

## 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:

- o 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*<sup>1</sup>), 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.

---

1

<http://www.tekno.dk/subpage.php3?article=1132&toppic=kategorii1&language=uk&>

## 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.

(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

# **Keeping science open: the effects of intellectual property policy on the conduct of science**



# Keeping science open: the effects of intellectual property policy on the conduct of science

## Contents

<b>Summary</b>	<b>v</b>
<b>Key recommendations</b>	<b>vii</b>
<b>1 Introduction</b>	<b>1</b>
<b>2 Intellectual property rights and science: some issues and principles</b>	<b>3</b>
<b>3 Patents</b>	<b>7</b>
<b>4 Copyright</b>	<b>17</b>
<b>5 Databases</b>	<b>23</b>
<b>6 Conclusions</b>	<b>29</b>
<b>Appendix A: Evidence received</b>	<b>31</b>
<b>Appendix B: Glossary</b>	<b>32</b>
<b>Appendix C: References</b>	<b>34</b>

This report has been endorsed by the Council of the Royal Society. It has been prepared by the Royal Society working group on intellectual property. The group's members are:

Professor Roger Needham CBE FRS FREng (Chair), Managing Director, Microsoft Research Ltd

Dr Mike Barlow, Head of Patents and Agreements, BP International Ltd

Sir Roger Elliott FRS, Emeritus Professor of Theoretical Physics, University of Oxford and former Chief Executive Officer, Oxford University Press

Professor Peter Lawrenson FRS, Emeritus Professor of Electrical Engineering, University of Leeds

Ms Hilary Newiss, formerly Head of Intellectual Property Group, Denton Hall, Solicitors

Professor John Pethica FRS, Research Professor at Trinity College Dublin, and Materials Science, University of Oxford

Dr John Reid OBE, patent attorney Abel & Imray and Chairman of the Intellectual Property Awareness Group

Sir John Sulston FRS, formerly Director, The Wellcome Trust Sanger Institute, Cambridge

Professor David Vaver, Reuters Professor of Intellectual Property and Information Technology Law, St. Peter's College, University of Oxford

The Secretariat was Dr Mark Scott, Ms Sara Al-Bader and Dr Rachel Quinn.



## Summary

Intellectual property rights (IPRs) can stimulate innovation by protecting creative work and investment, and by encouraging the ordered exploitation of scientific discoveries for the good of society. Although IPRs can aid the conversion of good science to tangible benefits, the fact that they are monopolies can cause a tension between private profit and public good. Not least, they can hinder the free exchange of ideas and information on which science thrives. We have considered whether there could be improvements in the ways intellectual property law, its interpretation and its use impact on science.

In the last two decades there has been increased emphasis on wealth creation, and on seeking associated IPRs, as a primary policy objective for UK publicly funded research. Nevertheless, we believe that public funding of the UK Science Base should continue to be based on quality, since high quality research is the gateway both to advances in knowledge and to wealth creation based on science. A narrow focus on research most likely to lead directly to IPRs would damage the health of science in the longer term. Moreover, the net income to the Science Base institutions from IPRs coming directly from publicly funded research is unlikely to be a significant fraction of their total. It is therefore important to ensure that intellectual property (IP) policies on protection and exploitation do not have significant negative effects on the direction or the value of Science Base research.

The evidence received during our study indicates that patenting rarely delays publication significantly, but that it can encourage a climate of secrecy that does limit the free flow of ideas and information that are vital for successful science. A desire by funders or research workers in the Science Base to obtain IPRs may also affect the direction of publicly funded research, encouraging short-term, applied research that has merit but is usually better done in industry if a vibrant industrial base exists. The longer-term work on which industry relies may be displaced partially or reduced. The merits of universities actively obtaining IPRs, as opposed to disseminating knowledge and allowing industry to protect its developments, are not well documented and would be worthy of further study in the UK. We also recommend that the government carries out a study to establish the extent to which the present drive in the Science Base to acquire IPRs affects the directions of publicly funded research.

Patents can provide valuable, although sometimes expensive, protection for inventions. They therefore encourage invention and exploitation, but usually limit competition. They can make it impracticable for others to pursue scientific research within the areas claimed, and because inventions cannot be patented if they are already public knowledge, they can encourage a climate of secrecy. This is anathema to many scientists who feel that

a free flow of ideas and information is vital for productive research.

Additionally, research by others may be constrained by patents being granted that are inordinately broad in scope – a particular risk in the early stages of development of a field. This is bad for science and bad for society. We regard it as important that patent offices are sensitive to this risk and make certain that patent examiners are properly trained and equipped to ensure that such patents are rigorously and thoroughly examined.

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS - see Box 1 in main report) is intended to harmonise IP laws and facilitate world trade. Whether the flexibilities within it are insufficient, or just insufficiently accessed, is a matter of debate, but it is clear that the benefits that it brings to many developing countries may be outweighed by the disadvantages. We recommend that developing countries should not be required to implement tranches of legislation until their level of development is such that the benefits of implementation outweigh the disadvantages.

Scientific journals have been protected by copyright; traditionally, the publisher owned it in exchange for adding substantial value to the manuscripts as received. The publisher charged for the journals, but scientists relied on 'fair dealing' exceptions to reproduce modest amounts of information. New digital storage and delivery technologies have provided opportunities for cheaper delivery, but the publishing community has introduced various technical measures to prevent access. These threaten to prevent fair dealing usage. Furthermore, the exceptions are now being restricted to non-commercial purposes – though the distinction between commercial and non-commercial purpose is often very difficult to make. The fair dealing exceptions are vital for science and we need to redress the balance. Scientists generally desire wide dissemination of their work and they should, wherever possible, be encouraged to publish in low-cost journals that combine liberal access policies with high quality (eg have careful peer review) and guarantee long-term availability.

New database right legislation, initiated in Europe and introduced in the UK in 1998, has been driven by media and commercial interests and is potentially very damaging to scientific research. It rewards the creator of the database rather than the creator of the data, though in science the latter is the more costly contribution. Unlike copyright, database rights effectively protect the data themselves, which cannot be extracted and re-used except under restricted fair dealing arrangements. There is only limited hope of obtaining liberalisation for

scientific research under the current review of the European Union legislation. However, as things stand it is unlikely that the US and Japan will follow the EU approach and thus that the World Intellectual Property Organisation would seek to harmonise that legislation.

A number of our recommendations encourage scientists to ensure that their data remain accessible to others, and encourage funders to ensure that databases are available that allow free or cheap access to, and manipulation of, data. These databases must be well maintained and of high quality, for example, by indicating the provenance of the data.

The legislation in all three main areas of IPRs relevant to this study - patents, copyright and database right - is very complex, decisions being difficult because they are context-dependent. We believe that it is particularly important that those who use databases to a significant extent ensure that they have a good knowledge of the

opportunities and the risks, and their rights and responsibilities.

There are some overarching aspects of IP law that are as relevant today as they have ever been. One is that the law does, by its nature, confer exclusive rights on the rightholder in exchange for well-defined rights for society. A good balance provides just sufficient incentive to encourage research and development by potential rightholders but retains a high level of benefit for society.

Advances of technology and commercial forces have led to new IP legislation and case law that unreasonably and unnecessarily restrict freedom to access and to use information. This restriction of the commons in the main IP areas of patents, copyright and database right has changed the balance of rights and hampers scientific endeavour. In the interests of society, that balance must be rectified.

## Key recommendations

	Governments and their Patent Offices	Funding Bodies	HE Institutes	Industry	Learned Societies	Scientists	Courts	WIPO	
<b>Issues and principles</b>	2.1 IP policy should be formulated to minimise any negative effects on education and the scientific endeavour whether in industry, PSREs or universities. We recommend that organisations involved in research assess the extent to which attention to IP directly or indirectly inhibits the free flow of information internally and externally.	*	*	*	*				
	2.8 Academe should encourage an environment where IP is exploited appropriately and benefits are shared equitably, rather than focusing on who owns the IP. Appropriate ownership may depend on the form of IPR, the conditions and location under which it was generated, and the optimal method of exploitation.	*	*	*					
	2.9 All IPR owners, when exploiting their rights, should ensure that long-term development and improvement of the technology is maximised and not impeded.		*	*	*		*		
	2.15 The encouragement and funding of research in universities and PSREs should depend on quality rather than on its potential to generate IPRs.	*	*	*	*	*	*		
	2.16 The UK Government should carry out a study to establish the extent to which the present drive to acquire IPRs affects the directions of publicly funded research	*							
	3.19 Governments should further facilitate compulsory licensing and application of competition law in situations where single or multiple patents do, on balance, unreasonably affect use and development of inventions.	*							
<b>Patents</b>	3.23 Governments should consider clarifying and harmonising the existing exemptions for 'private and non-commercial' and 'experimental' use.	*							
	3.26 Governments should make it clear to their respective national and regional patent offices that their primary goal is to examine patent applications appropriately rather than to strive to grant as many patents as possible.	*							
	3.28 Searches by patent examiners should be broad, including the journal and trade literature as well as patents and patent applications, and examiners should consult experts, particularly in developing areas of science, to ensure that their own understanding is extremely high. They should then be able to apply standards themselves that are as demanding in developing areas as they are in established areas of science.	*							
	3.29 Patent offices should take the lead in defining as clearly as practicable a satisfactory, rigorous test for inventive step that is relevant to research today.	*							

	Governments and their Patent Offices	Funding Bodies	HE Institutes	Industry	Learned Societies	Scientists	Courts	WIPO
<b>Patents</b>	3.31 Patent offices should take the lead in defining as clearly as practicable satisfactory, rigorous requirements for identifying and disclosing utility, and in pressing for a statutory requirement for the disclosure of the best mode of practising the invention in the initial application.	*						
	3.33 Patent offices and Courts should apply the criteria for patentability rigorously, in particular the requirements for inventive step and industrial applicability.	*					*	
	3.35 Patent offices and Courts should also ensure that patents are limited to a scope no greater than that justified by the contribution made by the invention.	*					*	
	3.37 Governments should seek cheaper effective methods of dispute resolution.	*						
	3.38 Governments of countries within the EU should actively pursue a system (such as, potentially, a Community Patent) that simplifies application procedures and minimises the need for resolving the same patent dispute in different jurisdictions. Such a system should be quick, as cheap as possible, and should lead to consistent legal decision-making.	*						
	3.39 Universities should explore ways in which information can be freely exchanged in a non novelty-destroying manner and the law should be clarified to ensure that internal disclosure should not in itself be novelty-destroying. European academics and related bodies should continue to explore further options for the form of a grace period, since despite inherent risks, a grace period may sometimes be of particular benefit to academics, lone inventors and SMEs.	*		*		*	*	
	3.44 Developing countries should be allowed not to implement TRIPS until their state of development is such that the stimulating effect on innovation will be worth the costs and restraints inherent in IP systems. It will not necessarily be appropriate to introduce all forms of IPR at the same time.	*						*
	3.45 WIPO should continue its work with governments to provide guidelines for 'informed consent' and 'profit sharing' that can be translated into the different practical situations involved in the exploitation of traditional knowledge for the benefit of the holders of traditional knowledge and of all humankind.	*						*
	3.46 WIPO should continue its initiatives to address the issue of some countries not recognising unwritten knowledge outside their jurisdictions as 'prior art'.	*						*

	Government Offices and their Patent Offices	Funding Bodies	HE Institutes	Industry	Learned Societies	Scientists	Courts	WIPO
<b>Copyright</b>	4.13 Learned societies should have liberal copyright policies and should make their publications available at as low a cost as is reasonably feasible.				*			
	4.19 The limitation of fair dealing to non-commercial purposes gives rise to uncertainty, is not useful and is complex to operate, and should be renegotiated when the Copyright Directive 2001 is reviewed in 2005.	*						
	4.21 Neither physical means of preventing copying (which is being employed by the entertainment industry), nor contract law, should be applied to inhibit access to scientific information unless it is first demonstrated that fair dealing access for research and private study will be at least as quick, easy and widely applicable as it has been historically for paper copies.	*						*
	4.22 The scientific community, with the Royal Society in a leading role, should actively contribute to the European Commission's reviews of the Copyright Directive 2001, particularly regarding its effect on education and access to scientific data and information.			*	*	*	*	
	4.23 Scientists should, wherever practicable, publish in journals with liberal access policies.						*	
	4.26 The duration of copyright protection is unnecessarily long for scientific information and will interfere with appropriate archiving activities, and we recommend that the learned societies explore options for its reduction.							

		Government and their Patent Offices	Funding Bodies	HE Institutes	Industry	Learned Societies	Scientists	Courts	WIPO
5.9 Copyright and database right laws should be changed to prevent the possibility of contract overriding exceptions.		*							
5.10 The scientific community, with the active participation of the Royal Society, should promptly raise any unresolvable concerns over data access and monopoly rights in the private sector with the Office of Fair Trading				*	*	*	*		
5.11 Scientists should ensure that any publicly funded data that are made available to private databases are done so non-exclusively, and that at least one repository of the information is liberal regarding access to and use and manipulation of the data.			*	*			*		
5.12 The scientific community, with the Royal Society playing its part, should support initiatives to raise awareness within its community of the issues of accessing and using data and transferring rights to data to others.				*	*	*	*		
5.17 There should be significant Government support for the organisation, publication and maintenance of data that it has funded, which might otherwise be or become inaccessible. Since the cost of scientific information is high, and the value added by proper access is great, it makes no sense to allow the value of publicly funded data to be constrained by limitations to access in private databases. Databases with public funding should be readily accessible, and be either free or the charge merely be the cost of permitting access or of supplying the information.		*							
5.21 The <i>sui generis</i> database right, that prevents extraction and use of the data themselves, is inappropriate for scientific data and should be repealed or substantially amended following the Commission's review of the Database Directive. Failing repeal, scientists and learned societies should gather information on the impact of the Database Directive on the conduct of science, so that they can give sound guidance to their governments at the European Commission's next review of the Directive, likely to be in 2006.		*					*		
<b>Databases</b>									

# 1 Introduction

- 1.1 Productive scientific research requires free and rapid flow and exchange of information. The presence or process of securing formal intellectual property rights (IPRs) may restrict this flow, and thus can impede or conflict with the effective development of science.
- 1.2 Yet IPRs can simultaneously encourage innovation by leading to reward, and permit publication by scientists in industry of information that would otherwise be withheld. IPRs can therefore increase actual information availability, flow and use, and thus the rate of progress of science. Achieving the right balance between the encouragement of innovation and information flow, and the extent to which restrictions need to be inherent in IPRs, is an important issue of public policy. Many believe that the current balance is not optimal, and additionally is eroding the area of common knowledge that is the very foundation of science. We have therefore considered whether there could be improvements in the ways intellectual property law, its interpretation and its use impact on science.
- 1.3 The terms of reference given to the Working Group by Council were to consider the effects of intellectual property (IP) policy on the conduct of science, and to formulate policy recommendations, taking account of:
  - the need to provide recognition and incentives for 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.
- 1.4 In the Working Group's view, for an IP system to be completely successful it must balance these three principles in a coherent and rational way across all areas of science, taking account of the legitimate concerns of the public. For the purposes of this report we define IP as any creative work or innovation – a non-tangible possession – that can be protected by an IPR, although we recognise that databases and trademarks may be protected even where they lack creativity or innovation. The main types of IPR include patents (for inventions of new and improved products and processes that can be applied industrially), copyright (for example, literary works and computer programs), database right (for assembled information), design (for product appearance and form) and trade marks (for brand identity).
- 1.5 As science and technology progress, what seem to be new forms of IP appear. These create dilemmas: should they be protectable by IPRs? If so, is that better done using existing forms of rights, or new ones?
- 1.6 IP laws define how different forms of intellectual property can be protected, and which IPRs an owner can obtain. Although we generally refer to owners of IPRs and users of the protected IP, further distinctions should be borne in mind where these terms occur. There are several groups involved: those who fund the work (such as research), those who create the IP, those who own the IPRs, those who exploit them (by agreement with the owners), competitors who can or wish to make analogous products, those who use the protected products by agreement with the producers or by making use of the exceptions to IP law, and society as a whole. Often some of these entities will be one and the same person. The forms of available IPR vary widely in how they work, how much they cost, how easy (or hard!) they are to obtain and (especially) defend, and how long they last (see [www.intellectual-property.gov.uk](http://www.intellectual-property.gov.uk)). In general, they give the owner exclusivity in that others are not allowed to exploit the property – invention, creative work, database or design – without the owner's permission for some defined period of time. IPRs impact on the conduct of science because they provide incentives for invention and development; but they also reduce the freedom of action for others and can draw activity away from worthwhile work that is less likely to generate IPRs.
- 1.7 IP laws are therefore relevant not only to owners of IP but also to funders, innovators, competitors, consumers and governments – in fact all areas of society – and the inter-relationship can be viewed as a bargain between the rightholder and the state. In exchange for the rightholder getting exclusivity, society gets access to the benefits of goods and services arising from the commercialisation of the innovation or creative work. On balance, the bargain between the rightholder and the state should benefit society. But if the touchstone of value in IP protection is the benefit of society, in this age of globalisation one must ask 'Which society?' The UK, the EU, the world? It is arguable that uses of IP that benefit the people of one part of the world but conspicuously fail to benefit others, or even act to their detriment, are not what the system is supposed to be about.
- 1.8 The award of an IPR often requires disclosure of the IP itself; the protection afforded the right makes this

possible. In the case of patents this benefits society by publishing ideas that might otherwise have been kept secret, although there can still be significant problems associated with the relatively long period between conception of the idea and publication. Society can also benefit from use of the IP by others, for example by the owner selling or licensing the right. Finally, since most IPRs are time-limited, society may additionally benefit when the right expires or is allowed to lapse by its owner.

- 1.9 We considered the forms of IPR that are most relevant to the generation of new knowledge and the development of innovations in science: patents, copyright, and database right. (Know-how is important but it is protectable by the laws of contract and confidentiality rather than a government granted right.) Other forms of IPR, such as trademarks, have less direct influence on the practice of science, though, for example, design rights can be relevant to the extent that they relate to technical rather than aesthetic subject matter. We have focused on those areas where improvement is not only desirable, but may be practicable.

- 1.10 Before producing this report we sought views widely on all aspects of IP, but in particular we asked for concrete examples of where the system affects the progress of science, or does not work to the mutual benefit of (potential) rightholders or society; and ways in which improvements could be achieved. There were 30 responses and we are grateful for the rich diversity of evidence that was provided, often at the cost of significant time for those concerned. The names of the people or institutions that responded are recorded in Appendix A; a glossary of terms is in Appendix B; some of the references that have helped to shape our thinking are in Appendix C.

- 1.11 IP regimes should not gratuitously impede scientific endeavour. We have assessed current developments in IPRs and the way that they are used to see if there are any dangers to the overall objective of encouraging both scientific research and the ordered exploitation of scientific discoveries for the good of society. Where there are, we draw attention to them, even when we do not have solutions to propose.

