

Patent or perish?



THERE IS PRESSURE ON THE UNIVERSITIES TO ENSURE THAT THEIR RESEARCH OUTPUT IS COMMERCIALY EXPLOITED WHENEVER POSSIBLE.

Ask any materials researcher what makes a successful grant proposal, and they will no doubt tell you that it's all in the applications. Over the past few years, government funding bodies have poured huge amounts of money into areas such as nanotechnology, bioinformatics and multifunctional materials. The status of these research areas as prime targets for government and industry funding rests in their perceived technological benefits. But government funding increasingly comes with strings attached — that is, a pressure on the universities to ensure that their research output is commercially exploited whenever possible.

American universities have been busy commercializing their research since the 1980s, when the US Congress passed the Bayh–Dole act allowing them to patent state-funded research. The rest of the world has lagged behind, but European countries in particular are now making increasing efforts to encourage universities to gear their research towards economic goals. Both the European Community and the UK government have recently published reports aimed at creating an 'intellectual property' culture, in which everyone should be encouraged to think about the commercial value of their creative and scientific endeavours. This is of particular relevance to government-funded university scientists and engineers.

As discussed by Ralf Blossey in his commentary on p. 199, German university researchers have recently been forced to surrender their privileges to obtain patents independently of their university. Intellectual property rights are now held by the university, rather than by the individual researcher. And in the UK, Cambridge university (which has previously had a very flexible intellectual property policy) is now considering extending its ownership of intellectual property to all research conducted by university employees, regardless of whether they are funded by industry or governmental funding bodies. The universities clearly hope that the change in policy will enable them to make greater commercial gains from the research conducted by their employees, rather than seeing these profits go straight to industry.

For individual university researchers however, the benefits of this cultural change are not so clear. Industry has long profited from the basic research conducted by universities, without having to significantly invest in basic research itself. Now, universities are also placing more of a priority on research that has fairly direct commercial implications. It is clear that this shift is partly driven by the way that government bodies award funding. Although the long-term consequences of this shift in priorities are hard to ascertain, there are indications that it is leading to a significant decline in the amount of government-funded basic research conducted by universities (as documented in a recent report published by the American Association for the Advancement of Science*, for example).

The distinction between what constitutes basic and applied research is a relatively simple one — basic research is motivated primarily by curiosity, whereas applied research is generally conducted towards a specific (often commercial) aim. Basic research is by nature unpredictable, and it is therefore almost impossible, and very short-sighted, to base funding decisions on the perceived returns, which in many cases may not be realised for 20–50 years. If Michael Faraday and Thomas Watson (the founder of IBM) could not foresee the huge societal and technological advances brought about by their research, what chance does a government committee have? Yet this is precisely what government initiatives like the UK's Foresight programme are attempting to do. This 'top-down' approach to basic research, accompanied with the increasing drive to tie government funding to relatively short-term outputs like patents, is changing the nature of university research. Besides reducing the diversity of university research, the short-term priorities of government are being transferred to universities in the form of short-term research contracts that permit rapid changes in research direction, but leave many researchers with little job security or opportunity for advancement. These changes should be of concern not only to those working in 'pure science', but to all university researchers with an interest in preserving the role of universities as centres of learning, rather than commercial operations.

* AAAS 2002 Science and Technology Policy Yearbook, Part 7, Chapter 25.