

Gowers Review of Intellectual Property: submission from the Royal Society

The Royal Society is the UK's National Academy of Sciences, and as such has at least a three-fold interest in intellectual property (IP):

- a **as a leader of the science community** the Society is seeking:
 - to influence attitudes and overall Government policies with the aim of increasing the exploitation of ideas originating within the universities and public sector laboratories; and at the same time
 - to ensure that there is no erosion of the exemptions to IP protection that are essential to support future education, scholarship and academic research, and to minimise any threat to the long term archiving of knowledge;
- b **as a funder of research** through grants and personal support of senior postdoctoral research fellows and research professors, the Society has an interest in the exploitations of this research for the benefit of the UK and beyond, and has taken steps to run courses on exploitation and IP for our supported researchers;
- c **as a publishing house** for scientific papers, with legitimate concerns over copyright issues.

From its very beginning in the seventeenth century, the Society has championed the exploitation of science, and continues to stress the need to ensure that inventors and writers, for example, are properly rewarded for their work in order to encourage entrepreneurial activity. However, in very few instances is IP created without building on earlier work, and it cannot be emphasised enough that the maintenance of free information flow, freedom to research, and – in some areas – the flow of experimental material, tissue or reagents, are crucial for the development of science. It is therefore important that the exemptions for research and private study are not undermined, particularly by technical developments.

In 2001, the Society established a working group, chaired by the late Professor Roger Needham FRS, then Managing Director, Microsoft Research Ltd, to explore these issues. The Group's report *Keeping Science Open* was published in April 2003, and its findings and recommendations, largely in the areas of patents, copyright and database rights, are still highly relevant three years later. Hard copies of this report are attached to this submission, and a pdf copy is attached to the emailed version.

The *Keeping Science Open* report stressed that for an IP system to be completely successful it must balance the following three principles in a coherent and rational way across all areas of knowledge, taking account of the legitimate concerns of the public. These principles are:

- The need to provide recognition and incentives for literary activity, discovery, invention and exploitation to achieve wealth creation and general benefit;
- The desirability of encouraging competition that stimulates further discovery, invention and exploitation; and
- The needs of current and future users of the creative work and resulting products in both developed and developing countries to benefit from such innovation.

Unfortunately, there is a scarcity of hard information over the impact of IP protection on academic research. The Society has therefore recently collaborated with the American Association for the Advancement of Science in the development of an international version of a US questionnaire that could be used to seek the experiences of the academic research community in a number of countries on these issues. The results of this survey, which closed at the end of March 2006, are currently being analysed by the Social and Economic Sciences Research Centre (SESRC) at Washington State University, and should be available in early summer.

The questionnaire was directed at the impact of IP protection on academic research. The main impact of IP on education arises from copyright, and in particular the recent erosions of the fair dealing exemptions. These were considered in the Society's *Keeping Science Open* report. The Society has seen and endorses the very detailed analysis of the current situation in the submission by the Society of College, National and University Libraries (SCONUL) to the review, which of course covers the full compass of academe, well beyond the science and technology areas covered by the Society's own work.

RESPONSE TO THE DETAILED QUESTIONS

The General Questions set out on pages 5 and 6 of the call for evidence are all pertinent to the exploitation of IP by universities and other public sector research establishments, but most of these are not areas that the Society has studied in depth. Hence, after some points on these General Questions, the bulk of our response is directed at the following specific issues (the issue in italics is additional to the list in the call for evidence):

- Copyright exceptions – fair use/fair dealing
- Copyright – digital rights management
- Copyright – orphan works
- *Copyright - databases*
- Patents - utility models other

GENERAL QUESTIONS

How IP is awarded

The Society continues to be concerned at the pressure to move patenting from invention into areas of knowledge, as this can have detrimental effects on the development of science by giving monopoly rights over generic areas. This tendency is of particular concern in new areas of technology, where the requirements for an inventive step are not always applied sufficiently rigorously. This is at least in part because the science in these cases may be moving so fast that it is not always easy to make a distinction between what is an invention and what is scientific knowledge.