## 2 IPRs and science: some issues and principles

- 2.1 Most scientific research is carried out by industry, the PSREs (public sector research establishments - taken here to include other organisations such as the NHS (National Health Service)) and universities. IP laws, including case law, affect all three, and the research of each, whether independent or collaborative, is of value to the others. We feel IP policy should aim to maximise benefits for society and so those in each sector should be sensitive to the aspirations and needs of those in the others. What is best for one sector is unlikely to be best overall, and thus unlikely to be best for society. Wherever practicable, IP policy should not lead to restriction of the free flow of information, eg within and between these three sectors. Innovation is essential for economic and social progress and IP plays an important part in achieving these goals; but **we recommend that IP policy is formulated to minimise any negative effects on education and the scientific endeavour whether in industry, PSREs or universities. We recommend that organisations involved in research assess the extent to which attention to IP directly or indirectly inhibits the free flow of information internally and externally.**
- 2.2 There have been developments in the IP policies of industry. Patenting and licensing policy has addressed, for example, how to share the benefits of inventions with developing countries. In the areas of copyright and database right there has been change due to the recognition of the opportunities and threats of electronic storage and transmission. Nevertheless, generally within industry, attitudes to the need for protection are relatively well established and although, in our view, a major issue is the impact of IP policy on the flow of information, there are obvious commercial constraints on the dissemination of information from industry.
- 2.3 Within the PSREs and universities, on the other hand, there has been greater change and continuing debate. Should their staff seek protection for IP, to help achieve benefits from the research by exploitation, or simply to obtain revenue; or should inventions and other creative work be made available for others to develop without hindrance? The policy in the NHS is clear: although protection of IP is encouraged, the primary objective is not to generate revenue but directly to facilitate improved patient care (Cornish et al 2003). We studied the effect of IP policy on the conduct of science as a whole, but with slightly greater emphasis on publicly funded science because that is where recent changes have been felt more generally.
- 2.4 Our work has built on the major study by a Working Party, chaired by Professor W R Cornish QC FBA, appointed by the National Academies Policy Advisory Group NAPAG. NAPAG is derived from the four Academies: the British Academy, the Conference of Medical Royal Colleges (now the Academy of Medical Sciences), the Royal Academy of Engineering and the Royal Society. The study, hereafter 'the NAPAG report', was entitled 'Intellectual Property and the Academic Community' and was published in March 1995 (NAPAG 1995).
- 2.5 The NAPAG report discussed the rapid growth in interest in IPRs in universities, outlined the requirements to obtain patents and other forms of intellectual property and drew attention to the effects of lax standards. It recognised the implications of the rapid advances and increasing uptake of electronic technology for IP in computer science, copyright and databases. It noted the potential impact on developing countries of the then recent TRIPS Agreement (see Box 1).

### Box 1: TRIPS

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) was formulated in the Uruguay Round of trade negotiations, completed in 1994, to be administered by the World Trade Organisation (WTO). The aim in developing TRIPS was to reduce the disparity in the way in which IPRs are protected around the world by providing an internationally agreed framework of trade rules. A systematic process for settling trade disputes was also set out. All members of the WTO have to comply with TRIPS – as of 1 January 2002, there were 144 Members of the WTO, accounting for over 90% of the world's trade. A body known as the 'Council for TRIPS' monitors the operation of TRIPS and governments' compliance with it.

The full text of TRIPS can be found at [http://www.wto.org/english/docs\\_e/legal\\_e/legal\\_e.htm](http://www.wto.org/english/docs_e/legal_e/legal_e.htm) - TRIPS

- 2.6 In many areas the situation has changed sufficiently little that its conclusions remain valid. In other areas, although change has occurred, the NAPAG report was sufficiently prescient for its comments to be valid today.
- 2.7 Areas where there have been greatest changes include patents involving genetic sequences – some patents in the US, in particular, having very broad scope (paragraphs 3.12-3.23). Another clear area is in software (paragraphs 3.6-3.9). The ways in which IPRs affect the lives of those in developing countries is another area of heated debate. The recent copyright and database legislation in Europe is in large part a response to the rapid developments in electronic storage and transmission of information. The legislation has been driven by commercial interests unrelated to science and is likely to have significant – and detrimental – effects on science.
- 2.8 In 1995 patenting and exploitation were key issues – a field of rapid change both for universities and for industry's interaction with academe. There has been much effort in those areas and in our view a key issue for publicly funded research today is not so much how to exploit, but whether it is appropriate in a given instance to protect or disseminate information. When IPRs are sought, **we recommend that academe encourages an environment where IP is exploited appropriately and benefits are shared equitably, rather than focusing on who owns the IPR. Appropriate ownership may depend on the form of IPR, the conditions and location under which it was generated, and the optimal method of exploitation.**
- 2.9 The ways in which copyright and database right are exercised and exploited will be critical to the progress of science in industry and publicly funded institutions. More generally, the ways in which IP is protected and exploited are critically important, and with care the negative effects of exploitation can often be minimised without harm to the exploiter. For example, licences that require sharing of improvements can bring benefit to all parties. **We recommend that all IPR owners, when exploiting their rights, ensure that long-term development and improvement of the technology is maximised and not impeded.**
- 2.10 We have also benefited from two more recent studies. These are the Nuffield report 'The ethics of patenting DNA' launched on 23 July 2002 (Nuffield 2002), and the report by the Commission on Intellectual Property Rights, 'Integrating Intellectual

Property Rights and Development Policy', launched on 12 September 2002 (CIPR 2002). We broadly endorse the conclusions of these thoroughly researched studies and together with the NAPAG report these two reports should be seen as a foundation for our study.

## Universities

- 2.11 A great deal has been said and written in recent years about universities as generators of valuable IP, and about the means appropriate to its exploitation (eg AURIL 2002). Such activities have the potential to impede scientific endeavour and we have attempted to assess whether there are aspects of current university IP regimes that do so. Three key questions are:
1. Does perceived pressure to patent results inhibit free exchange of ideas among academic colleagues?
  2. Does IP emphasis put pressure on academics to produce exploitable results as against advances in pure science?
  3. Does the application of IP restrict future use of ideas?
- 2.12 There is no single answer to these questions. In present circumstances many biologists would answer yes to all three. An engineer would regard the second as inapplicable, and would probably agree with the first at most. Most theoretical physicists would regard them all as irrelevant; other sorts of physicists frequently patent their tools, rather than their science.
- 2.13 **We believe that society should maintain vigilance on these issues**, particularly today in relation to biology where there seems to be a most unhealthy 'gold rush' mentality. Tomorrow, however, the focus could be on nanotechnology or device physics.
- 2.14 An increased emphasis on universities exploiting IP, especially by taking out patents, is not only a UK phenomenon. It has occurred in particular in North America too. An interesting recent study by an eminent academic from Columbia University (Nelson 2002) points out that American universities had extensive industrial contacts before they took to patenting, following the Bayh-Dole Act, and that the companies they dealt with were very often uninterested in having exclusive rights to anything coming directly from the university. Increased emphasis on patenting, and strengthened Technology Transfer organisations, has not much increased either technology transfer or resultant net income.

2.15 Research is of great value to science and society, and **we recommend that the encouragement and funding of research in universities and PSREs depend on quality rather than on its potential to generate IPRs.** (Clearly these may be linked more strongly in some fields – such as engineering – than in others.) Even a small percentage change in the direction or efficiency of research, potentially caused by the shift toward acquisition of IPRs, is large in real terms. It is remarkable that a change (with the potential for good or harm) in the emphasis of a multi-million pound budget is being carried out with such little social, scientific and economic analysis. Such studies are complex for many reasons, not least

that the current systems and recent changes work for and against different vociferous groups and sectors. Study and evaluation must bear in mind the influence of these forces; but the time is ripe for thorough analysis.

2.16 Although there may be no global answers, it is important that bodies controlling funding or exerting other influence do explore in depth such issues as those mentioned in paragraphs 2.13–2.15. **We recommend that the UK Government carries out a study to establish the extent to which the present drive to acquire IPRs affects the directions of publicly funded research.**



## 3 Patents

### Patentability and exclusions from patentability

- 3.1 The 1995 NAPAG report identified a growing tendency towards pushing the boundaries of patenting out from inventions into areas of knowledge. The evidence we have reviewed appears to confirm that this trend has continued, mainly because of the increased public recognition of the key role patents can play in building corporate value in the 'knowledge economy'. Such developments need to be continuously monitored to ensure that these moves are not detrimental to the way scientists interact and the pace at which science moves forward.
- 3.2 As the NAPAG report points out, the principle behind most patent laws is that equal protection will be given to all inventions that meet the essential criteria of being new, inventive and capable of being exploited industrially (see Box 2). However, many patent systems, for example those in Europe, go beyond this and specifically exclude from patentability certain categories of technical subject matter. Some of these exclusions reflect a division between basic and applied research, eg the exclusion of discoveries, scientific theories and mathematical methods, whilst others acknowledge a distinction between inventions generally and those concerned with the manipulation of living entities. Into this latter category fall methods of treating and diagnosing humans and animals, plant varieties (these have their own specific IPR system), animal varieties, and essentially biological processes for the production of plants and animals. Another more subjective category is the exclusion of inventions the exploitation of which are perceived as being contrary to 'public order' or morality.
- 3.3 United States patent law differs from this approach in that there are almost no statutory exclusions from patentability. The US Supreme Court had ruled that laws of nature, phenomena and abstract ideas are unpatentable (Funk Bros Seed Co v Kalo Inoculant Co 1948). However, in its 1980 decision (Diamond v Chakrabarty 1980) it considered that, if the normal statutory criteria of novelty etc were fulfilled, 'anything under the sun that is made by man' was patentable; a view that was later qualified to exclude human beings. This fundamental difference between the US and elsewhere is one reason why industry has sought to extend the limits of patentable subject matter in Europe. It is obviously very attractive for industries having a transatlantic or global reach to have a uniform standard of patentability around the world. Uniformity arguably also creates a level playing field for US and European industries. On the other hand, many in Europe are content with the existing position, see no need for a change in the law and in some cases are concerned about the consequences of moving in the US direction.
- 3.4 For the foreseeable future it also appears very unlikely that US patent law will be harmonised to conform with the approach taken in Europe. Certainly there appears no likelihood of harmonising in the other direction. One difficulty, as we see it, is the difference in the way patents are often perceived in the two territories. Much rhetoric in the US has tended to regard patents as an almost absolute or natural right for inventors. By contrast, in Europe patents are regarded less as an absolute right than a privilege granted at the discretion of governments in pursuit of economic, social or

#### Box 2: Patents

Patents provide inventors or those deriving title from them the right to prevent others from making, selling, distributing, importing or using their invention, without licence or authorisation, for a fixed period, normally 20 years from the application date. Patents are subject to an examination by the Patent Office before grant and to the payment of renewal fees thereafter. In return, the applicant for the patent is required to disclose the invention in the patent 'specification' and to define the scope of the patented invention in 'claims'. Patents normally have to relate to technology. There are three further requirements for an invention to be patentable: novelty (normally over anything disclosed publicly anywhere), inventive step or non-obviousness (the invention would not have been obvious to a person skilled in the art at the time the application for a patent was filed) and industrial applicability. Patents are limited to the country for which they have been granted. Granted patents can be contested in the Courts or (sometimes) patent offices in validity proceedings or as a defence to an allegation of patent infringement.

<sup>1</sup> Readers unfamiliar with US legislation should understand that the Bayh-Dole Act was directed to making it easier to patent federally funded research, which had heretofore been very difficult indeed.

technological objectives. We believe that it is important for governments in Europe not to lose sight of this approach as they seek to balance pressure from users of the system against the wider views of society.

- 3.5 It is of particular importance to the scientific community that modifications to these exclusions from patentability do not lead to a greater risk of scientific knowledge being monopolised. We agree with the view of many scientists that pure knowledge about the physical world should not be patentable under any circumstances. That it should be freely available to all is one of the fundamental principles of the culture of science. Only by having knowledge unencumbered by property rights can the scientific community disseminate information and take science forward. In this context we make the observation that in many areas of new science it is often hard to make a distinction between what is an invention on the one hand and a discovery or scientific knowledge on the other. We therefore agree with those who assert that patents have been granted too readily in new areas of technology, and that the requirements for inventive step and industrial applicability should be applied more rigorously.

### Computer-implemented inventions and business processes

- 3.6 Two overlapping issues under review are the patentability of computer programs and methods of doing business. Whilst it has for some years now been possible to obtain patent protection for computer programs in the US, the situation in Europe has been less clear. The European Commission therefore proposed in 2000 a draft Directive on Computer Implemented Inventions (European Commission 2002), with the aim of requiring EU member states to harmonise and codify practices that have in part evolved through legal precedent at the European Patent Office. The effect of this Directive will be to confirm the patentability of computer-implemented inventions when, as is required under European law, a 'technical contribution' is present and the other patentability requirements such as novelty and inventive step are met.
- 3.7 Such a proposal has not met with unanimous approval. Many in Europe feel that such protection is unnecessary, that the industry has developed successfully without much use of the patent system and that existing copyright protection for computer programs is probably adequate albeit that it protects only the 'form' rather than the 'substance' of the program.

- 3.8 This diversity of views extends to the scientific community, with many being strong supporters of 'open source' software (see glossary). The term does of course encompass a great range of types of licence, but open source software, such as the Linux operating system, continues the ethos of the early days of computing when programs were often shared freely without thought to potential IPRs. Open source software promotes the scientific endeavour and has been particularly valuable in areas such as biomedical research. Significantly, it is also making considerable inroads into the commercial arena. Although certain vendors are vigorously opposed to it, many are building lucrative businesses around it: some provide documentation and support, while others are adopting open source software for core products.
- 3.9 The success of the open source software movement indicates that a high rate of innovation can occur in the computer program industry without recourse to patenting. Nevertheless the practice of the European Patent Office has developed to allow computer-implemented inventions to be patented if they meet the usual requirements for patentability, including the requirement for technical contribution. We do not find the argument that Europe should follow the US practice of favouring patents for computer programs in itself compelling. We do, however, support moves to clarify this area and to harmonise the law and practice on patenting computer-implemented inventions in Europe as much as possible, and to make the scientific community and the software industry better aware of the issues involved. However, we would be deeply concerned if the outcome of such harmonisation was a regime under which patentees could obtain protection out of all proportion to the technical contribution made. Whilst we therefore generally support the European Commission's attempt to bring clarity and simplicity to this area, **we believe that this objective of proportionate reward must guide the thinking of patent offices and governments** as the project moves forward.
- 3.10 The patenting of 'business methods' is often grouped with that of computer programs, but the issues are somewhat different. Although in Europe methods of doing business are themselves clear statutory exclusions, the 1998 US Court of Appeals for the Federal Circuit Court's decision in the 'State Street Bank' case (State Street Bank & Trust Co v Signature Financial Group 1998) has caused many parts of industry, especially those in the service sector, to embark on a programme of extensive US patenting. In this case law (Primeaux 1999), the State Street Bank had claimed that a patent by

Signature Financial Group Inc was invalid because it was a patent for a business method and because it was a patent for a mathematical algorithm. The Court of Appeal for the Federal Circuit upheld Signature's patent on machines that used a program to pool mutual fund assets, allocating income and expenses. This was because although the machines used algorithms, they produced useful tangible results. This decision has led to pressure for an equivalent possibility in Europe, raising issues such as whether it should be possible to patent traditional business methods when they are computer enabled and what standards of inventiveness should be applied to them.

3.11 Whilst this debate is generally peripheral to the scientific community, we make the following observations. First, we think that there is a real difficulty in applying an objective standard of patentability in this area especially with regard to inventive step. For technologically based inventions the concept of the 'scientific method' and peer review of scientific results means that there is a logical framework within which patent offices can objectively determine whether a threshold level of inventivity has been reached. We believe that this is potentially a much less objective exercise when applied to non-technical innovations. Secondly, there is a real question as to whether the contribution that a new business method brings to society at large justifies the protection conferred by the patent system. We therefore conclude that the current approach in Europe, to maintain the exclusion from patentability of business methods, is the correct one. The reality is, however, that a method of business exhibiting a technical contribution and meeting the other patentability criteria will be patentable.

### Patenting in the bioscience field

3.12 The area in which debate about excluded subject matter has been the most vigorous is the biosciences. The patenting of life forms and human tissue not only raises practical and, at least in some people's eyes, moral questions but also has the potential to impact upon the conduct of basic science. Yet nowhere is this debate more critical. Over the next fifty years it is this area of science that probably has the greatest potential to improve living standards in terms of both improved health and access to food. A fair patent system, that meets the needs of industry and academe and is intelligible and rational to the public, will be an important factor in achieving the benefits and encouraging the science.

3.13 When the NAPAG report was published, the European Commission was attempting to harmonise law in this area through a draft Directive on the legal protection of biotechnological inventions. From the very beginning, however, this has been a politically contentious instrument and it remains so. Although the Directive was agreed by the EU member states in 1998 (European Commission 1998), and should have been implemented by 30 July 2000, debate still rages around it. It has been implemented by the UK but by the end of 2002 nine member states had failed to implement the Directive, including those who had unsuccessfully challenged the validity of the Directive before the European Court in 2001.

3.14 Recently, as provided in Article 16(c) of the Directive, the European Commission has completed its first annual report to the European Parliament and the Council on the implications of patent law in the field of biotechnology and genetic engineering (European Commission 2002a). The report concludes that 'the Articles relating to the patentability of plants and animals and the patentability of elements isolated from the human body or otherwise produced, take account of society's concerns and the financing needed for research'. However, the report recognises that the field is developing and therefore recommends that two areas require active on-going consideration: DNA sequences and stem cells.

### Patentability issues: DNA sequences

3.15 The first patentability issue is the question of whether or not DNA sequences or partial sequences are eligible for patenting.

3.16 Many have argued for the absolute prohibition of patenting DNA sequences on ethical and moral grounds. We understand and sympathise with these arguments, but as society is becoming more plural and culturally diverse it is becoming more difficult to build consensus on the definition of what is ethical or moral. We do not believe that many scientists would regard the administrative act of patenting a gene to be immoral or unethical in itself, nor that many would regard exploiting such patents or their underlying technology as necessarily unethical, especially where the exploitation led to an improvement in the well-being of others.

3.17 However, patentability considerations do not end with a consideration of whether or not a DNA sequence is or should be excluded subject matter. They also involve an objective determination on whether the isolated sequence itself is novel and inventive over the prior art, as well as industrially

applicable. We concur with the Nuffield report, that technological advances and the existence of large public databases mean that DNA sequences are no longer patentable simply by virtue of being isolated.

- 3.18 We therefore support the requirement of a significant demonstration of industrial applicability before a patent in this field is allowed (as discussed in more detail in paragraphs 3.29 and 3.30) and also that patents granted should be limited to a scope no greater than that justified by the contribution made by the invention (as discussed in more detail in paragraphs 3.34 and 3.35). The long-term risk of inhibiting an area of science which is still in its infancy is too great to justify speculative protection, even though such a patent might in the short term allow certain innovations to be brought more rapidly to market.
- 3.19 As we perceive it, the problem is that the monopolistic nature of patents means that there is a risk of their being abused by their owners. This is a risk in all areas of science but when such abuses occur in the biosciences field the outcome may well be an immoral or unethical act. There is widespread concern about Myriad Genetic Inc's monopoly on the diagnosis of mutations in 'breast cancer genes' (Wadman 2002) and the monopoly in diagnostic testing for haemochromatosis (a genetic disorder causing the body to absorb an excessive amount of iron from the diet) (Merz et al 2002), as well as the more general problem of drugs for HIV/AIDS that are not affordable in developing countries. The best way forward is to tackle the abuse rather than to change the patent law. In our opinion, governments, as custodians of the public interest, should closely monitor the activities of patent owners and be prepared to intervene actively with counter-measures where necessary. Compulsory licensing and the provisions of competition law are the obvious tools. Such an approach is completely consistent with the philosophy that a patent is a privilege that must be exercised responsibly. In the long term, such an approach supports and rewards those who are prepared to act responsibly. We also believe that there is scope for governments to work together in this area and for the industry in question to develop and adhere to codes of practice. **We recommend that governments further facilitate compulsory licensing and application of competition law in situations where single or multiple patents do, on balance, unreasonably affect use and development of inventions.**

## Patentability issues: stem cells

- 3.20 The second area highlighted by the European Commission is the patentability of human stem cells and derived cell lines. Research into stem cells is a significant and growing activity that also has great potential for developing technology which can treat many diseases. For this reason we support the possibility of patenting in this area provided that proper account is taken of public concerns. We believe that this can be achieved through applying the same principles as we have discussed above for DNA sequences. Our recommendation in 3.19 is relevant, but it is even more important that rigorous examination procedures are applied to ensure that the exclusions in this area are not further eroded. A good example of the need for more rigorous application of the principles is the recent so-called 'Edinburgh' patent (EP 0695351) which, as granted, had claims arguably embracing the cloning of human beings, but which has since been amended to exclude that possibility.

