a field helps develop their own critical faculties, and to be taught by those advancing the subject can be both inspirational and lead students into research themselves.
5. In ICT we see strong local and regional effects. For example, York now has over 120 ICT companies many of whom work with or are spin-offs from the local Universities. Phenomena such as Silicon Glen (the Edinburgh and Glasgow corridor), Silicon Fen (the Cambridge area) and the M3-M4 corridors all owe their success, in part, to the strength of local universities providing both a research base and supply of trained graduates.
6. In critical S&T areas the Government should intervene to ensure continuing provision of subjects of strategic national or regional importance. We have already seen the consequences of under recruitment in the area of Power Engineering. This recognition, albeit, late in the day, led to courses

[1] The UK Computer Research Committee (UKCRC) is an Expert Panel of the British Computer Society (BCS), The Institution of Electrical Engineers (IEE) and The Council of Professors and Heads of Computing (CPHC)

with associated bursaries that have succeeded in attracting students to provide the next generation of power engineers to develop, run and maintain our electricity grid. This sort of expertise once lost is expensive and difficult to reacquire. In ICT there are particular areas of research and teaching that are known to be problematic – examples include; security and privacy, distributed systems, and complex IT architectures. An audit of critical long term knowledge across S&T sectors would seem sensible.

The health of University courses depends crucially on the wider economic context. The economic outlook for ICT remains mixed. There is evidence within business that ICT expenditure is now rising after a period of tight budgets. Young people looking to choose a career still imagine that after the heady days of the dot com boom ICT does not offer the remuneration and security it once did. However, employers complain of skills shortages in this area. Companies are now offering retainers to students to ensure that they join them at the end of their studies. It is expected that 2005 could see much higher competition between companies vying for ICT talent.

In the absence of home applicants Universities recruit increasing numbers of overseas students to undergraduate and postgraduate courses. Increasingly our ICT Departments depend on overseas talent to carry out their research.

It is timely to review the amount and balance of our investment in S&T teaching and research at our Universities. At the same time we need to foster a more positive attitude in young people towards S&T. UKCRC would be happy to answer follow-up questions on any of these points.

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for UKCRC, January 2005.