The European patent arrangements, with the severe penalties for prior disclosure, can cause problems for academic researchers. It is not so much the delay to publication, which is often a long process anyway, but the detrimental impact on relationships between collaborators and scientific colleagues in other teams working on similar projects that is of concern. An arrangement that combines the US Grace Period with the European (and others) First to file should be considered as a matter of urgency.

The Society would like to draw attention to the recent report by the Danish Board of Technology (*Recommendations for a patent system of the future, 2005*¹), which recommended the establishment of a remuneration based patent system, where the patent holder cannot prohibit the exploitation of his patent. The report claims that such a system should facilitate access to licences, lead to more effective exploitation of patented knowledge, strengthen patent enforcement and encourage SMEs in particular to acquire patents. It should also reduce the risk from inadvertent infringement – a significant problem in software, especially for SMEs.

How IP is used

- a What types of IP does your organisation use and why?*
The main areas of IP protection of concern to the Society are patents and copyright, including within the latter the additional protection afforded by the Database Directive.
- h Are data on the use of patents and other forms of IP useful as a means of measuring innovation?*
While such metrics can say something about innovation, they are clearly not a direct measure of innovation and have to be handled with great care. Much work remains to be done on the question of measures of innovation. Blind use of metrics can drive inappropriate behaviour and be totally counter-productive, for example, the pressure to file patents irrespective of their likely value.

SPECIFIC ISSUES

COPYRIGHT

The Society believes that recent developments within copyright legislation and the development of technological control on access have had a detrimental impact on the balance between the academic community users and the rights-holders.

The Society notes that the academic community and others have been driven to find ways of restricting the rights given to publishers, for example, by granting a licence such as that under Creative Commons, rather than assignment of copyright, although this is not always a satisfactory solution. Also some funding agencies have begun to place conditions on the way in which copyright on the results of research is exploited.

Copyright exceptions – fair use/fair dealing

- a What are your views on the current exceptions in copyright law?*
The exceptions are very important to the academic community and for the advancement of science. It is important that new technological developments do not nullify these exceptions, nor allow contract conditions from monopoly suppliers to override these exceptions. Quite apart from the use for research, it is very important to maintain the fair use exceptions for teaching materials and for examinations, including the provision of back papers.

¹ <http://www.tekno.dk/subpage.php3?article=1132&toppic=kategori11&language=uk&>

b Could more be done to clarify the various exceptions?

There is confusion over the exception for non-commercial research. The main problem is with research in academic institutions where it may not be clear whether there is any commercial dimension. Research conducted in commercial environments would be covered by other arrangements.

There is also confusion over the phrase "illustration for teaching and scientific research" as to whether illustration applies to the research and if so what it means.

d Are the current exceptions adequate or in need of updating to reflect technological change? For example copyright law in the UK does not currently have a private "fair use" exception. Such an exception might allow individuals to copy music CDs onto their PC and MP3 player for their personal use. Should UK law include a statutory exception for 'fair use'?

It is most important that UK law should make it unlawful for contracts to override fair use. Furthermore it should provide at least for libraries to be able to transfer copyright digitised information to new platforms in order to maintain controlled access for their users as technology changes and some platforms become obsolete, and eventually unmaintainable.

e How would you see content owners being compensated for such use?

The statutory protection for libraries is trivial compared with the question of 'private fair use exception', and so compensation should be less of an issue.

f To what extent has technological change presented difficulties in use of copyrighted material in the field of education?

Apart from the issue of constantly evolving technology platforms, the main area of concern is the development of digital rights management (DRM) where this has overridden the exceptions for copyright, and can also override the time limits. There is concern that the database directive and the national legislation to effect its provisions could potentially cause problems to the academic community. Both of these issues are dealt with further below.

g Are there issues concerning the archiving of material covered by copyright?

There are three issues here:

- It is important that journal publishers have sufficient powers to be able to provide access to back numbers via the internet;
- Both DRM and databases have issues that may cause problems for archiving;
- More generally, libraries need to be able to take every step to ensure that their collections can be maintained into the future, and available on the then supported technology platforms.

Copyright – digital rights management

Digital rights management (DRM) systems control the flow of information not only via the internet, but also from works deposited in libraries. As indicated in the call for evidence, DRM systems are already having

unintended detrimental consequences for, amongst other things, the underpinning education and research required for the knowledge economy.