## Research tools

- 3.21 One particular issue which has been brought to our attention is whether patent protection should be available for DNA sequences which, although having no direct therapeutic application, are valuable research tools for developing, say, a commercially valuable pharmaceutical. Increasingly such tools once patented are being marketed and licenced to industrial and academic researchers. It has been argued that patents on such tools could inhibit future research for various reasons including increased costs, a reluctance to licence generally because of exclusive arrangements and the need to enter into possibly protracted licence negotiations before research starts. The Nuffield report on the patenting of DNA concluded that there was insufficient evidence to decide whether such factors had adversely affected innovation and development in the field but concluded that 'the granting of patents which assert rights over DNA sequences as research tools should be discouraged'. Strengthening that conclusion, it has been asserted that the monopoly patents on research tools – eg the patents on Taq polymerase (USP 4889818), Cre/lox vectors (Sauer 1993) and on Gateway vectors (Walhout et al 2000) - have had severe effects on academic research.

<sup>2</sup> The 'Edinburgh' patent, EP 0695351, entitled 'Isolation, selection and propagation of animal transgenic stem cells', is owned by the University of Edinburgh and Stem Cell Sciences Pty Ltd (Australia). It covers a method of genetically modifying animal stem cells to give them a survival advantage over unwanted differentiated cells (this technology was required to produce 'Dolly the Sheep'). The patent application was filed with the EPO in April 1994 and granted, after examination, in December 1999. At a hearing in July 2002, called due to opposition in the 9-month period after grant, the owner of the patent limited its claims to exclude human and animal embryonic stem cells. The University of Edinburgh stated that it had never intended the scope of the patent to extend to the creation of transgenic human beings. See [http://www.european-patent-office.org/news/pressrel/2002\\_07\\_24\\_e.htm](http://www.european-patent-office.org/news/pressrel/2002_07_24_e.htm)

3.22 Research tools are significant enablers of scientific development but DNA-based research tools are at present the result of knowledge and discovery rather than the judicious assembly of components like a spectrometer, or of molecules like many catalysts. Our comments in paragraphs 3.14 to 3.19 apply. In particular, care is needed even when there is a clear inventive step and a significant demonstration of industrial applicability, that patents granted should be limited to a scope no greater than that justified by the contribution made by the invention.

3.23 Our comments on research tools are of course relevant outside the bioscience field. Also generally relevant is our consideration of the existing exemptions from patent infringement in Europe of 'acts done privately and for non-commercial purposes' and 'acts done for experimental purposes' (Community Patent Convention 1975, Art 31 (a), (b)). At present, broadly, people are entitled under the latter exemption to do experiments to establish the scope and application of a patented invention, including experiments to discover an improvement to it. They are not entitled to experiment simply to prepare to duplicate and sell what is already on the market. Between these two extremes there is doubtful ground, and prudent people avoid doubtful ground. It would be conducive to the development of science if the position of scientific work under these exemptions was clearer. A case in point is the difficulties plant breeders face in breeding a non-patent-infringing variety from a patented parent. **We recommend that governments consider clarifying and harmonising the existing exceptions for 'private and non-commercial' and 'experimental' use.**

### The application of patentability criteria

3.24 Where an invention does not fall within a category that is excluded from patentability, an applicant will be granted a European patent if the invention claimed is new, industrially applicable and exceeds the threshold level of inventive step. Failure to meet such standards means that the application will be rejected by the Patent Office or, if granted and successfully challenged, revoked by the Courts or the Patent Office. Since patents are monopoly rights that can inhibit the actions of others, especially those actively involved in scientific research, we are clearly very interested in ensuring that these standards are met and not eroded over time. We are also interested in ensuring that there is a consistency of standard across all areas of science so that scientists in no one discipline are disadvantaged. In our opinion these are key issues of interest to scientists everywhere and it is

therefore critical that they are addressed fully by all patent offices around the world.

3.25 A number of developments give us cause for concern. First, the numbers of patent applications being filed have increased significantly at all the major patent offices over the last five years. Whilst there are some signs of this falling off as a consequence of the global economic climate and the end of the boom in technology stocks, many patent offices still have a significant backlog of applications to search and examine and conduct searches on.

3.26 The second general concern is that there are trends amongst patent offices to satisfy applicants by granting patent applications, and for governments to see their office's activities as a source of revenue. Such trends carry the risk that the important public interest task of examining patents to a consistent high standard is subordinated to meeting the wishes of applicants for the grant of their patent applications. **We recommend that governments make it clear to their respective national and regional patent offices that their primary goal is to examine patent applications appropriately rather than to strive to grant as many patents as possible.**

3.27 The third general concern is that the problems appear to be greatest in areas where the applications need to be examined the most carefully. There is a view that in many newer areas of science examiners lack skill and experience and do not fully understand the science or have access to all the prior art. This should not be seen simply as a criticism. Often science in these areas is moving fast, and prior art is not to be found in traditional patent office databases. In many instances the applicant will not know all of the prior art either.

3.28 Addressing this problem of expertise, we believe that there should be greater emphasis on training of patent office examiners, and **novelty searches should be broader, including the journal and trade literature as well as patents and patent applications.** There is also potential for patent offices to work more closely with the scientific community to improve standards. Many scientists, especially in academia, have detailed and up-to-date knowledge (often including access to prior art not otherwise easily traceable) and experience in assessing experimental data and the significance of new scientific developments. Efforts should be made to utilise this resource to improve the standards of patenting especially in assessing questions of inventive step. Another spin-off of such initiatives is that patent examiners would become more cognisant of the needs and benefits

of publicly available science, thereby helping to put their work in context. Accordingly, **we recommend that searches by patent examiners be broad, including the journal and trade literature as well as patents and patent applications, and that examiners consult experts, particularly in developing areas of science, to ensure that their own understanding is extremely high. They should then be able to apply standards themselves that are as demanding in developing areas as they are in established areas of science.**

3.29 Inventive step (non-obviousness) and industrial applicability are criteria for patentability that need particular attention. First, we believe that during the patent examining process there needs to be a much more extensive examination of the inventive step criterion, especially where the invention is based less on actual evidence of a significant technical advance than on the allegation that it was 'non-obvious' to some hypothetical skilled person. We foresee that some areas of science will increasingly be done by the brute force of mechanised testing rather than by the traditional creative leap of an individual or team. Without prejudging this issue, **we recommend that patent offices take the lead in defining as clearly as practicable a satisfactory, rigorous test for inventive step that is relevant to research today.**

3.30 Second, in the race to obtain priority of patent protection, there is an increasing tendency to file for patents on new discoveries before a practical application for them has been found and thoroughly proven. Whilst most patent laws have a test for industrial applicability or utility, there is an increasing tendency to try to satisfy this in a general and, at the limit, a speculative way. Such 'prophetic patents' will often contain no practical information about how to apply the knowledge at all, relying on an application being found at a later date. This can lead to much wasted science in trying to prove or disprove an alleged technical effect. More worryingly it means that a scientist proving some new application for the first time can be blocked by a patent that really has brought no technical teaching or practical benefit to the field. We see this as simply an attempt to patent knowledge.

3.31 In many areas these problems arise because patent offices are not rigorous enough in their examination of the usefulness of an invention. We think that patent offices need to do more investigation in this area as part of the examining process, whilst we acknowledge the practical difficulties of doing so. In

1995 the NAPAG report's conclusion was that **a separate utility requirement should be introduced into the European Patent Convention (EPC 1973)** rather than relying on the existing 'susceptible of industrial application' test which appears to be a lesser requirement. This sensible suggestion has not been adopted. The goal can, we suggest, be reached by developing clearer and more stringent guidelines on the existing law and/or sufficiency of disclosure. **One approach would be to build upon the 'specific, substantial and credible' test currently being used by some patent offices,** whilst at the same time acknowledging the difficulties in going too far in some disciplines. We further support the view that applicants in Europe should be required to identify and disclose fully their 'best mode' of practising the invention at the time they file. Such a requirement seems consistent with best traditions of scientific publication. **We recommend that patent offices take the lead in defining as clearly as practicable satisfactory, rigorous requirements for identifying and disclosing utility, and in pressing for a statutory requirement for the disclosure of the best mode of practising the invention in the initial application.**

3.32 Patent offices should collect more data to establish exactly whether there has been a change in standards and whether standards are being applied consistently. To the extent that patent offices are doing this already the results should be more widely available.

3.33 There are, thus, issues about both whether the standards themselves are appropriate, and whether they are being applied rigorously. We are concerned that the general pressures discussed in paragraphs 3.25-3.27, and the specific concerns about inventiveness and utility discussed in 3.28-3.30, may be leading to a lowering of the standards of examination. Granting patents of dubious validity does nobody any good. It lowers public confidence in the work of patent offices and causes problems for industry as it seeks to commercialise technology in the face of 'patent thicket'. For small businesses it can lead to raised expectations about the value of the right they have obtained. For academics and research institutions it makes it very difficult to decide what lines of research they can legitimately pursue. We wish to take the opportunity of this report, on behalf of the scientific community, to remind governments of the critical public interest role patent offices play in examining patent

3 'Best mode' is not currently required under the EPC, although it is in the US, Canada, and in pre-1977 UK law.

applications to a high standard. **We recommend that patent offices and Courts apply the criteria for patentability rigorously, in particular the requirements for inventive step and industrial applicability.**

## Scope of patent protection

3.34 Along with the need to grant patents only for significant inventions goes the need to ensure that those that are granted have claims of an appropriate scope. This is clearly an important practical issue as scientists need to be confident that in conducting their work they are not blocked by the patent rights of others. Although this suggests having a simple methodology for interpreting patent claims based solely on their literal wording, there is a recognition in most countries that this may not always be equitable. This has manifested itself in the US as a well-developed 'doctrine of equivalence' and in Europe as the philosophy of balancing 'fair protection' with a 'reasonable degree of certainty' for third parties (Protocol to Article 69, EPC 1973). In the near future, the latter will be amended to allow for the possibility of equivalence whilst in the US the recent 'Festo' decision will now make it in practice difficult for patentees to position the scope of their patent as being narrow before the patent office but later as being broad when trying to enforce it (Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Corp 2002). We are supportive of these developments to the extent that they move towards a position where the scope of claims is determined principally by their literal wording with a small amount of flexibility to encompass close equivalents. However, as has been pointed out to us, consideration does need to be given to the danger of ending up with both a low threshold for patent protection in the first place and a broad approach to interpreting claims in the Court. It is therefore clearly important to look at scope of protection and patentability as two sides of the same public interest equation.

3.35 Of more concern is the practice amongst patent holders to seek a scope of patent protection which is not justified by the contribution their invention made. This trend is worrying to many scientists in that it can lead to healthy competition in research being stifled. We are supportive of the scope of patents being commensurate with the technical contribution they make. For example, there may be an argument for broad protection for an invention that is genuinely pioneering. Beyond this, thought needs to be given to issues such as whether a wide ranging scope should be given to claims on chemical and biological entities or whether such claims should be allowed at all. Consideration could also be given to limiting such claims to the field of application to which the patent is

directed. The latter approach in many cases would seem to give the inventor fair reward for his efforts whilst allowing others to take research in the entities forward in other fields. It is our view that most issues of this nature can be addressed by strict application of the patentability and claiming criteria. However we recommend that patent offices and Courts also ensure that patents are limited to a scope no greater than that justified by the contribution made by the invention.

## Accessibility of the patent system

3.36 We have received a significant amount of evidence regarding the accessibility of the system, especially with respect to the difficulties of enforcing patents. In fact, a number of submissions highlight this area as being where the greatest problems lie. The evidence shows, and is confirmed by our experience, that particular difficulties are caused by the high cost of pursuing a patent infringement action in the Courts. This is especially the case in the UK and the USA where the costs can be many multiples of, say, those in Germany. At least one submission has characterised the present system, which expends much administrative time and effort on granting patents which many cannot thereafter afford to enforce, as 'absurd', a view with which we have some sympathy.

3.37 Some possible improvements have been suggested to us, especially in the area of compulsory technical arbitration of disputes. This seems one potential way forward but it remains to be seen whether the result is an overall cheaper process. Another possibility is for the Lord Chancellor's department to consider introducing a system similar to that used in continental Europe, which consists mainly of written submissions rather than oral evidence. Whilst some may argue that this could lead to a system of inferior quality, we have seen no evidence that this will inevitably be so. In particular, we are not aware of anything to suggest this is a problem for the rest of Europe. What is clear is that there are many people (actual or potential users of the patent system) who do not want or indeed cannot afford a 'gold standard' system. **We recommend that governments seek cheaper effective methods of dispute resolution.** High costs of dispute resolution are essentially anticompetitive since they discriminate against those with few resources, including academics, lone inventors and SMEs (small and medium-sized enterprises).

3.38 A related point is that the national character of patent rights means that the same patent dispute has to be litigated in different national Courts. Whilst we understand that this is inevitable until

laws are harmonised fully and countries are prepared to accept the judgments of other nations' Courts, it does seem to us incredible in the era of a single EU market that there is neither a unified patent system nor a single forum for resolving EU patent disputes. We believe that member state governments must take more active steps to achieve this through projects such as the Community Patent or harmonising protocols. **We recommend that governments of countries within the EU actively pursue a system (such as, potentially, a Community Patent) that simplifies application procedures and minimises the need for resolving the same patent dispute in different jurisdictions. Such a system should be quick, as cheap as possible, and should lead to consistent legal decision-making.**

### Grace period

3.39 The evidence we received on whether useful patenting of academic research had been blocked by lack of a grace period was not clear-cut (see Box 3). Nevertheless lack of a grace period does sometimes trip up individual and SME inventors, and the same may also be true of academic inventors (Royal Society 2002a). **We recommend that universities explore ways in which information can be freely exchanged in a non novelty-destroying manner and that law should be clarified to ensure that internal disclosure should not in itself be novelty-destroying.** Overall we support continuing investigation, eg by DG Research in the European Commission, of the options for an acceptable grace period. Such a system should provide a 'safety net' for inventors rather than be something that is regularly used. Any grace period adds to uncertainty for innovators and carries risks for its users because others may be prompted to patent or, especially, publish analogous inventions. The idea of US-style 'interference' proceedings (see Box 3) in Europe is

also something that we believe most scientists would be keen to avoid, if only for reasons of cost. However, **we recommend that European academies and related bodies continue to explore further options for the form of a grace period, since despite inherent risks, a grace period may sometimes be of particular benefit to academics, lone inventors and SMEs.**

### Developing countries

- 3.40 In July 2000 the Royal Society together with six other academies co-authored a report entitled 'Transgenic Plants and World Agriculture' (Royal Society 2000). This report identifies the need to ensure that the potential benefits of genetic modification (GM) technology become available to developing countries to alleviate hunger and enhance food security. Five of its recommendations, pertinent to IPRs, are highlighted here. First, 'where appropriate, farmers must be allowed to save seed for future use (re-use seed) if they wish to do so; publicly funded research should investigate the value and limitations of re-using seed and the results of this research should be made freely available to interested parties'. Second, 'broad intellectual property claims or claims on DNA sequences without a true invention being made, should not be granted because they stifle research and development'. We address this recommendation in the context of recent developments and evidence in paragraphs 3.15-3.35. Third, 'possible inconsistencies amongst international conventions, such as those that pertain to Patent Rights and the Convention on Biological Diversity (CBD) should be identified and clarified'. This is not an issue upon which we have focused but is clearly desirable as a matter of public policy.
- 3.41 The report on transgenic plants also recommends, fourth, that 'research institutions should enable partnerships amongst industrialised and developing

#### Box 3: Grace period

To be patentable, inventions must be novel. In most countries novelty is destroyed by any public disclosure by any means (oral or written) anywhere. In some countries, including the US and Japan, such a disclosure can be made without prejudicing a patent application if the patent application is made within 3-12 months of the disclosure. This 3-12 month time is known as a grace period. There are in fact many forms, and potential forms, of grace period. For instance, because the US system is a 'first-to-invent' rather than a 'first-to-file' system, an inventor has the possibility of producing evidence that she/he made the invention before a prior publication of somebody else. This right leads to so-called 'interference' proceedings, challenging an applicant's right to a patent on the grounds that the subject matter had already been invented. If a grace period were introduced in Europe, it would be necessary to agree on its specific characteristics.

countries so that the benefits of GM research, applications and licensing will become much more widely available'. Fifth, that 'an international advisory committee should be created to assess the interests of private companies and developing countries in the generation and use of transgenic plants to benefit the poor – not only to help resolve the intellectual property issues involved, but also to identify areas of common interest and opportunity between private sector and public sector institutions'. Both these recommendations remain valid today.

- 3.42 The report by the Commission on Intellectual Property Rights (CIPR 2002), set up by the Secretary of State for International Development, references much useful research. We broadly endorse this report's recommendations that relate to our study on IP and science.
- 3.43 We endorse the importance of ensuring an adequate supply of medicines to developing countries at low prices. Access to such medicines is critical if society is to fight the major pandemics affecting the third world. Poverty is the critical issue but IPRs must not be used to prevent availability of medicines at low prices. A corollary is that developed and developing countries should co-operate in ensuring legal and practical measures to prevent resale in developed countries of low-priced medicines destined for developing countries.
- 3.44 We endorse the comments in the CIPR report on the costs to developing countries of introducing patent systems, and generally endorse the CIPR's conclusions. Many factors must be taken into account, but with particular reference to the effect of IP on science, many consider TRIPS (see Box 1) to be inflexible. **We recommend that developing countries be allowed not to implement TRIPS until their state of development is such that the stimulating effect on innovation will be worth the costs and restraints inherent in IP systems. It will not necessarily be appropriate to implement all forms of IPR at the same time.**

### **Traditional knowledge/Existing knowledge**

- 3.45 There is a growing consensus around the need to ensure that traditional knowledge is accorded

sufficient respect and worth, as affirmed at the 27th General assembly of ICSU (the International Council for Science) at Rio de Janeiro, 20-28 September 2002. We broadly endorse the comments and conclusions of the CIPR report in this area, including welcoming rules on informed consent and sharing of benefit. **We recommend that the World Intellectual Property Organisation (WIPO) continues its work with governments to provide guidelines for 'informed consent' and 'profit sharing' that can be translated into the different practical situations involved in the exploitation of traditional knowledge for the benefit of the holders of traditional knowledge and of all humankind.**

- 3.46 Some countries do not recognise an unwritten disclosure to be novelty-destroying if it occurs outside their jurisdiction. This has provided opportunities for firms to obtain US patents, which can disadvantage the original holders and users of such knowledge. We note that a change by the US to recognise as 'prior art' knowledge outside the US, even if not in written form, would help to remove some of the major irritations to developing countries of the patenting of inventions based on traditional knowledge. **We recommend that WIPO continues its initiatives to address the issue of some countries not recognising unwritten knowledge outside their jurisdictions as 'prior art'.**

### **Implementation of recent revisions of the European Patent Convention**

- 3.47 The UK Patent Office has recently announced a consultation on a proposed Patents Act (Amendments) Bill which will implement changes required by recent revision of the European Patent Convention (EPC 2000), and which takes the opportunity to scrutinise other features of the Patents Act. These features include employee-inventor compensation for patents of outstanding benefit, and post grant re-examination. As many scientists are employees, this issue of compensation is of importance. We have already noted the difficulties of issues involving the validity of patents already granted, and we therefore welcome the opportunity to discuss potential improvements in these areas.



## 4 Copyright

### Introduction

- 4.1 Copyright grants exclusive rights to creators of original literary, scientific and artistic works, computer programs and (in the EU with overlapping database rights) databases. It protects the form of expression of ideas, but not the ideas, information or concepts expressed, which can be freely available or protected in other ways. Examples of potentially copyright-protected works in the field of science include books, lab notebooks, articles, conference papers, teaching materials and certain databases of information (both electronic and hard copy). The requirement for originality is low – some degree of the author's own work will be sufficient if there is no slavish copying. Copyright in itself does not create a monopoly – there is no infringement if another author independently comes up with an identical work. Infringement is typically by copying the work and/or making an adaptation. Copying need not be exact or whole - it need only be of a substantial part in qualitative terms: if the amount taken is small but nevertheless central to the work, it could still be infringing. The first owner of copyright is the author, but employers generally own the copyright for employees' work done as part of their employment obligations. Authors' 'moral rights' also encourage proper attribution and prevent changes to a work that would prejudice an author's honour or reputation. No formalities are required to claim copyright.
- 4.2 Copyright is protected internationally, and almost universally, through a series of international treaties, the most important of which are the Berne Convention and TRIPS, to which most countries belong. These conventions define minimum periods and levels of protection that must be available in member countries. They also set out or permit some of the principles of 'fair dealing' that allows use of

copyright material in special cases, eg for research, education and library activities. The dealing must comply with the '3-step' test (see Box 4). The fair dealing principles are enacted into national legislation with considerable variations, so that copying which is freely allowed in one country may not be allowed in another. (There are public interest and free speech defences also available, but in practice these add little to the fair dealing principle.) In the UK, the traditional fair dealing provisions in the Copyright Designs and Patents Act (CDPA 1988, the governing UK legislation) which are of most relevance to science, cover dealing with a literary or artistic work for the purposes of research, private study, education or library activities, including review or criticism. It is these fair dealing provisions and their interpretation, and recent erosion, that are of central importance to the scientific community, which has relied widely on them.

- 4.3 The rationale for copyright is to protect the work of authors and other creative persons, providing an incentive to publish and so disseminate information and ideas for the public good. Copyright potentially rewards those who toil, both for their intellectual effort and their investment, and modern society accepts that reward for effort, innovation and creativity is just, provided that effort or investment is not ephemeral or trivial. This incentive and reward system has generally served the public well; for example, it has recently encouraged massive expansion in the entertainment and software industries. The creation of these copyright-based products is a source of wealth for many countries (particularly in the developed world) and has assisted social and economic development.
- 4.4 The incentive and reward system has also traditionally worked well in science. It provided appropriate rewards for authors of books and

#### Box 4: Exceptions to copyright

The Berne Convention and TRIPS - the Agreement on Trade-Related Aspects of Intellectual Property Rights - state the agreed international standards of copyright law. They include exceptions to copyright (sometimes known as 'fair dealing' provisions) as a balance between exclusive use and the social goal of dissemination of information. TRIPS places limits on the availability of exceptions to right to prevent unauthorised use and reproduction. The exception must pass a 3-step test; the use must

- Be confined to special cases;
- Not conflict with normal exploitations of the work;
- Not unreasonably prejudice the legitimate interests of the rightholder.

TRIPS gives member states the power to penalise heavily any member state in contravention of the Berne Convention or TRIPS standards.

textbooks and encouraged the efficient distribution of research results through learned journals. Most traditional scientific publication takes place through articles in journals rather than books. The authors' primary aim is the maximum dissemination of results and research through a prestigious journal, with the rewards coming indirectly through career enhancement, peer recognition, and the satisfaction of prospective public benefit from widespread knowledge of research results. Copyright in journal articles is traditionally assigned to and controlled by the publisher, who takes on the work and costs of refereeing, licensing, printing and distribution. The bargain between author and publisher was therefore equitable.

- 4.5 The CDPA 1988 brought in licensing schemes in response to the widespread use of the photocopier and consequent loss of revenues to publishers. Under the terms of an agreed general licence, educational and commercial research establishments pay licence fees to collecting agencies such as the Copyright Licensing Agency, which act on behalf of certain publishers for copying outside fair dealing.
- 4.6 The traditional ownership of copyright by publishers has been increasingly resented by those who employ authors since technically they then need licences to make copies of their employees' published work for most purposes. There is therefore considerable pressure to overcome this requirement; there is an argument that the publisher does not strictly need the copyright but only an appropriate licence to give limited exclusivity to the publication. There are several draft licences, from ALPSP (the Association of Learned and Professional Society Publishers) and AAAS (the American Association for the Advancement of Science), for example, designed to meet this problem. From February 2003 Nature Publishing Group no longer requires authors to sign away their copyright, but only to grant sole licence to publish. Authors are free to reuse their papers in their future printed work and they and their institutions can use their papers in course packs.
- 4.7 On the other hand, it is clear that the publisher needs some protection against unauthorised copying to safeguard his investment and also to allow future development. For example, the Royal Society (among others) could not have been able to create an electronic database of back issues of its journal if it had not owned the copyright in the individual articles, since the task of obtaining permissions from thousands of authors going back decades would have been virtually impossible. The recent Tasini case in the US highlights the difficulties. Here the US Supreme Court held that

the New York Times could not issue electronic versions of articles that had been contracted from freelance authors for the print version, without appropriate permission and (if sought) payment (New York Times Co v Tasini 2001).

- 4.8 The traditional system is therefore coming under strain. To add to this problem, the last couple of decades have seen changes in technology, an emphasis on exploitation of the academic product and an increase in legal rights provided to rightholders. New technologies and new attitudes to IPRs create both opportunities and threats for science and these developments have combined to upset the balance between user, author and rightholder, as we now discuss.

### Changes in technology and communication

- 4.9 Digital information storage and processing capabilities, digital compression and increased bandwidth coupled with satellite/optical fibre communications have created the capacity for instantaneous and worldwide distribution of text and information. The Grid will accelerate this process and there is a risk that greater access will decrease the ability to check the provenance of IP. Historically, the arrival of printing created pressure for a copyright law, photocopying and telecommunications each revolutionised it and the most recent technologies are having corresponding impacts now.
- 4.10 These technical changes, together with the increasing cost of traditional publication, have resulted in an explosion in the amount of scientific information on the Internet. An Internet publisher can still add importantly to the value of the publication with peer review, common format, cross-referencing, other quality assurance and maintenance, but the hard work and cost of printing and distribution are no longer necessary. Tempted by the advantages of rapid dissemination and in the face of the apparent disparity in the publishing bargain, the scientific community has turned to other models for the publication of scientific results. One is to use unrefereed e-print servers, as is widely popular in physics. The other is to press traditional journals to offer completely free access after a limited period. Two specific initiatives (the Public Library of Science and the Open Society Institute Initiative), calling on scientists to boycott journals which would not accept this condition, have not been immediately successful but show the way in which grass roots opinion may be moving. The Public Library of Science also recently received some \$9M from the Gordon Moore Foundation to establish high profile journals where the copyright

will remain with the authors. Other approaches to facilitate dissemination are used by SPARC (the Scholarly Publishing and Academic Resources Coalition, [www.sparceurope.org](http://www.sparceurope.org), supported by SCONUL, the Standing Conference of National and University Libraries (in the UK)), and the Open Archives Initiative.

- 4.11 In practice, rights on the Internet are often ignored and papers are copied and redistributed, making enforcement difficult for rightholders. They have responded by introducing technical measures such as encryption technology and pay-per-view, by using contract law and good marketing, and by pushing for new legal rights to control their work. Another problem is that documents can become 'living documents' if they are continually being incrementally changed, sometimes making precise attribution and/or ownership issues difficult to resolve. The need for or relevance of copyright law and authors' moral rights in digital publishing has therefore been questioned, although ownership may help maintain provenance, which is vital.

### Exploitation of academic copyright

- 4.12 In copyright the drive to maximise returns on academic output has led some universities to consider changing the basis of ownership of academic copyright. Traditionally the author has always owned copyright but now some universities seek to own copyright of their employees' work. Not only may they now have greater powers of negotiation vis-à-vis publishing houses and reduced photocopy costs, but they are also developing different electronic means of delivering education, eg through sale of distance learning packages and web-based learning. The prime driver is the rise of elaborate e-learning material that may have a large university cash/kind input as well as the authors' own creativity (HEFCE/JISC/SCOP 2003). More importantly than increasing their income, the universities need to cut the costs of licence fee payments and the payments made to the collecting societies such as (in the UK) the Copyright Licensing Agency (see paragraph 4.5). The perceived negotiating gains could again perhaps be achieved by appropriate licensing of rights by universities. A possible downside of the drive to rights ownership is the loss of trust in the relationship between academics and the university. The Association of University Teachers believes that current statutory provisions do not, as they are written, acknowledge the plurality of interests that need to be met when protecting and exploiting IP generated by higher education. To date, contractual arrangements about copyright, exploitation of patents and revenue sharing have usually produced effective and equitable schemes.

More could be done to raise the awareness both of individuals and institutions, and of opportunities for dissemination and exploitation of IP, bearing in mind any need to motivate creative people (Keight 2002).

- 4.13 The learned societies (including the Royal Society) have had to balance the merits of maximising returns and generating revenue from their publications against the desire to provide free access to information and so fulfil their role of serving the scientific and wider community. Ironically, revenues from sale of the journals come partly from the academic libraries, which are ultimately largely funded by the government, as is the research itself. The scientific community has so far largely subcontracted the dissemination of its information out to the commercial sector. An obvious option for the learned societies and the authors of results of government-funded research is to operate and use prestigious publications for which a low surplus is sought; and encourage the same principles nationally and internationally. **We recommend that learned societies have liberal copyright policies and make their publications available at as low a cost as is reasonably feasible.**

- 4.14 A significant proportion of science is today carried out by collaborative teams. Visits and personal interactions at conferences and seminars break down the barriers between disciplines and countries. The increasing ease of personal and electronic communication, which is facilitated by the Grid, creates tremendous opportunities for science, including e-science. There are also challenges concerning who should own any IPRs, and the management of provenance, as IP is generated by collaborators in real time. If access to the digital libraries is not freely available on comparable terms to all researchers, international collaboration could be reduced. This tension between international collaborations, digital information technology and IP law needs to be solved particularly in the field of global problems such as climate change. Some government organisations have put a price on traditionally free data, eg from meteorology and oceanography, essential for international collaboration, and effectively bar access for those not able to pay for the use. The recent CIPR report (see paragraph 3.42) has noted the problems of access for developing nations and we support their conclusions.

### The expansion of IP protection

- 4.15 The response of copyright owners to the loss of control of their rights with the new technology has been to tighten their grip on the electronic environment. This has been achieved partly by the

increase in strength of IP law and by aggressive enforcement. The entertainment and software industries, with most to lose, have been particularly effective in lobbying nationally and internationally for greater rights to control their content. But scientific libraries have been caught up in their wake. There has been a proliferation of EU Directives to achieve harmonisation across the EU and to provide greater protection for rightholders, all with the goal of preventing unauthorised copying. The UK has implemented all of these diligently. The latest Directive is on the harmonisation of certain aspects of copyright and related rights in the information society, sometimes known as the Copyright Directive 2001 (European Commission 2001). It was required to be formally implemented into UK law by December 2002, but has been delayed. One aim of this Directive is to encourage the development of new services to benefit the market both economically and by increasing the availability of information.

4.16 The Copyright Directive 2001 grants greater rights to rightholders to control the distribution of works electronically. There are general permitted, but not compulsory, fair dealing exemptions allowing reproduction for private (non-commercial) purposes by publicly accessible libraries or archives, and reproduction for the purpose of non-profit scientific research. The Directive also bans the circumvention of technical protection measures (TPMs) and devices that achieve that result. The accompanying Electronic Commerce Directive of 2000 (European Commission 2000), also includes a clause requiring Internet service providers (ISPs) to take down allegedly infringing material following similar legislation in the US and recent moves in that direction in the UK.

4.17 Specifically, exceptions and limitations (commonly known as fair dealing exceptions) proposed for implementation in the UK – which will apply to all copyright works - specify:

- fair dealing for the purposes of research for a non-commercial purpose;
- fair dealing for the purposes of private study;
- fair dealing with a published work for the purpose of criticism and review.

Copyright in a literary, musical, dramatic or artistic work is not infringed by its being copied in the course of instruction, provided that the copying is not by a reprographic process and is by an educational establishment or is for non-commercial purposes.

4.18 Generally, in enacting the legislation into law, the UK government has tried to keep the exemptions

similar to those under the CIPA 1988 and to introduce only changes needed to comply with mandatory provisions of the Directive. However, the Royal Society has raised a number of concerns regarding the proposed UK implementing legislation (Royal Society 2002b) and has called for the existing fair dealing exceptions to be maintained as much as possible, for the exceptions to be accessible in practice and for there be clarity in the law so that both users and rightholders fully understand their rights.

4.19 The most apparent change in UK copyright law is the specification that the research must be non-commercial. Protagonists of the change have argued that since all exceptions must comply with the 3-step test (see Box 4) and that much copying in commercial establishments was beyond the limits of the fair dealing exception and subject to licence agreements anyway, the practical effect of the limitation will be minimal. To some extent this may be true. However, the terms of those licence agreements may well be more onerous and the change may lead to more restricted access to copyright material through libraries. Unless licensing schemes or other payments are agreed and made, libraries will be restricted to copying materials for individuals for research for non-commercial purposes. Also, 'non-commercial' research can be intrinsically difficult to define, and many research ventures or collaborations only become commercial subsequently. The Patent Office should use all the flexibility available in the Directive when drafting the UK law to maximise the research deemed 'non-commercial'. **We believe that the limitation of fair dealing to non-commercial purposes gives rise to uncertainty, is not useful and is complex to operate, and we recommend that it be renegotiated when the Copyright Directive 2001 is reviewed in 2005.**

4.20 The exception in the Copyright Directive refers to 'illustration for teaching or scientific research' and concerns have been expressed about the meaning of 'illustration for scientific research' and its potential restriction for science. There is no such limitation in implementing the UK legislation on copyright (although there is on databases – see Databases section) but the terms of the Directive would ultimately take precedence in any dispute.

4.21 In practice most journals are provided online on contractual terms and accessed by an electronic signal from a user. It is important to ensure that contract terms and/or technology cannot be used to frustrate the fair dealing exceptions. Most specialists in this field believe that the only way to protect against unauthorised usage involves employing special hardware. The hardware protection that is

likely to come into use is basically designed for the benefit of the entertainment media industry but could also be used by journal and database publishers. However, the protection is likely to block the fair dealing exceptions on which scientists rely heavily, since these are of no interest to the entertainment industry. In anticipation of this, the UK implementation provides for a complaint procedure to the Secretary of State if an 'effective technological measure' prevents a person from benefiting from the fair dealing exemptions. The Secretary of State will publish details of the complaint procedure. This procedure does not apply to 'on-demand' services, however, which are meant to be time-limited services such as films. There are unresolved issues over the definition of on-demand that will hopefully be clarified on implementation. There are also aspects of the complaint arrangements that are unsatisfactory; for example, if there is no satisfactory redress for the complainant, she/he still has to go Court, which is an unrealistic option. The recitals to the Directive make clear that the fair dealing exemptions should still apply to non-interactive forms of online use such as journals even where such services are governed by contractual arrangements. However, as discussed in the Databases section (paragraphs 5.7-5.9), contract law remains able to override fair dealing exemptions. Neither Irish law (see

[www.ucc.ie/ucc/depts/law/irlii/statutes/2000\\_28.htm](http://www.ucc.ie/ucc/depts/law/irlii/statutes/2000_28.htm)) nor a proposed Australian law (see <http://www.law.gov.au/clrc/>, Past Inquiries, Copyright and Contract), permit a licence to remove a user's right to enjoy exceptions to copyright provided under the law. These examples should be considered when framing new copyright and database laws (see paragraph 5.9). **We recommend that neither physical means of preventing copying (which is being employed by the entertainment industry), nor contract law, be applied to inhibit access to scientific information unless it is first demonstrated that fair dealing access for research and private study will be at least as quick, easy and widely applicable as it has been historically for paper copies.**

- 4.22 The scientific community relies heavily on the fair dealing provisions of the copyright legislation for its normal method of working. It is important that the traditional balance is maintained in the face of the tightening of IP laws designed to meet the challenges of the new technologies. **We recommend that the scientific community, with the Royal Society in a leading role, actively contributes to the European Commission's reviews of the Copyright Directive 2001, particularly regarding its effect on education and access to scientific data and information.**

- 4.23 Some pressure groups (such as the Campaign for Digital Rights) regard the ban on circumvention of technical protection measures as tipping the balance too far in favour of rightholders. The measure gives the owners in effect a perpetual right beyond the term of copyright without appropriate and/or effective fair dealing provisions. The shift is in effect to perpetual property rights rather than a social contract. To counterbalance this concern, **we recommend that scientists, wherever practicable, publish in journals with liberal access policies.**

- 4.24 In practice many copyright owners threaten the Internet Service Provider (ISP) who often takes down the allegedly infringing material rather than face the cost of litigation. The same practice has been used against libraries with the same effect. The copyright owner therefore has an effective remedy without the need to prove infringement copyright. The ISP is usually protected from legal action by the terms and conditions of its contract with its customer. The 'takedown' clause in the E-Commerce Directive will strengthen this practice.

- 4.25 The proliferation of laws has made copyright extraordinarily complicated. For any law-abiding person trying to avoid infringing copyright, the law is inaccessible. Criminal sanctions have also crept in and these can seem draconian especially when the law is misunderstood by daily users. The Royal Society has suggested that the UK legislation implementing the Copyright Directive should contain such guidance in an Explanatory Memorandum. Certainly the opportunity to publish a consolidated version of the CDPA 1988 and its subordinate legislation would help, as would clear advice and information to users on the UK Patent Office website.

- 4.26 The length of copyright protection in the EU is now the life of the author plus 70 years. This is much longer than the life of a patent (20 years) and is too great a monopoly for some sectors (eg Ernest Rutherford's work is still in copyright until the end of 2007, 70 years after his death in 1937). The balance is perhaps too much in the copyright owner's favour and more than is necessary to protect the investment. The issue of term is less relevant for science as the active life of much scientific copyright is 10 years or so. It is of more relevance to historical archives of electronic publications, access to which should not be frustrated by unnecessarily long copyright protection. **The duration of copyright protection is unnecessarily long for scientific information and will interfere with appropriate archiving activities, and we recommend that the learned societies explore options for its reduction.**

- 4.27 The international nature of scientific research makes the need for harmonisation of copyright law more acute. This is particularly relevant for fair dealing laws which are not only different between continents, but may also be different within the EU despite recent attempts to harmonise.
- 4.28 The Patent Office consultation period for implementation of the Copyright Directive 2001 finished on 31 October 2002. The Royal Society advised the Patent Office of these concerns (Royal Society 2002b). There is provision for a

European Commission report on the effects of the Directive to be produced by December 2004. The UK Patent Office has noted that it is difficult – as in all IP matters - to obtain quantitative evidence of the economic or other impact of proposed changes. We had the same difficulty for this report. However, the Royal Society strongly believes that these changes will adversely affect scientific research and, as indicated in paragraph 4.22, the Royal Society will monitor the effects of the new law in anticipation of the review of the Directive.

# 5 Databases

## Introduction

5.1 Databases - collections of data organised in a systematic way - play an important role in scientific research. It is an increasing role: for example, developments in the last decade have made databases essential for much biomedical research. Databases are of many kinds. They can be traditional encyclopaedias, books of data or some teaching materials, through to electronic databases available on the Internet. The access to data and the ability to extract and re-utilise those data have always played an important part in the scientific process. As in copyright, digitisation and the potential for instant low-cost global communication have opened up tremendous opportunities for the dissemination and use of scientific and technical databases. There has more recently been a proliferation of both public and private databases, which has started to create tensions between free access and economic models. As always in IP law, it is a question of achieving a balance between a sufficient incentive and adequate protection of investment to encourage the creation of new databases which are necessary and useful to researchers, and the rights of scientific users to access those databases on reasonable terms and to advance scientific knowledge.