Copyright is an important spur to creativity, but the monopoly right created has two safeguards:

- a a time limit, after which time the copyright ceases;
- b exceptions, whereby copying is allowed for specified purposes in the public interest, most notably for research, private study, for criticism or review, or to allow access to the work by disabled people who cannot gain access to it in the original format.

DRM can override these exceptions. They need not expire at the end of the term of copyright, indeed they can provide perpetual protection, and they usually make it impossible to allow the lawful exceptions. Furthermore, in the case of e-books or e-journals not only do DRM systems deny access for copying, they can deny access for reading – again a very worrying extension of the copyright holder. They can also make it very difficult to allow access by the visually impaired who may need to convert into larger text or the spoken word. DRMs must not be able to deny lawful access to copyright works by people with disabilities.

It is essential for researchers to be able to continue to access works in copyright deposit libraries. Such libraries should be legally entitled to override DRM protection for this purpose. Furthermore it is essential that there should be no way that changes to technology or the fate of the copyright holder or agent should ever result in a work being totally lost when its goes out of copyright through an inability to break through the barriers.

- a *Do you have a view on how the use of digital rights management technologies should be regulated?*

Unfettered development of DRM in the music industry has clearly caused problems, although these have been dealt with in the courts. The statutory regulation of DRM techniques must include ensuring that copyright deposit libraries can override DRM arrangements to allow exception use, and long term archiving.

Copyright – orphan works

- a *Have you experienced any difficulties in identifying the owners of copyright content when seeking permission to use that content?*

Problems arising in the science area where it is not possible to identify the copyright owner is of concern to the academic community are largely within education rather than research.

- b *Do you have any suggestions on how this problem could be overcome?*

The initial publication of an orphan work may result in the owner recognising it and making a copyright claim. Publication thus has an advertising function. A potential way forward might be that after due diligence and no owner being found, an orphan work could be used with a special symbol. The use of such a symbol would provide protection to this initial publisher, but allow an owner to make a copyright claim for any further use. If such a system proved of use, there may be sufficient incentive for the development of indices of declared orphan works.

Copyright - databases

The creation and re-use of non-commercial databases is an essential activity in many areas of education and research, and indeed the wider information society. The definition of a database in the Database Directive is very wide, with virtually anything on a computer being either a database or part of a database. The most restrictive aspect of the *sui generis* right from a scientist's point of view is that it gives protection to the facts and data in the database and prevents their extraction and re-use, which, of course, copyright does not.

The academic community in Europe has worked with the wide scope of this Directive largely by ignoring it. For example, research databases are created often by re-utilising the contents of independent databases across the world. The permissions and waivers theoretically required by the Directive would be a huge additional burden. Furthermore, there is also a risk that a database produced cooperatively by scientists in many countries may be claimed as intellectual property by one of more of these individuals (eg the human genome sequence was in peril from this at some stage).

The provisions in the Directive are ambiguous, and there is lack of clarity over the respective *sui generis* and copyright where they both occur in a particular instance. The Database Directive provides for re-setting the provision for a further fifteen years for the whole database when additional entries are made.

The Database Directive has the potential to be a severe constraint on education and research. However it is not healthy that this has only been prevented by a wholesale disregard of the legislation. It is not clear that the Directive has achieved anything useful even for its main proponents, but if it is to be retained then it is essential that an appropriate arrangement for exceptions be built into it properly.

PATENTS

There is a need to move towards a simpler more internationally uniform system combining an appropriate arrangement over a grace period, but retaining the first to file basis of the European system.

Patents – utility models

The criterion of a significant innovative step should remain and not be weakened.

a *Do you have a view on some sort of second tier patent system?*

As indicated above, the Society does not believe that there should be any weakening over the size of the inventive step criterion. However, it recognises that there is some pressure for a second tier patent system to deal with innovative steps that fail to meet the full criterion. This arises, at least partly, from those seeking protection from successful patents that may arise from others building on this particular invention, and hence effectively stopping the original inventors working on it further. On the other hand, such a utility patent may itself result in huge areas of work being put out of effective use by others. A possible way forward would be to consider whether if such a utility patent is offered by patent offices, they should only provide a limited monopoly – perhaps with a licence of right arrangement for others to use the invention

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