## Database right and copyright

5.2 A database was traditionally protected under UK copyright law as a compilation, a form of literary work, if the usual requirements (eg originality) were met. Protection for databases was not consistent across Europe; so the EU Directive on the legal protection of databases (European Commission 1996) was passed to harmonise EC law and duly implemented by the UK on 1 January 1998. Under the Directive a higher standard of copyright protection has been introduced; a database will be capable of protection by copyright only if, by reason of the selection or arrangement of its contents, it is the author's 'own intellectual creation'.

5.3 The UK regulations introduced a new 'database right' for databases created as a result of substantial investment in obtaining, verifying or presenting their contents, but not requiring any personal 'intellectual creation'. A database is defined as the collection of independent works, data or other materials arranged in a systematic or methodical way and individually accessible by electronic or other means. Both copyright and database right are available to a database developer, but the database

right is theoretically the lesser right as it has a term of 15 years compared to the life-plus-70 years afforded to copyright. But as database right can be renewed by substantial changes such as updating the database, protection can be effectively perpetual.

5.4 Despite protestations to the contrary in the Directive, the *sui generis* ('special type') database right in effect protects the information contained in the database, particularly when there is only one database source. Previously the information was free, in practice, for the scientific community to use. Whilst database right may be necessary to protect investment in stock exchange or horse racing information where the data are relatively easy to collect, only need to be referred to or may be time-sensitive, its application to scientific data is not appropriate. Database right rewards the investor who assembles the data, not the creator of the data. In most situations in science, the costs of obtaining these data exceed by many orders of magnitude the investment in assembling the database.

## Fair dealing

5.5 Database right is infringed by the unauthorised extraction and/or re-utilisation of the whole or a substantial part of the database. There are a number of 'fair dealing' exceptions to the right - for research, education and library use, but fair dealing for scientific research is permitted only for a non-commercial purpose, a limitation which has not traditionally existed in the UK law but which is now being introduced across UK copyright and related rights (see paragraph 4.19). The wording of the exemptions is similar to those of the Copyright Directive 2001 and many of the concerns over their scope are therefore the same. These concerns are:

- The limitation to non-commercial research is vague and unhelpful. Basic scientific research is often carried out in collaborative arrangements which can be difficult to classify as either commercial or non-commercial - they may start as basic, and thus on free publication terms, but may provide the commercial funder with a lead down the line. If the basic research has made use of data from a database relying on the research exemption, it may well be the case that the funder will now have to pay a licence fee or, worse, damages for infringement;
- The fair dealing exception under UK law, in line with the EC Directive, permits only extraction and not re-utilisation. Re-utilisation is an essential part

of scientific endeavour, and so this limitation does not address the scientific community's needs. The effects of these limitations since the implementation of the Directive are difficult to assess quantitatively – as are all impacts of IP law – but in our view they will in the longer term, if vigorously enforced, become a serious impediment to scientific research and hence to the national interest; and

- The confusion over the words 'illustration for teaching or research' is the same as for copyright (see paragraph 4.20).

## Technical measures and contracts

- 5.6 Online databases frequently have technical measures (eg encryption devices) to restrict or control access that may override any legal rights, particularly fair dealing rights. The same concerns over technical measures in copyright (see paragraph 4.21) and the changes to be implemented by the Copyright Directive (which apply to many databases as well) are relevant to databases. The usefulness of fair dealing exceptions is therefore again limited.
- 5.7 Private databases usually provide access on individual contractual terms either by written agreement or a click-on one on the site, which may limit the use made of the data or override the fair dealing exceptions. Some private databases have individual access arrangements. Generally, access for research is permitted but re-use of the data is not permitted and commercial access is by negotiation. There are no 'reach through' rights, that is, attempts by the companies to share in the success of inventions/products made using the data. It is not clear that the attempt to impose such rights would be unlawful, since there are almost no legal restrictions on the terms that can be lawfully imposed on database users. Freedom of contract prevails, and that freedom is constrained only by market forces, awareness, and public opinion.
- 5.8 It should be noted that the Database Directive explicitly provides that no restrictions can prevent a lawful user of a publicly available database from 'extracting and/or re-utilising insubstantial parts of [the database's] contents, evaluated qualitatively and/or quantitatively, for any purposes whatsoever.' What amounts, qualitatively or quantitatively, to an 'insubstantial' part is an imprecise matter of judgment. The Directive, in its recitals, is quick to say that these activities cannot prejudice the 'legitimate interests' of the rightholder and bans 'repeated and systematic' extractions and re-utilisations that might have that prejudice. Anything much more

than the sporadic retrieval of tit-bits can therefore be banned by contract. The limitation to a 'lawful user' is in itself a restriction if this is defined as someone who is a party to the contract. The Directive's restriction on contracting-out is little more than chimerical in cases of scientific research, let alone other instances. While 'extraction for the purposes of illustration for teaching or scientific research' is allowed in another article of the Directive, if the source is indicated and the purpose is non-commercial, that article does not ban contracting-out. An online database can impose restrictions on extraction and re-use in these respects.

- 5.9 In summary, contract law may override both copyright and database rights, and the fair dealing exceptions. Access may be effectively limited for commercial, or academic research, and restricted to anybody that is able to pay. This gives the rightholder effective control over the data and information beyond their legal entitlement. The Irish and the proposed Australian copyright legislation, which prevent contract from overriding exceptions to copyright (see paragraph 4.21) is relevant here. **We recommend that copyright and database right laws be changed to prevent the possibility of contract overriding exceptions.**

## Monopolies

- 5.10 Of more concern is where the database is the only source of information, particularly if it is commercially run. This may well happen as science becomes more dependent on databases and public funding is squeezed, and was nearly the situation with Celera and the publicly funded Human Genome Project (Sulston & Ferry 2002). As developed further in paragraph 5.17, one way to ensure that information is kept in the public domain is to fund the public collections adequately so that they can compete with the private sector, and prevent a monopoly arising. However, it would be wrong (and indeed hardly possible) to curtail the private sector, and some information might not be easily available without its involvement. It may also be appropriate to introduce a compulsory licensing scheme to ensure reasonable access to a monopoly and to prevent abuse. Where private databases lead to monopolies in essential information, competition law should be able to prevent abuse of the monopoly. **We recommend that the scientific community, with the active participation of the Royal Society, promptly raises any unresolvable concerns over data access and monopoly rights in the private sector with the Office of Fair Trading.**

## Use of publicly funded information

- 5.11 Database owners may charge for access even if some or all of the information is in the public domain or resulted from publicly funded research. The retention of machine-produced genetic sequence data can be seen as an example of procedures that would result in the control of publicly funded data by a private company (Sulston & Ferry 2002, pp 77-78). The company's terms and conditions required their customers to use their software and accordingly it controlled the mode of access to its customers' data, and indeed their analysis. Thus there is the potential for a privately owned monopoly source of publicly funded information, which could result in the analysis incurring unnecessary delay and expense. **We recommend that scientists ensure that any publicly funded data that are made available to private databases are done so non-exclusively, and that at least one repository of the information is liberal regarding access to and use and manipulation of the data.**
- 5.12 The example in paragraph 5.11 raises the issue of the scientific community's need to understand the role of database rights and contract law in controlling their data. It is possible to negotiate terms for deposit of data (subject to market forces) and/or to publish data in publications that do not purport to control the data. As database rights and large-scale electronic data sets are relatively new to science, most scientists (and even publishers) have not yet come to grips with the possibilities or ramifications. **We recommend that the scientific community, with the Royal Society playing its part, supports initiatives to raise awareness within its community of the issues of accessing and using data and transferring rights to data to others.**
- 5.13 For example, increasingly valuable data sets are generated that are published as supplementary data attached to journal articles and are also made available through laboratory, departmental websites and/or curated public domain databases. If copyright and database right are transferred to the journal, then data cannot effectively be redistributed except by agreement. It would be unfortunate for all systemic data to be scattered across individual publication websites, rather than being available for collation and re-use. It may be appropriate that researchers and/or institutions either retain primary data database rights/copyright or transfer them to a public domain archive that will only licence them to publishers on the condition that the publishers point to other sites. Such an initiative was adopted by Dspace ([www.dspace.org](http://www.dspace.org)), which MIT and other US universities have established to archive all data from their institutions.
- 5.14 Databases offer unprecedented opportunities in the field of bioinformatics. The House of Lords Science and Technology Committee recently conducted an inquiry into human genetic databases, recognising the importance and potential of this field in the UK and the significant contribution it will make to the understanding of disease (House of Lords 2001). The importance and profile of the field will increase with the advent of Biobank UK (see Box 5). The House of Lords inquiry concluded that there were IP issues to be resolved: What role should private databases play in the information chain? Should private databases be allowed to charge for information that is in the public domain or publicly funded? Should publicly funded databases charge for access? (We discuss this last point in paragraph 5.16.) For some databases, such as Biobank UK, there are added issues such as the need for informed consent and to maintain the confidentiality of data.

### Box 5: Biobank UK

Biobank UK is a collaborative project between The Wellcome Trust, the Medical Research Council and the Department of Health, to establish a genetic databank of approximately 500,000 volunteers to be studied over 10 years. The databank will monitor medical and lifestyle information and provide data for the study of the interaction between genetic and environmental factors in disease. The project will be run by a private company and overseen by an independent body, but the precise details of the arrangements will be determined over the next 18 months.

The databank is publicly funded but commercial companies will develop drugs using the data. The study raises a number of questions relating to access to the results and commercial exploitation: should public benefit flow from the database? Should charges be made for access? Is charging cost effective anyway? Should the same terms apply for all researchers? Not all these issues involve IP. However, Biobank UK is an opportunity to show that a public database can be set up to maximise public benefit.

For more information visit <http://www.ukbiobank.ac.uk/>

5.15 An important early example of a publicly funded genetic database is the EMBL Data Library at the European Bioinformatics Institute situated on the Wellcome Trust Genome Campus outside Cambridge. This is a European funded depository of nucleic acid sequence data, which originated in the early 1980s. All data are deposited and freely available, obviating the need for publication in scientific journals. Despite today's climate of ownership of data and focus on economic return, some collaborations are still occurring – eg the ArrayExpress and GEO databases for microarray data (Nature 2002).

5.16 We are very concerned that publicly funded databases can be transferred to private ownership, and subsequently result in unsatisfactory access. For example, the Sequence Variation Database, which is publicly funded, is currently in danger of ending up in private hands and subject to licence. Data on SNPs (single nucleotide polymorphisms) are being collated in both the public and private domain and there is the risk that public funding is therefore seen as unnecessary. A clear example of how detrimental changes can be comes from Proteome Inc. Academics collaborated closely with this small company in Massachusetts and in return received free access to the databases. However, Proteome Inc was bought by Incyte Genomics Inc and free academic access to the databases, the quality of which had been greatly improved by the free collaboration of the academic community, was cut off (Abbott, 2002). **It is clearly important that there is long-term commitment to high quality publicly funded databases, lest data become inaccessible.** We are pleased to note that the Government has committed itself to maintaining funding for access to databases in the Science Budget 2003-04 to 2005-06.

5.17 **We recommend significant Government support for the organisation, publication and maintenance of data that it has funded, which might otherwise be or become inaccessible. Since the cost of scientific information is high, and the value added by proper access is great, it makes no sense to allow the value of publicly funded data to be constrained by limitations to access in private databases.** Experience shows that even when access to such databases is satisfactory the situation can deteriorate. **We recommend that databases with public funding be readily accessible, and be either free or the charge merely be the cost of permitting access or of supplying the information.** It may not be appropriate to recover even the cost of supply, since for non-material transfers the administrative cost of collection normally outweighs the value of at-cost revenue. It

is particularly important for science in developing countries that access to databases by their scientists is free.

## Enforcement

5.18 Given the breadth of protection, the current state of uncertainty of database right (due to its infancy) and the high cost of litigation in the UK, the threat of enforcement may be enough to cause an alleged infringer to back down. The balance of power is therefore currently in the hands of the rightholders and not the users. We believe that this balance damages science and, in the long term, the economy. The situation may improve as more cases go through the Courts, and the breadth of the right is clarified, but cases to date across the EC have demonstrated variation in interpretation of the right. The only UK case to come before the Courts, *British Horse Racing Board Ltd v William Hill Organisation Ltd* 2001, gave rightholders very broad protection, but the case is currently before the European Court of Justice to elucidate the meaning of 'extraction', 're-utilisation' and 'part of the contents of the database'; judgment is awaited.

## International considerations

5.19 The EC is practically alone in the world in extending such strong protection to databases. The USA in particular has, despite industry pressure, so far resisted this form of protection and continues to make available publicly funded scientific information on both electronic and manual databases as a matter of principle. The NIH (US National Institutes of Health) now spends tens of millions of dollars maintaining publicly open databases. For example, they recently bought the European database SwissProt and put it back into the public domain, removing charging to companies. Databases in the US are not protected except to the extent that an original selection or arrangement may be the subject of copyright. An 'uncreative' database such as a 'white pages' telephone directory is thus unprotected there, but a 'yellow pages' business directory may have the creative selection or arrangement of entries protected. WIPO attempted to negotiate an international treaty on databases in 1996 but has currently shelved this idea. However, given the lack of reciprocity which the European legislation enables it is possible that access to important American sources of information might be curtailed for European scientists and, indeed, for those in developing countries. This would be harmful to science in many nations, and is clearly against the long-term national interest.

5.20 Attempts particularly in Europe to limit free access to publicly funded databases in meteorology and oceanography have led to moves internationally to restore the traditional open access. The Inter-Governmental Oceanographic Commission of UNESCO (United Nations Educational, Scientific and Cultural Organisation) states in its recently revised draft data access policy: 'Member states shall provide timely free and unrestricted access to all data, associated metadata and products, generated under the auspices of IOC programmes'. This is more open than the current situation within the World Meteorological Organisation, although there are signs that this body is also rethinking its position in favour of the full and open exchange of data.

### Commonalities

5.21 Many of our concerns over copyright are common to database right, but with databases the concerns are more acute given their fundamental role in

scientific research. We think that the current law harms science and ultimately the economy of science-based industry, including those of developing countries, and should be changed. There is currently a study under way by the European Commission on the impact of the Database Directive and the Royal Society has submitted observations similar to those above. As expressed before (Royal Society 2002b) **the *sui generis* database right, that prevents extraction and use of the data themselves, is inappropriate for scientific data and we recommend that it be repealed or substantially amended following the Commission's review of the Database Directive. Failing repeal, we recommend that scientists and learned societies gather information on the impact of the Database Directive on the conduct of science, so that they can give sound guidance to their governments at the European Commission's next review of the Directive, likely to be in 2006.**



## 6 Conclusions

- 6.1 Developments in the knowledge economy are being driven by science, and in some ways are being facilitated, and in other ways hindered, by intellectual property rights (IPRs). IPRs are essential for many businesses, protecting investment in research and development and helping to provide the revenues on which science depends. Laws that are drafted thoughtfully and applied wisely can encourage innovation, reward creators and entrepreneurs, and promote economic and social gain without leading to unacceptable monopolies or unduly restricting freedoms.
- 6.2 International harmonisation of IP laws is a reasonable objective, but the optimal balance between the incentives required to achieve social benefit, and the harm caused by the associated restrictions, is different for different countries, especially between developed and developing countries. There are also compromises within a country: the protections that may be required for the entertainment industry, for example, bear little relation to those necessary for publishers of scientific journals. Where the needs of both groups of providers and users cannot be accommodated, society may have to decide whether health and prosperity depend more on the entertainment industry or on science.
- 6.3 There has been growing emphasis in universities and public sector research establishments on obtaining revenue from creative work. The Department of Health has made it clear, however, that the primary aim of the National Health Service when obtaining and exploiting IPRs is to promote patient care, rather than to generate revenue. IP protection may aid exploitation, but there is a cost in reduction in the free exchange of ideas. We do not know whether, overall, the disadvantages of widespread patenting of publicly funded research outweigh the benefits, but the potential disadvantages are sufficient to be worth minimising by a carefully thought out IP policy.
- 6.4 The enormous investment in biotechnology and software puts great pressure on patent offices to grant patent applications, but the new technologies are, as ever, testing the boundaries between discoveries (which are not patentable) and inventions (which are). The distinction is not always clear, particularly in developing areas such as biotechnology; yet scientific progress can be stifled if what are actually discoveries are judged to be patentable. Patents with a broad scope can also stifle follow-on research and development by others. Our key recommendations here reflect the need for patent examiners to take all necessary steps to be up-to-date in order to aid their judgement of novelty and inventiveness, and to be rigorous in applying the criteria for the granting of a patent application.
- 6.5 Access to information is also increasingly constrained and needs to be improved. Investments by publishers are, for example, protected by copyright law; this worked well when most information was stored on paper. Digital storage and transmission of scientific journals and books can permit cheap world-wide dissemination as desired by scientists and needed by science. Equally, publishers can see technology reducing their ability to get payment for their contribution. Recent copyright legislation has more closely met the needs of the entertainment industry than those of science, and difficulties now face the scientific community which has relied heavily on the 'fair dealing' provisions of the copyright legislation to access information. We believe that learned societies should take a more proactive role in promoting more efficient channels for publication on a not-for-profit basis. Several of our recommendations are designed to improve access to scientific information.
- 6.6 In an increasing number of areas of science rapid progress now requires the generation, storage and manipulation of large data sets. This phenomenon has been achieved by advances in computing, which aids easy and perfect copying – a real concern for those developing private databases, and a reason for recent copyright and particularly database legislation.
- 6.7 Some privately owned databases have been readily and cheaply constructed but contain scientific data that have been generated at great public expense. These contrast with other private databases that contain cheap data that are commercial rather than scientific in nature. The legislation does not distinguish adequately between databases meeting normal commercial needs, and those databases for science and education where the users have already paid through their taxes for the discovery of the information. Here payment is not appropriate in all situations and our recommendations address potential solutions.
- 6.8 We feel strongly that those funding, organising and carrying out publicly funded research should ensure that resulting data are made readily available for use by all. It makes no sense to spend millions of pounds on research, the value of which is substantially

diminished because some tens of thousands of pounds are not earmarked to support public databases that ensure full, easy and cheap or no-cost access to allow science to progress rapidly. Private databases can be valuable, but they almost inevitably make access more difficult and they can lead to undesirable monopolies. Several of our key recommendations point the way to more effective rules and procedures to improve the value to society of both privately and publicly funded databases.

6.9 Monopolies can develop where scientific information is protected by copyright, but are even

more likely where a dominant position has been achieved using patents or database rights. Competition law is an overriding remedy, but it is best if restraints are such that it need not be applied.

6.10 In short, although IPRs are needed to stimulate innovation and investment, commercial forces are leading in some areas to legislation and case law that unreasonably and unnecessarily restrict freedom to access and use information and to carry out research. This restriction of the commons by patents, copyright and databases is not in the interests of society and unduly hampers scientific endeavour.

# Appendix A Evidence received

## Submissions from organisations

ActionAid  
AllVoice Computing  
Association of British Pharmaceutical Industries (ABPI)  
Association for University Research and Industry Links (AURIL)  
British Copyright Council  
British Society of Plant Breeders Limited  
Campaign for Digital Rights  
Chartered Institute of Patent Agents  
Consumer Research Action and Information Centre (CRAIC), India  
GlaxoSmithKline plc  
Institute of International Licensing Practitioners  
Intellectual Property Institute  
National Business Angels Network Ltd  
Nuffield Council for Bioethics  
Oxfam  
Rolls-Royce  
Trade Marks Patents and Designs Federation (TMPDF)  
United Nations Economic Commission for Europe (UNECE) papers (courtesy Peter Rouse, Rouse & Co. International)  
Universities UK

## Submissions from individuals

Professor John Adams, University of Sheffield  
Professor Michael Brady FRS, Oxford University  
Peter Cains, Royal Society Industry Fellow  
Lachlan Cranswick, Birkbeck College  
Professor Paul David, Stanford University  
Professor William Kingston, Trinity College Dublin  
Daehwan Koo, University of Sheffield  
Dr Margaret Llewelyn, University of Sheffield  
Professor Fiona Macmillan, Birkbeck College  
Dr Christopher May, University of the West of England  
Stephen Powell, Williams Powell

## Appendix B Glossary

Cell line	A particular type of cell, grown in culture, that can be reproduced indefinitely.
Compulsory licence	A licence granted under order of a Court or a patent office to use certain types of IPRs (eg patents) in accordance with the statutory provisions of IP law. States include compulsory licence provisions in their laws to prevent abuse of IPRs, through broadening access to technologies and information where it is in the public interest.
Computer-implemented invention	Any invention which involves the use of a computer or computer network, and which has features which rely on a computer program to achieve them.
Copyright	A form of IPR protecting the expression rather than the substance of any creative work or innovation. Traditionally associated with protecting creators' rights in literary, artistic, musical and dramatic works, copyright is today recognised as an important IPR for all published works and computer programs.
Database	A collection of data organised in a systematic way, for example an encyclopaedia or an electronic list of information.
DNA sequence	The exact order of the nucleotides (a type of chemical compound) making up a strand of DNA.
EPC	The European Patent Convention, which governs the European patent system. The EPC has Articles which set out the general principles for the grant of European patents and Rules which govern the procedural details. European Patent Office decisions provide interpretation of the EPC and can also influence the interpretation of UK patents legislation.
E-science	Science carried out through global collaborations enabled by the Internet, which relies on access to large data collections, large scale computing resources and frequently high performance visualisation back to individual user scientists. The powerful infrastructure needed to support e-science will be the Grid.
Fair dealing	An exception to copyright or database right infringement that allows use of protected material in special cases, eg for some research, education and library activities.
The Grid	A broadband network that allows many computers to work on the same problem at the same time. This is particularly useful for scientific or technical problems that require a large amount of computing power or access to large amounts of data. The Grid allows for international cooperation and interactive working on a common problem.
Intellectual property (IP)	Any creative work or invention; a non-tangible possession that can be protected by an intellectual property right.
Intellectual property right (IPR)	Legal protection for intellectual property that usually prevents others from exploiting it without the owner's permission for a set length of time. Examples of IPRs include patents, copyright, databases, designs and trademarks.
Inventive step	One of three legal criteria by which patent applications are assessed. An inventive step is one that would not have been obvious to a person skilled in the art at the time the application for a patent was filed. In the US the same or similar requirement is known as 'non-obviousness'.

Licence	A permission allowing defined use of an IPR that does not give the licensee ownership of it.
Non-obviousness	One of the US criteria by which patents are assessed that requires an invention to involve an insight not obvious to a person knowledgeable about the relevant subject matter (see inventive step).
Novelty	One of three legal criteria by which patent applications are assessed, that requires that the claims in a patent must be totally new, ie for an invention that was previously unknown and unavailable to the public when the patent application is filed.
Open source software	Software that has its source code (computer program) available and that may be licensed for use, copying and distribution with or without modifications.
Patent	A form of IPR that protects innovations of a scientific or technical character. The owner of a patented invention may prevent others practising it commercially for a period of 20 years from filing date, unless otherwise constrained (see 'Compulsory licence'). The technical content of a patent is made available to the public 18 months after its application date.
Research tools	The full range of resources and techniques that scientists use in research.
Rightholder	Owner of an intellectual property right.
Science Base	Research and postgraduate training in universities, colleges and research council facilities. The role of the Science Base is to train and develop skilled people and to generate and transmit knowledge in science and engineering.
Stem cell	A type of cell that has the capacity to renew itself as well as to generate more specialised all types as it multiplies.
<i>Sui generis</i>	Literally 'of its own kind', 'unique'; a new, special case or type. In this report, the database right that protects against the extraction of a qualitatively substantial part of the data itself.
Technical contribution	The contribution an invention makes to the technological field in which it subsists.
Technical Protection Measures (TPMs)	Technologies that allow music, publishing and video companies to secure and protect their content from unauthorised use. TPMs can be configured to allow a limited degree of private copying, where such copying can be a considered 'fair' dealing with the work.
Technology transfer	The transfer or licensing of IP, including know-how about an invention, from one party to another. Included in a range of formal and informal co-operations between technology developers and technology seekers. Technology transfer may or may not include IPRs.
TRIPS	The Agreement on Trade-Related Aspects of Intellectual Property Rights; see Box 1.
Utility	One of the US criteria by which patents are assessed that requires that an invention must be useful and industrially applicable to be patentable. In Europe the same or similar requirement is phrased as 'industrial applicability'.
WIPO	World Intellectual Property Organisation. The UN agency, headquartered in Geneva, that administers most IP treaties (apart from TRIPS) and that holds periodic conferences to revise them.

## Appendix C References

- Abbott (2002). *Biologists angered by database access fee*. Nature **418**, pp 357
- AURIL (2002). *A Guide to Managing Intellectual Property: Strategic Decision-Making in Universities*. AURIL/UUK/Patent Office, UK
- British Horse Racing Board Ltd v William Hill Organisation Ltd (2001). High Ct of Justice, Ch Div, 9 February 2001, Case No HC 2000 1335
- CDPA 1988. Copyright Designs and Patents Act 1988. [http://www.hmso.gov.uk/acts/acts1988/Ukpga\\_19880048\\_en\\_1.htm](http://www.hmso.gov.uk/acts/acts1988/Ukpga_19880048_en_1.htm)
- CIPR (2002). *Integrating Intellectual Property Rights and Development Policy*. Commission on Intellectual Property Rights, London, UK
- Community Patent Convention (1975). See 89/695/EEC: Agreement relating to Community patents - Done at Luxembourg on 15 December 1989
- Corneille S, Lutz K, Svab Z, and Maliga, P (2001). *Efficient elimination of selectable marker genes from the plastid genome by the CRE-lox site-specific recombination system*. Plant J **27**, pp 171-178
- Cornish W R, Llewelyn M and Adcock M (2003). *Intellectual Property Rights (IPRs) and Genetics: A study into the Impact and Management of Intellectual Property Rights within the Healthcare Sector*. Phase One Report for the Department of Health, in press
- Diamond v Chakrabarty (1980). 447 US 303, 65 L Ed 2d 144, 100 S Ct 2204, US Supreme Court
- EPC (1973). Convention on the grant of European Patents (European Patent Convention) 1973. European Patent Office. <http://www.european-patent-office.org/legal/epc/e/ma1.html> - CVN.
- EPC (2000). Revisions to EPC 1973, [http://www.european-patent-office.org/epo/dipl\\_conf/documents.htm](http://www.european-patent-office.org/epo/dipl_conf/documents.htm)
- European Commission (1996). Directive on the legal protection of databases 96/9/EC. [http://europa.eu.int/smartapi/cgi/sga\\_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=en&numdoc=31996L0009&model=guichett](http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=en&numdoc=31996L0009&model=guichett)
- European Commission (1998). Directive on the legal protection of biotechnological inventions 98/44/EC, 6 July 1998. [http://www.europarl.eu.int/comparl/tempcom/genetics/links/directive\\_44\\_en.pdf](http://www.europarl.eu.int/comparl/tempcom/genetics/links/directive_44_en.pdf)
- European Commission (2000). Directive of the European Parliament and of the Council of 8 June 2000 on electronic commerce, 2000/31/EC. [http://europa.eu.int/smartapi/cgi/sga\\_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=en&numdoc=32000L0031&model=guichett](http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=en&numdoc=32000L0031&model=guichett)
- European Commission (2001). EC Directive 2001/29/EC on the harmonisation of certain aspects of copyright and related rights in the information society. [http://europa.eu.int/smartapi/cgi/sga\\_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=32001L0029&model=guichett](http://europa.eu.int/smartapi/cgi/sga_doc?smartapi!celexapi!prod!CELEXnumdoc&lg=EN&numdoc=32001L0029&model=guichett). For UK implementation see Patent Office website <http://www.patent.gov.uk/about/consultations/eccopyright/>
- European Commission (2002). Draft Directive on the patentability of computer-implemented inventions, 2002/0047 (COD) [http://europa.eu.int/comm/internal\\_market/en/indprop/comp/com02-92en.pdf](http://europa.eu.int/comm/internal_market/en/indprop/comp/com02-92en.pdf)
- European Commission (2002a). Report from the Commission to the European Parliament and the Council on the development and implications of patent law in the field of biotechnology and genetic engineering [http://europa.eu.int/eur-lex/en/com/rpt/2002/com2002\\_0545en01.pdf](http://europa.eu.int/eur-lex/en/com/rpt/2002/com2002_0545en01.pdf)
- Festo Corp v Shoketsu Kinzoku Kogyo Kabushiki Corp (2002). 122 SCT 1831; 62 U.S.P.Q.2D 1705
- Funk Bros Seed Co v Kalo Inoculant Co (1948). 333 U.S. 127, 76 USPQ 280
- HEFCE/UUK/SCOP (2003). *Working Group Report on intellectual property rights (IPRs) in eLearning programmes*, HEFCE, Universities UK, Standing Conference of Principles. In press.
- House of Lords (2001). *Human Genetic Databases: Challenges and Opportunities*. Report of the Science & Technology Committee. March 2001. <http://www.publications.parliament.uk/pa/ld200001/ldsselect/ldsctech/57/5701.htm>
- Keight (2002). Association of University Teachers, personal communication, 16 December 2002
- Merz et al (2002). *Diagnostic testing fails the test*, Nature **415**, pp 577

NAPAG (1995). *Intellectual Property and the Academic Community*. National Academies Policy Advisory Group, London, UK. Available on the web at <http://www.royalsoc.ac.uk/templates/statements/StatementDetails.cfm?statementid=217>

Nature (2002). *Microarray standards at last*. Nature **419**, pp 323

Nelson (2002). *Research and Technological Progress in Industry – An Analysis of the American Experience*. International Symposium on Economic Development through Commercialization of Science and Technology, March 2002, Hong Kong.

New York Times Co v Tasini (2001). 121 S. Ct. 2381

Nuffield (2002). *The ethics of patenting DNA*. Nuffield Council on Bioethics, London, UK

Primeaux (1999). Legal Protection for Software: Does State Street Mean 'Easy Street' for Software Patents? <http://eon.law.harvard.edu/property00/patents/Primeaux.html>

Royal Society (2000). *Transgenic plants and world agriculture*. The Royal Society, London, UK <http://www.royalsoc.ac.uk/templates/statements/StatementDetails.cfm?statementid=118>

Royal Society (2002a). Response to the Patent Offices' consultation on a grace period for patents. Five-page letter to the Patent Office submitted 30 April 2002. <http://www.royalsoc.ac.uk/templates/statements/StatementDetails.cfm?StatementID=174>

Royal Society (2002b). *Response to the review of the implementation and effects of the Database Directive*. Two-page letter to the Patent Office submitted 31 May 2002. <http://www.royalsoc.ac.uk/templates/statements/StatementDetails.cfm?statementid=202>

Sauer B (1993). *Manipulation of transgenes by site-specific recombination: use of Cre recombinase*. Methods of Enzymology **225**, pp 890-900

State Street Bank & Trust Co v Signature Financial Group (1998). 149 F 3d 1368 1998, US Court of Appeal for the Federal Circuit <http://lawschool.stanford.edu/faculty/radin/ecommerce/readings/patents/jppatent-statestreet.pdf>

Sulston & Ferry (2002). *The Common Thread: A Story of Science, Politics, Ethics, and the Human Genome*. Bantam, UK; Joseph Henry Press, USA

USP 4889818. United States Patent, <http://patft.uspto.gov/netacgi/nph-Parser?Sect1=PTO1&Sect2=HITOFF&d=PALL&p=1&u=/netahtml/srchnum.htm&r=1&f=G&l=50&s1=4889818.WKU.&OS=PN/4889818&RS=PN/4889818>

Wadman (2002). *Testing time for gene patent as Europe rebels*, Nature **413**, pp 443

Walhout A J, Temple G F, Brasch M A, Hartley J L, Lorson M A, van den Heuvel S and Vidal M (2000). *GATEWAY recombinational cloning: application to the cloning of large numbers of open reading frames or ORFeomes*. Methods Enzymol **328**, pp 575-592

## Useful Websites

Chartered Institute of Patent Agents  
<http://www.cipa.org.uk/home.html>

Commission on Intellectual Property Rights  
<http://www.iprcommission.org/>

Dspace – Durable Digital Depository  
<http://www.dspace.org/>

European Patent Office  
<http://www.european-patent-office.org/online/>

Government-backed home of UK Intellectual Property on the Internet  
<http://www.intellectual-property.gov.uk/>

Nuffield Council on Bioethics  
<http://www.nuffieldbioethics.org/home/>

Oxford Intellectual Property Research Centre  
<http://www.oiprc.ox.ac.uk/>

The UK Patent Office  
<http://www.patent.gov.uk/>

World Intellectual Property Organisation  
<http://www.wipo.int>

## Other recent Royal Society reports

**Human reproductive cloning: A statement by the Royal Society** (2 pages, January 2003, 1/03)

**Response to consultation on potential projects for the third round of foresight** (3 pages, December 2002, 31/02)

**Response to the report by the Commission on Intellectual Property rights** (3 pages, December 2002, 30/02)

**Submission to the Roberts review of the research assessment exercise** (69 pages, November 2002, 32/02)

**Submission to the House of Commons Science Technology inquiry into short term research contracts** (8 pages, November 2002, 28/02)

**Quinquennial review of the Council for Science and Technology** (7 pages, November 2002, 29/02)

**Economic instruments for the reduction of carbon dioxide emissions**  
(102 pages, November 2002, 26/02)

**Scientist Support for biological weapons control**  
(November 2002, 1 page)

**Submission to FCO green paper on strengthening the biological and toxin weapons convention** (6 pages, November 2002, 25/02)

**Climate change: what we know and what we need to know**  
(19 pages, 22/02, August 2002, ISBN 0 85403 581 8)

**Infectious diseases in livestock** (8 page summary, 19/02, July 2002, ISBN 0 85403 580 X and 160 page document, 15/02, July 2002, £25 ISBN 0 85403 579 6)

**Response to the European Commission's questionnaire on the implementation and effects of the database directive** (25 pages, submitted June 2002, policy 18/02)

**Response to the review of the implementation and effects of the Database Directive** (2 pages, submitted May 2002, policy 17/02)

**Response to consultation on grace periods for patents** (Submitted April 2002, policy 14/02)

**Response to the DEFRA consultation document Managing Radioactive Waste Safely** (8 page statement, 12/02, May 2002)

**Submission to the House of Lords Science & Technology committee inquiry - innovations in micro-processors** (6 pages, submitted April 2002, policy 11/02)

**Response to the Government's strategic review of the LINK scheme** (2 pages, submitted 28 March 2002, 13/02)

**Submission to the Royal Commission on Environmental Pollution study on the long-term effects of chemicals in the environment** (5 pages, submitted February 2002, policy 7/02)

**The health effects of depleted uranium munitions Summary** (8 page summary of Parts I and II 6/02, March 2002 ISBN 085403 5753)

**The health hazards of depleted uranium munitions Part II** (150 page document 5/02, March 2002 £17.50 ISBN 0 85403 574 5)

**Response to a consultation by HM Treasury and the Inland Revenue on R&D tax credits for larger companies** (2 pages, submitted, 10/02, January 2002)

**Response to a consultation by HMSO on the licensing of Crown copyright** (1 page, 9/02, submitted January 2002)

**Genetically modified plants for food use and human health – an update** (20 page document, 4/02, February 2002, ISBN 0 85403 576 1)

**Statement of the Royal Society's position on the use of animals in research** (2 page statement, 3/02, January 2002, ISBN 0 85403 5737)

**Submission to the House of Commons Science and Technology Committee inquiry into the research assessment exercise** (8 pages submitted January 2002)

**Response to the European Commission's consultation on biotechnology** (1 page, submitted November 2001)

**Response to the Policy Commission on the future of farming and food.** (4 page response to the Policy Commission, 23/01, October 2001)

**Response to the consultation on DEFRA's aims and objectives.** (2 page response to DEFRA consultation, 22/01, September 2001)

**Royal Society response to PIU Energy project scoping note.** (5 page response to cabinet office consultation, 21/01, September 2001)

**The role of land carbon sinks in mitigating global climate change** (2 page summary, 11/01, July 2001, ISBN 0 85403 561 3 and 32 page document, 10/01, July 01, ISBN 0 85403 562 1)

**Transmissible spongiform encephalopathies** (11 page statement 8/01, June 2001, ISBN 0 85403 559 1)

**The health hazards of depleted uranium munitions, Part I** (2 page summary 07/01, May 2001, ISBN 0 85403 5575 and 88 page document 06/01, £17.50 ISBN 0 85403 3540)

**The use of genetically modified animals** (46 page document 5/01, May 2001, ISBN 0 85403 556 7)

**The Science of Climate Change** (2 page joint statement from 16 scientific academies, May 2001)

**The future of Sites of Special Scientific Interest (SSSIs)** (21 page document 1/01, February 2001)

**A code of practice for scientific advisory committees** (6 page document 14/00, December 2000)

**Research policy and funding** (9 page document 13/00, December 2000)

**Stem cell research and therapeutic cloning: an update** (8 page document 12/00, November 2000 ISBN 0 85403 5494)

**The role of the Renewables Directive in meeting Kyoto targets** (12 page document 11/00, October 2000 ISBN 00 85403 5486)

**Transgenic plants in world agriculture** (2 page summary 09/00, July 2000 and 19 page full report 08/00, July 2000, ISBN 0 85403 5443)

The full text, or summary, of these reports can be found on the Royal Society's web site ([www.royalsoc.ac.uk](http://www.royalsoc.ac.uk))

Further copies of these reports can be obtained from:  
Science Advice Section The Royal Society  
6–9 Carlton House Terrace London SW1Y 5AG

## Members of the Commission which put together the Adelphi Charter

### **James Boyle**

William Neal Reynolds Professor of Law, Duke Law School, and Faculty Co-Director, Center for the Study of the Public Domain, Duke University  
USA  
[www.law.duke.edu](http://www.law.duke.edu)

### **Lynne Brindley**

Chief Executive, British Library  
UK  
[www.bl.uk](http://www.bl.uk)

### **William Cornish**

Former Herchel Smith Professor of Intellectual Property  
University of Cambridge  
UK  
[www.law.cam.ac.uk/ipunit](http://www.law.cam.ac.uk/ipunit)

### **Carlos Correa**

Centre for Interdisciplinary Studies on Industrial Property and Economics  
University of Buenos Aires  
Argentina;  
and South Centre  
Switzerland  
[www.uba.ar](http://www.uba.ar)  
[www.southcentre.org](http://www.southcentre.org)

### **Dariusz Cuplinski**

Director, Information Programme  
Open Society Institute  
UK  
[www.soros.org](http://www.soros.org)

### **Carolyn Deere**

Chair, Board of Directors, Intellectual Property Watch; and Research Associate, Global Economic Governance Programme, University College Oxford.  
[www.ip-watch.org](http://www.ip-watch.org)

### **Cory Doctorow**

Staff Member, Electronic Frontier Foundation (EFF); and writer  
[www.eff.org](http://www.eff.org)

### **Peter Drahos**

Professor of Law, Director of the Centre for Competition and Regulatory Policy, and Head, RegNet, The Australian National University  
<http://regnet.anu.edu.au>

### **Bronac Ferran**

Director, Interdisciplinary Arts  
Arts Council England  
UK  
[www.artscouncil.org.uk](http://www.artscouncil.org.uk)

### **Dr Michael Jubb**

Director  
Research Libraries Network  
UK  
[michael.jubb@bl.uk](mailto:michael.jubb@bl.uk)

### **Gilberto Gil**

Minister of Culture, Brazil; and musician  
[www.gilbertogil.com.br](http://www.gilbertogil.com.br)

### **Lawrence Lessig**

Chair, Creative Commons;  
Professor of Law and John A. Wilson Distinguished Faculty Scholar  
Stanford Law School  
USA  
[www.lessig.org](http://www.lessig.org)  
<http://cyberlaw.stanford.edu>

### **James Love**

Executive Director, Consumer Project on Technology;  
and Co-Chair, Transatlantic Consumer Dialogue (TACD) Committee on Intellectual Property  
USA  
[www.cptech.org](http://www.cptech.org)  
[www.tacd.org](http://www.tacd.org)

### **Hector MacQueen**

Professor of Private Law and  
Director, AHRB Research Centre on Intellectual Property and Technology Law  
University of Edinburgh  
UK  
[www.law.ed.ac.uk/ahrb](http://www.law.ed.ac.uk/ahrb)

### **John Naughton**

Professor of the Public Understanding of Technology, Open University;  
Fellow of Wolfson College, Cambridge; and columnist, 'The Observer'  
UK  
[molly.open.ac.uk](http://molly.open.ac.uk)

### **Vandana Shiva**

Director, Research Foundation for Science Technology and Ecology  
India  
[www.vsnl.com](http://www.vsnl.com)

**Sir John Sulston**

Nobel Laureate;  
former Director, Wellcome Trust Sanger Institute  
UK

[www.sanger.ac.uk](http://www.sanger.ac.uk)

**Louise Sylvan**

Deputy Chair, Australian Competition and  
Consumer Commission (ACCC)  
Australia

[www.accc.gov.au](http://www.accc.gov.au)



# **The Chilling Effect of Database Protection in the UK**

For RSA

By:

Christian Ahlert (Shift\_Space)

Dr. Jamie King (Shift\_Space)

Michael Holloway (Shift\_Space)

Bryane Michael (Oxford University)

Prodromos Tsiavos (London School of Economics)

**Contents Page**

**EXECUTIVE SUMMARY ..... 3**

**INTRODUCTION ..... 5**

***SUI GENERIS* CHILLS INNOVATION..... 6**

**US MARKET THRIVES WITHOUT *SUI GENERIS* PROTECTION ..... 8**

**LEGAL & POLICY REVIEW..... 10**

**NARROWING ACCESS TO SOURCE DATA..... 11**

**WHAT THIS MEANS FOR POLICY-MAKERS ..... 12**

**COMPLEXITY AND UNCERTAINTY IN THE SCOPE OF THE DATABASE RIGHT AS  
INTERPRETED BY THE ECJ..... 13**

**COMPLEXITY AND UNCERTAINTY DUE TO CONTRACTUAL ARRANGEMENTS ..... 15**

**RESTRICTIVE CONTRACTUAL LICENSING PRACTICES. .... 16**

**CONCLUSIONS..... 17**

**DIGITAL RESTRICTIONS EXCEEDING COPYRIGHT PRINCIPLES ..... 18**

**RECOMMENDATIONS ..... 18**

## Executive Summary

Access to accurate and timely data is vital to business, science and society in the UK. But this data is increasingly locked into electronic databases, which are protected by a thicket of regulations monopolizing information. Many observers have called **the current approach to regulation of databases in the European Union and the UK 'one of the least balanced and potentially anti-competitive property rights ever created'**. Criticism centers around the controversial *sui generis* right, which protects any database in which there has been a 'substantial investment' in obtaining, verifying or presenting the data content. On this basis, creators of databases within the EU can demand payment for use of content that is already freely available in the public domain, asserting de facto ownership over the content as part of a collection. This includes content that would otherwise not be applicable for copyright protection. Though there is no requirement for creativity or originality to obtain this right, **it creates a monopoly in collections of facts** and other non-copyrightable items making it difficult, sometimes even impossible, to 'invent around'.

This *sui generis* right is intended to protect the database industry in the EU and therefore stimulate its growth, but figures show that it has had no such effect. The ratio of **European to US databases fell from nearly 1:2 in 1996 to 1:3 in 2004**. Overly strong IP rights in databases may allow a few big producers to extract high rents from end users, but they also prevent competition in the industry and, perhaps most importantly, hamper innovation. This **'chilling effect' on innovation and growth** pertains not only to the database industry, but to the wider economy, where potentially innovative firms and individuals are kept from information they might use to produce valuable goods and services. The overall impact of such restrictions on access to knowledge cannot be underestimated. The UK economy has shifted away from industrial and toward service sector production in which informational resources now play an essential role. The European Commission has recently concluded a review of current legislation and says the usage of databases rights adds to **"legal uncertainty, difficulty in accessing data, increased, administrative burdens, increasing costs relating to database creation and fewer business opportunities"**.

Therefore, the legal uncertainty and complexity of the *sui generis* right may in itself dissuade potential market entrants from making the investments necessary to properly establish themselves and thereby ensure continued trading and expansion. The Database Directive does not offer much guidance in interpreting the notion of 'substantial investment'. It does not clarify how much 'blood, sweat and tears' the database producer must shed in order to qualify for *sui generis* protection. Start-ups tend not to possess the capital to employ the legal expertise required to discern whether a particular use of information, which may or may not be protected by the *sui generis* database right — or indeed by another form of legal protection — is a violating or infringing use, and therefore prohibited. Yet it is in such smaller, dynamic, progressive firms that innovation is generally fostered and encouraged.

Problems with the current approach to regulating databases are not, however, restricted to business. Too often policy reports regarding copyright protection afforded to creators have relied on input only from industry stakeholders. However, there are many other constituencies who bear the brunt of the Directive. **Librarians and teachers, for example, have suffered under the Directive's discarding of 'fair-use'**, an historically important exception to owners' rights that has long been essential to research and learning. The concept of 'illustrative use' with which it is replaced is not clearly defined but current interpretation suggests "illustration" is far more restrictive.

As resources like the Human Genome Project demonstrate, there is a critical need to consider the social value of particular kinds of information and the dangers posed by granting private groups too much control over it. The Human Genome Project has avoided privatisation, keeping its genetic information in the public domain to encourage and sustain future scientific and medical research. Thanks to the progressive approach of the Project's leaders, the database remains

open for public access -- but **a lack of legal understanding might have placed this crucial scientific resource under monopoly control**, subject to subscription fees and restrictions for reproducing data in related experiments. The effects on science, and health would have been devastating.

The current IPR regime for databases does not take into account these wider economic social benefits of the information contained in databases -- popularly referred to as a 'spill over' effect. Even private investments rely on some form of complementary public resource: the results of publicly funded research and investment projects often either inspire or incentivise private sector work. In fact, the Directive enforces tight control over the re-use on database content, putting massive limitations to the integration and re-mixing of existing data into new material that would otherwise provide new more specialised and useful research resources.

We make the following recommendations:

- (1) Empirical analysis of economic effects of UK implementation of *sui generis* database rights, with adequate representation of all interest groups and a rigorous, empirical and balanced method involving a broader cross-section of stakeholders.
- (2) Simplification of Intellectual Property law, and the development of tools that digest and present this complexity in pragmatic, situation-specific guides.
- (3) Better industry-practices for licensing of databases. Practices which overreach privileges granted by IP legislation or seek to curtail opportunities for new entrants must be justified. Existing limitations and exceptions are overly narrow and fail their purpose within the overall IP framework. The introduction of a general public interest test that can be relied upon against a claim of database infringement should be considered.

## Introduction

The following policy report, commissioned by the RSA, focuses on an area of increasing economic importance: the treatment of data under the current intellectual property (IP) regime in the UK. Taking a cross section of economic findings, stakeholder opinions and concerns from policymakers, it presents evidence of a growing imbalance in the IP framework protecting databases. The report highlights concrete disadvantages for business, consumers and science. Amongst other findings it suggests that while overly strong IP rights in databases may be advantageous to a few big producers, enabling them to extract unusually high rents from end users, they also prevent market entrance for would-be database providers and, perhaps most importantly, hinder research and development, presenting barriers to innovation.

Our knowledge-driven economy depends on the accessibility of data at fair market prices. Driven by advances in computing and network technology, databases have become the key means of collecting and organizing information. Hundreds, thousands or even millions of entries can be instantly searched. Businesses from banks to travel agencies depend on them, as do research and development in both the commercial and academic domains. This increased reliance on electronically available information resources has fundamentally reshaped the database industries and their relationships with end-users. At the very least, established policy principles indicate consideration whether the rights granted to database producers are optimal in terms of growing the database industry whilst serving the needs of all other communities reliant on access to data.

Reviewing existing materials in the area, we provide evidence that the orthodox attitude to regulating the database industry (*more protection equates to more benefits*), is in need of reassessment. The logic driving copyright in the area of data compilations is that it provides a tool to protect investment; but certain aspects of copyright also hinder re-use of data. More precisely, it can work against the most innovative examples of database developments. Some of the fastest growing databases, like the Wikipedia or the Open Directory Project, rely on open copyright licenses to foster decentralized

collaboration<sup>1</sup> and produce a higher social benefit by providing access at zero cost.

The paper is composed of three parts. The first section reviews the general background of database protection, the *sui generis* right and compares it to the US situation. After this introduction we look specifically at the effect of existing IP regulation on the price of access to information held in databases. Then the complexities of the existing legal framework pertaining to databases are examined and the report closes with specific recommendations.

### ***Sui generis* Chills Innovation**

The current approach to regulation of databases in the European Union has been called 'one of the least balanced and potentially anti-competitive property rights ever created'.<sup>2</sup> Data presented below firmly indicates it is economically ineffective. Since the inception of the Database Directive in 1996, which confers a *sui generis* right<sup>3</sup> to database providers, the European industry has been comparatively sluggish. The ratio of European to US databases fell from nearly 1:2 in 1996 to 1:3 in 2004. Industry in the US — with no *sui generis* protection — continued to boom. At the very least these figures show production of databases has not been stimulated by the conferral of this right within the EU.

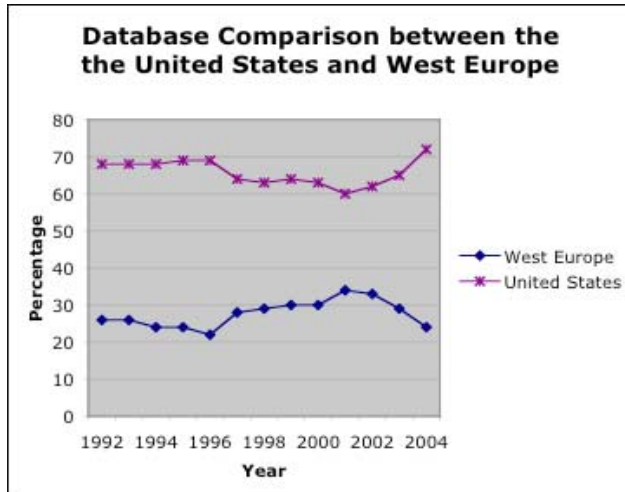
According to the European Commission — using the *Gale Directory of Databases* - the number of EU-based databases was **3095** in 2004 as compared to **3092** in 1998 and in between 2001 the number of EU databases dropped from **4385 to 3095**.

---

<sup>1</sup> It is interesting to note that there are large scale database projects, which rely on hundreds, even thousand of contributors with non-monetary and non-proprietary incentives, producing high quality datasets. This is in sharp contrast to the modus operandi of commercially produced databases.

<sup>2</sup> J Reichman and P Samuelson (1997).

<sup>3</sup> The *sui generis* right prohibits the extraction or re-utilisation of any database in which there has been a substantial investment in obtaining, verifying or presenting the data contents. There is no requirement for creativity or originality. The term of the right is 15 years from the date the database was produced. To qualify for *sui generis* database protection, the creator of the database must show that there has been, qualitatively and/or quantitatively, a substantial investment in either the obtaining, verification or presentation of the contents. It does not matter what the selection method was, or how much creative effort was involved: this is purely a 'sweat of the brow' protection regime.



Source: European Commission 2005

The EC Directive has led to substantial criticism from academia and the scientific professions that the *sui generis* right in fact impedes or 'chills' competition and innovation instead of promoting it. Academic scientists insist the right discourages scientific innovation and discovery by placing barriers in the way of data aggregation, replication of scientific data and evaluation of published articles. Evidence presented is mostly anecdotal,<sup>4</sup> but taken together with the following empirical evidence it is indicative.

Commentators suggest the *sui generis* right has failed to encourage production of databases beyond the compilation of material that is already be available to the market.<sup>5</sup> The majority of litigation brought under the Directive concerns databases created regardless of the protection granted, such as telephone numbers and television schedules. These databases are created in the course of the normal functioning of a business, and would not be produced independently by a competitor. In this instance, the only function of the *sui generis* right is to limit competition in the market, by preventing independent competition from developing a business model around the restricted information.

The list of databases over which litigants have fought points to the tendentious nature of this new right, for example, charts of popular music or 259 hyperlinks to 'parenting

<sup>4</sup> Inter-Union Bioinformatics Group (2002).

<sup>5</sup> Boyle (2005).

resources'.<sup>6</sup> Neither the European Publishers Council (EPC) nor the Directory Publishers Association (DPA) has responded positively to requests for examples of the significant products the *sui generis* right has directly allowed. With no evidence to support the notion that the *sui generis* right has benefited the European database industry, it is far from clear that the central objective of the Directive has been achieved. A new approach should be urgently considered.

### **US Market Thrives Without *Sui Generis* Protection**

The United States takes a fundamentally different approach to legal regimes that protect databases creation. Since a seminal 1991 US Supreme Court case, copyright protection in the US has been interpreted to not apply to the unoriginal compilations of facts which the European *sui generis* right was expressly designed to protect.<sup>7</sup> Were it the case that stronger protection for databases encouraged economic growth, we would expect to see the European database industry outperforming that of the US. Available evidence suggests, however, that the **US database industry has grown more than 25-fold since 1979** where the European database industry, despite a sharp spike in the numbers of firms entering the market at the time of the Directive's implementation, has seen the rate of entry fall back to roughly pre-Directive levels.<sup>8</sup> The US, then, is saving on monopoly costs and earning vastly more from industry, while the EU pays monopoly costs without enjoying increased economic growth.

There is a strong coalition against the European approach within the US. There, libraries, consumer organisations, scientists, innovative database companies, and even the US Chamber of Commerce have provided evidence of the Directive's effects on restricting access to knowledge.<sup>9</sup> In the United States, as the consumer group CP-Tech reports, the view is that a right similar to that recognised by the European Database

---

<sup>6</sup> Maurer, Hugenholtz et al (2001).

<sup>7</sup> See *Feist Publ'ns v. Rural Tel. Serv. Co.*, 499 US 340 (1991). One must be careful, however, not to interpret this decision as holding that owners of database materials are entitled to no legal protections. There remain a variety of other legal and extra-legal measures available to database owners in the US See Hasan (2005).

<sup>8</sup> Maurer, 2001; Maurer, Hugenholtz et al (2001).

<sup>9</sup> J Boyle: This is so because scientists are understandably remiss to offend potential supporters of their costly work. But more fundamentally, negative evidence is by its very nature hard to locate: blocked research projects do not tend to be documented or publicised, rather they are simply forgotten.

Directive would impinge on the creation of new databases and inflict stifling restrictions on the dissemination of information to businesses, educators, scientists, other non-profit organisations – as well as the public at large.

CP-Tech argues persuasively in its response to the European Commission's first evaluation of the Database Directive that to date there has been an over-reliance in policymaking on subjective data from the database industry, and an "over-sensitivity to the views of the beneficiaries of [...] special database protection." Of course industry has a natural disinclination to lose its existing protection, and the approach taken by the Commission – a private online survey – simply gave voice to this. The case for special protection in databases should be decided, the lobby group argues, not just on the needs of the beneficiaries of protection, but on those of *all* stakeholders. One might make the same case for IP policy in general, which should be decided by rigid empirical research as opposed to cursory economic investigations and surveys limited to those with most to gain, financially, from the rights in question.<sup>10</sup>

Given the significant doubts cast on the value of the *sui generis* right in databases, we suggest more in-depth research should be commissioned into the broader impacts of this legislation on, for example, innovation and research, impact on specific regions, sectors and workers, consumer rights, access to social protection, health and educational goods and services. It is important to note that none of the policy objectives outlined for the *sui generis* right are so far proven.<sup>11</sup> In place of the legal certainty it was intended to create, we have judicial difficulties; there has been no increased investment in databases; and library representatives have expressed fears about the consequences of the 'monopolisation of information' on public access to information. The information society and research communities have so far largely responded to a confusing directive by ignoring it -- but this is as dangerous as the Directive is counterproductive.

---

<sup>10</sup> The Adelphi Charter, 2005, [http://www.adelphicharter.org/adelphi\\_charter.asp](http://www.adelphicharter.org/adelphi_charter.asp)

<sup>11</sup> These were stated to be 1 Legal certainty; 2 Increased investment in databases; 3 Improved access for users

## Legal & Policy Review

The following is an analysis of the legal framework governing the production, dissemination and use of databases in the UK. It includes an evaluation of the interpretation reached by the European Court of Justice on the *sui generis* right. The effect of this uncertain and complex interpretation is discussed, as is the role of contract law in this field. The question is raised whether a more open approach could benefit society.

The European Union adopted Directive No. 96/9/EC on the legal protection of databases (the 'Database Directive')<sup>12</sup> on 11 March 1996. The UK implemented the Database Directive in its Copyright and Rights in Databases Regulations 1997.<sup>13</sup> Below the major features of the current IP regime protecting databases (taking into account in particular the EC's Database Directive of 1996) are outlined, highlighting problematic aspects for public and broader economic benefit.

Most strikingly, in adopting a *sui generis* approach to databases, the EC Directive moves away from long established standards of Intellectual Property Law. In the Directive, as transposed into UK law, no distinction is made between the protection of an expression and protection of ideas.<sup>14</sup> This has the affect that creators of databases within the EU are enabled to commercialise content already freely available in the public domain by asserting ownership over the content as part of a collection that presents that work in a structured way. This creates information monopolies, which could not be protected by copyright law. Thus the UK **does not encourage the creation of new data**, but rather encourages the making of new compilations of mere facts. In addition database creators are entitled to apply for renewals to their 15-year term of exclusive rights over all materials held within the database as a whole, if sufficient alterations are made through updates, revisions and additions **effectively removing content from public use indefinitely**.

The principal of "fair-use" in research and education is also discarded by the Directive by

---

<sup>12</sup> See <http://europa.eu.int/ISPO/infosoc/legreg/docs/969ec.html>.

<sup>13</sup> See <http://www.opsi.gov.uk/si/si1997/19973032.htm>.

<sup>14</sup> See Paul David's (2002) work on the topic who has succinctly summarized the negative impacts of the database directive.

allowing only “illustrative use”. The concept of “illustrative use” is not clearly defined but current interpretation of the term asserts that “illustration” is far more restrictive than “fair use” allowances for research use of copyrighted material. The Database Directive thereby introduced a concept alien to the British judiciary. “Fair use” or “Fair dealing” provided copyright users with a right which guaranteed access to information stored in proprietary databases, provided the user’s purpose was an acceptable purpose, as defined by statute. For example, fair use protected educational and research purposes in schools and higher education. It also protected journalistic practices for the purpose of reporting current events. The scope of these exceptional purposes, which operated in practice as a valid and crucial defence against a claim for copyright infringement, were reasonably clearly defined and well understood in practice. In practice this right was crucial, because **seeking permission for use from right holders is an expensive and time consuming process.**

A related issue is that a significant chunk of research budgets is spent purchasing content and database licences. The amount of databases the British Library, probably the prime example of a publicly funded information provider, has subscribed to has doubled over the last 5 years and the money spent by over 45%.

### **Narrowing Access to Source Data**

Another **negative feature of the database directive is that access to so called source data becomes limited.** Concerns apply to any type of data where investment has been directed not only towards its creation but also towards presentation and verification. That could lead to database owners making creative use of specific procedures for which a *sui generis* right may be claimed.<sup>15</sup> The 'source data' would, of course, remain outside the scope of any right, but the real concern is whether underlying material will subsequently be made available to competing producers.

This point is very much of practical concern: there needs to be access to this source

---

<sup>15</sup> Even worse, under UK law database owners might be incited to structure their activities to ensure that their works are considered ‘a table or compilation other than a database’ to fall under Section 3(1)(a) of the amended UK Copyright, Designs and Patent Act 1988.

data to all potential providers of database services in an open and non-discriminatory fashion. This could be effected through a scheme of compulsory licences (hard regulation), through a set of guidelines (soft / self-regulation), or through the establishment of a hybrid regime, in which the European Commission could threaten hard regulation unless a code of conduct is drafted by database producers (a reflexive regulation model).

The EC's Director General for Internal Markets and Services published an exhaustive report on the Database Directive on December 12, 2005.<sup>16</sup> The report is part of a broader consultation exercise, but initially concludes that (i) the Database Directive appears not to have produced the economic results it intended — it has had 'no proven impact on the production of databases'.

### **What This Means for Policy-Makers**

What is perhaps a more interesting example is that of collecting data from a source, like Google, which is also contained within another database, and then using that data to create a new database. The European Court of Justice (ECJ) says that if the database has been made available to the public in any way, third sources included, then the database maker cannot stop the public from "consulting" the database.<sup>17</sup> The term "consult" is not to be found in the text of the database directive or the recitals and as such it is not entirely clear what it entails. The most logical interpretation would be that it includes any viewing of the database contents that have been made publicly available as well as any transient copies made for viewing purposes.

Here it is important to emphasize two points. The first is that the ECJ decisions indicate the kind of response that can be expected from the judiciary for rectifying some of the extremisms lurking in current European IPR legislation. The ECJ decisions indicate that access to the source data should not be prevented, especially when the databases are sole-producer databases. If any further regulation is needed it is not of the kind that may be seen in the IPR regime but instead of the kind in competition or telecoms law in

---

<sup>16</sup> See [http://europa.eu.int/comm/internal\\_market/copyright/docs/databases/evaluation\\_report\\_en.pdf](http://europa.eu.int/comm/internal_market/copyright/docs/databases/evaluation_report_en.pdf).

<sup>17</sup> See paragraph 54-60 of the BHB v. William Hill decision.

conjunction with some 'open content'-type good practice guide or self-regulatory scheme. Under such a regime, it would be made clear that basic, source data like meteorological or scientific data remain outside any IPR restriction regime and in addition to that their creators undertake the obligation to make them available to everyone under fair, open and non-discriminatory terms. Finally, even those data arrangements that are protected but are also made publicly available, we believe that the ECJ interpretation is still far too restrictive by not allowing their re-utilization for non-commercial purposes. Ratings of a substantial part of a publicly available movie database should be possible, even without the permission of the database maker. Again such a solution could be possible through voluntary schemes and imposed self-regulation. The schemes and legal instruments exist; it is a matter of collective common sense to have them implemented.<sup>18</sup>

### **Complexity and Uncertainty in the Scope of the Database Right as Interpreted by the ECJ**

Uncertainty results from poor judicial clarification and poor drafting of legislation. Although the *sui generis* database right received a degree of clarification—and some would say, narrowing—in *BHB v. William Hill*, the scope of the right nevertheless remains unclear. Complexity in this area of the law results from the two-tier structure of intellectual property protection unique to the Database Directive. If a factual compilation meets the higher standard of originality embodied by *droit d'auteur*, it will also necessarily qualify for the *sui generis* right. Where the dual-rights operate simultaneously it is impossible to accurately establish liability for uses of the underlying

---

<sup>18</sup> For its part, the Database Directive supports the derogation of the *sui generis* right in cases where competition law problems exist. Recital 47, in particular, states:

'Whereas, in the interests of competition between suppliers of information products and services, protection by the *sui generis* right must not be afforded in such a way as to facilitate abuses of a dominant . . . therefore, the provisions of this Directive are without prejudice to the application of Community or national competition rules.'

Article 16(3) also requires the EC to monitor for anti-competitive conduct associated with the Directive and implement compulsory licencing where appropriate.

information which seeks to rely on an exception or limitation to either of the rights. The safe approach in this scenario is to assume the higher standard of protection, yet this may preclude reliance on certain freedoms intended by Parliament.

### **Impact of Complexity and Uncertainty on Innovation in Society**

Legal uncertainty and complexity may dissuade potential market entrants from making the investments necessary to properly establish themselves and thereby ensure continued trading and expansion. Start-ups tend not to possess the capital to employ the legal expertise required to discern whether a particular use of information, which may or may not be protected by the *sui generis* database right—or indeed by another form of legal protection—is a violative or infringing use and therefore prohibited. Yet it is in these smaller, dynamic, progressive firms which innovation is generally fostered and encouraged. If we accept that complexity in **the law currently imposes barriers to the development and uptake of new technologies** which allow for automated data-collection, categorisation and evaluation in the business sphere, then we should also expect barriers to be raised in terms of science and other forms of academic research.<sup>19</sup> These new technologies would also help accelerate and broaden the possibilities of scientific and other forms of research by enabling previously impractical projects. The web should perhaps be seen itself as a form of database, and one for which we are in need of new mechanisms for assessing and processing this undifferentiated information resource. Once again, socially progressive projects do not typically possess capital to purchase a legal opinion with regard to whether a given practice constitutes prohibited infringement.

<b>CASE STUDY: <a href="#">THE HUMAN GENOME PROJECT</a></b>
---

---

<sup>19</sup> Article 9 of the Directive and Section 20 of the UK regulations specify exceptions to infringement for teaching and research. However, those exceptions are inadequate in several respects. For example, the exceptions do not well-define what is meant by non-commercial, making researchers understandably reluctant to become legal defendants. Further, it is unclear whether non-scientific research, such as research in the arts or humanities qualifies for the exception. In any case, the exceptions to the *sui generis* right are not as broad as the fair use / fair dealing exceptions to copyright protection.

John Sulston, Nobel Laureate and former Director of the [Wellcome Trust Sanger Institute \(UK\)](#), imparted the following anecdote in his speech at the launch of the [RSA Adelphi Charter](#). The Human Genome Project has a history of avoiding privatisation in order to serve the public interest. Sulston spearheaded the project in the 1990s and fought to keep it in the public domain because, in his view, that would better encourage and sustain future scientific and medical research. A lack of legal understanding might have placed this crucial scientific resource under private control when a commercial firm offered additional funding. Initially the project's guardians did not appreciate the legal implications of accepting this money, insofar as receipt of the investment would grant the private company rights in the information constituting the Human Genome Project. These rights, as discussed above, enable monopoly control over access to and dissemination of the data itself, subject to certain tightly defined exceptions. Access would then be restricted to those able to pay subscription fees. Yet even those able to pay fees and procure a licence would be restricted by the terms of the agreement with regard to reproducing data underlying their experiments. Fortunately this situation was in fact avoided and the database remains open for public access.

### **Complexity and Uncertainty Due to Contractual Arrangements**

In addition to the complexity and uncertainty caused by a lack of clarity in judicial decisions and the legislation on which decisions are based, further complexity and uncertainty results from contractual licences. It is now common practice for databases and other forms of IP to be offered online under so-called click-wrap or shrink-wrap licences. Such agreements typically comprise a dense agglomeration of stipulations, restrictions and conditions. Increasingly terms impose onerous conditions with regard to possible uses of the subject matter concerned. For example, the information provided under a given licence may only be printed a limited number of times, or the information provided cannot be converted for use with that software which the user prefers.

In practice these private-ordering mechanisms constitute a further layer of protections over information, in addition to those rights already provided by the state. The balance struck between users, producers and publishers of intellectual property may then be distorted. It has been convincingly argued that rights granted in IP should not be subject

to extension or variance by private parties in this way, but rather the balance or compromise struck between interest groups should be preserved.<sup>20</sup> However, given the strength of the doctrine of freedom of contract, such contracts are unlikely to be rendered unenforceable. Perhaps then a new public policy test might be introduced by which such contractual terms could be restricted. For example, terms whose effect operates against the public interest, because they discourage scientific research or some other desirable purpose, might be rendered voidable according to judicial decision.

### **Restrictive contractual licensing practices.**

The British Library has expressed concern with regard to protectionist licensing terms contained in agreements supplied by database providers. Some of the most pernicious, according to Ben White,<sup>21</sup> are terms that numerically restrict copies permitted to be made from a licensed source. Another example provision stated that only hard copies may be generated; or that duplication can only be made into a particular format, which restricts the British Library's ability to make digital archives and thereby preserve and develop our cultural heritage<sup>22</sup>. Or the limitation might be made in percentage terms, for example so that only 1% of a data resource can be copied. None of the agreements discussed contained provisions protecting exceptions to a claim of copyright infringement that ensure accessibility for the visually impaired or the disabled. From this sample it is clear that databases are not provided under terms optimally beneficial for academic purposes.

An Australian Copyright Law Review Committee<sup>23</sup> report into the intersection between copyright and contract illustrates these concerns expressed by the British Library in a broader context. In particular, the report's authors undertook research into the use of contracts which purport to exclude or modify the copyright exceptions, although interesting points are also made with regard to comparable practices involving technological protection measures. This research revealed many terms used as

---

<sup>20</sup> Guibault (2002).

<sup>21</sup> British Library, Copyright and Licencing Manager; his survey of approximately 30 out of 600 of the total agreements provides useful empirical evidence in an under-researched field.

<sup>22</sup> On this point it should be noted that approximately 7% of the British Library's licencing agreements contained express provisions for archiving purposes.

<sup>23</sup> ACLRC, 'Copyright and Contract'

standard practice in the academic context around the world with potentially harmful consequences for those seeking to rely on copyright exceptions.

## **Conclusions**

The review of stakeholder concerns, economic analysis as well as a policy assessment suggest strong evidence that **the current IP regime surrounding databases is in some areas too strong**. The UK database market has grown significantly slower than its US counterpart which indicates the database regime is counter productive. Moreover the *sui generis* right is complex and unclear, producing barriers to market entry. Most importantly the *sui generis* right produces information monopolies hindering science and innovation.

It is not necessarily only at a legislative level where changes need to be made, but crucially at a policy level where the government could act quickly to resolve imbalances. Our findings suggest an evident flaw in current approaches to IP policymaking. Too often policy reports regarding the level of copyright protection afforded to creators emphasise the need for further protection, because they rely on input only from industry stakeholders and their focus is often confined to the realm of enforcement or simple legislation. But increasingly, regulation of access to databases materialises through a hidden layer of rules expressed through standardised contracts with obscure terms and legalese that makes their effect opaque to those needing to use the copyrighted material. The variety, fragmentation and complexity of these standardised agreements makes the employment of specialised legal experts necessary for any company using copyrighted material. The result is a surge in costs in terms of legal fees, man-hours lost for internalisation of contractual terms by the staff or litigation costs.

What the current IPR regime for databases does not take into account is that information contained in databases may create wider economic social benefits -- popularly referred to as a 'spill over effect'. Second, the licensing of copyrighted material may result in a reduction of "complementarities" between public and private knowledge. Most private investments rely on some form of complementary public investment. The results of publicly funded research and investment projects often either inspire or incentivise private sector work.

## **Digital Restrictions Exceeding Copyright principles**

It is notable that through a combination of licensing provisions and digital copy restrictions the established normal use (or fair dealing) of what a user can do with information are fundamentally changed. We found that the following practices are severely inhibited:

### **a) Information Resource Sharing**

In science and society there exists a long established practice of sharing data which stimulates scientific activity, innovation and economic growth which has been severely restricted by the current IP regime. Data-sharing is one of the most crucial features of science and as a matter of fact central to the functions of a library. But through restrictions placed by licensing and digital rights management these uses have become impossible. Quite often no hardcopies of materials held in databases can be made, only one copy can be produced, or less than 1% of the data can be reproduced. These restrictions are common in databases which are accessible online and render it impossible for research communities to gather sufficient data.

### **b) Public Lending**

The primary function of a public library is to distribute texts by lending to the public. Database licencing restricts this by clamping down vigorously on non-commercial lending. Traditionally copyright's 'fair use; clause was used to control circulation allowing all patrons to access all materials. Public lending is essential to culture and education and ought to be available to all.

## **Recommendations**

### **Awareness Building**

Lack of awareness has been massive barrier to our investigation. This relates to the previously mentioned problem where interest groups capture policy makers providing

biased information. Libraries and researchers, who interface with databases on a day to day basis, are most vocal in their disapproval of the current IP regime. However industry relies on access to data to start innovative businesses and to broaden their area of work. This group tend to accept *status quo* uncritically and are not vocal about how massive costs for data hinder innovation and development. The government should raise awareness through research into economic effects of the database regime.

### **Simplification of Intellectual Property law**

The complexity and uncertainty revealed in this particular field of intellectual property law are illustrative of comparable concerns in the wider structure. This intricate maze is barely comprehensible even to expert practitioners and presents severe problems for less-informed groups. A degree of complexity is of course inevitable given the diverse range of activities in which the law applies, but a central policy goal for reform of intellectual property must be simplification. A common sense solution would be to develop tools that digest and present this complexity in pragmatic, situation-specific guides. These should be made available at low-cost and supported with interactive services for precise enquiries.

### **Empirical analysis of UK implementation of *sui generis* database rights**

The economic impact of the *sui generis* database right is at best unproven and at worst deleterious. Combined with the growing evidence of ‘chilling’ effects on scientific research and academia there is a clear for analysis of the UK implementation of the Database Directive. Further support for this contention is provided by the potential for economic growth in innovative sectors allowed to develop by freeing protected data. In addition, adequate representation of all interest groups is vital: regulatory policy for databases, under the European Commission, is over-reliant on industry recommendations. Their practice should be replaced by a rigorous, empirical and balanced method involving a broader cross-section of stakeholders because not only direct beneficiaries of IP rights are impacted by policy decisions<sup>24</sup>.

### **Encourage better industry-practices for licensing of databases**

Revision of contractual principles online is necessary given difficulties resulting for

---

<sup>24</sup> The monopoly rights deployed as incentives necessarily prohibits access to information for the remainder of society.

academia, the sciences and wider business from overly restrictive licensing terms. Practices which overreach privileges granted by IP legislation or seek to curtail opportunities for relying on exceptions and limitations should be rigorously justified. Indeed, existing limitations and exceptions are overly narrow and fail in their purpose within the overall IP framework. The effects of this failing are particularly acute for database users in the online environment. The introduction of a general public interest test that can be relied upon against a claim of database infringement should be considered.

### Table of quotations

Source	Quotation or Contribution
Ben White, British Library	The digital age is here, and the digital age operates under contract.
John Wilbanks, Science Commons	The UK scientific community loses out on significant research opportunities by not considering open-licensing structures.
Graham Cameron, Wellcome Trust	Protectionist methods applied by publishers will eventually damage goodwill with the scientific community, who sympathise more with concepts supporting freedom of information.
Peter Murray-Rust, Cambridge University	The two biggest problems in the dominant approach to journal publication today are 1. Overly restrictive and protectionist contractual terms 2. Mandating proprietary software and prohibiting access via alternative software
Sir John Sulston, Nobel winner	The database situation in Europe is worse than in the US because of the <i>sui generis</i> hold on data.
Barbara Stratton, LACA	Withdrawal of the [Database] Directive would serve the interests of deregulation, and would do no harm to the European commercial database industry's ability to compete in the world market.
Michelle Childs, CPTech	The complex problems concerning the interpretation of the Directive pose barriers to further creativity and enterprise, and to research and communication. The information society and research community has largely coped by ignoring the Directive's existence but this can be perilous.
James Boyle, Duke University	Academic scientific bodies have been among the strongest critics of database protection. But negative evidence, by its nature, is hard to produce; "show me the science that did not get done!"

### Bibliography

Australian Copyright Law Review Committee, ['Copyright and Contract'](#)

Hubert Best & Jerker Edström, [‘Database Rights and How to Protect Them, World Copyright Law Report’](#), April 21, 2005

J Boyle, ‘A Natural Experiment’, Financial Times (UK), 22<sup>nd</sup> November 2004

Consumer Project on Technology Comments on DG Internal Market and Services Working paper ‘First evaluation of Directive 96/9/EC on the legal protection of databases’

Paul A David [‘Koyaanisqatsi in Cyberspace’](#), SIEPR Discussion Paper No. 02-29 (2002)

Mark J Davison & P Bernt Hugenholtz, ‘Football fixtures, horse races and spin-offs: the ECJ domesticates the database right.’ EIPR 2005, Issue no. 3,

E Derclaye, ‘Databases *sui generis* right: should we adopt the spin-off theory?’, EIPR 2004, 26(9), p. 402-413.

Directory Publishers Association submission to the European Commission DG Market in response to the Working Paper ‘First Evaluation of Directive 96/9 on the legal protection of databases’

European Association of Directory Publishers contribution to Consultation on DG Internal Market and Services Working Paper ‘First evaluation of Directive 96/9/EC on the legal protection of databases’

European Commission DG Internal Market and Services Working Paper – [‘First evaluation of Directive 96/9/EC on the legal protection of databases’](#)

European Publishers Council response to the ‘First Evaluation of Directive 96/9/EC on the Legal Protection of Databases’

Guibault, 2002, ‘Copyright Limitations and Contracts: An Analysis of the Contractual Overridability of Limitations on Copyright.’

Amar A. Hasan, Sweating in Europe: The European Database Directive, 9 Comp. L. Rev. & Tech. J. 479 (2005).

P Bernt Hugenholtz, 2003, [‘Program Schedules, Event Data and Telephone Subscriber Listings under the Database Directive - The ‘Spin-Off’ Doctrine in the Netherlands and elsewhere in Europe’](#)

P Bernt Hugenholtz, 2004, ‘Abuse of Database Right: Sole-source information banks under the EU Database Directive’, Paper presented at Conference ‘Antitrust, Patent and Copyright’, École des Mines/UC Berkeley, Paris, January 15-16, 2004

IPPR, Kay Withers, [‘Intellectual Property and the Knowledge Economy’](#) 2006

Inter-Union Bioinformatics Group – [Report, 2002](#)

Stephen Kon & Thomas Heide, Case Comment: BHB/William Hill – Europe's Feist, 28 European Intellectual Property Review 60 (2006).

Lai, 'Database Protection in the United Kingdom: The New Deal and Its Effects on Software Protection' [1998] 1 European Intellectual Property Review 32.

Library and Archives Copyright Alliance response to the 'First Evaluation of Directive 96/9/EC on the Legal Protection of Databases'

Stephen M Maurer (2001) 'Across Two Worlds: Database Protection in the US and Europe.'

Stephen M Maurer, P Bernt Hugenholtz, and Harlan J Onsrud. 'Intellectual Property: Europe's Database Experiment'. Science 2001 October 26; 294: 789-790.

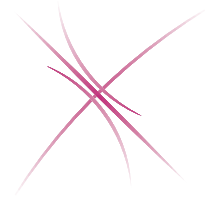
J. Reichman and P Samuelson (1997) '[Intellectual Property Rights in Data?](#)' 50 Vanderbilt L Rev 51

Shapiro and Varian, 'Information Rules: A Strategic Guide to the Network Economy', HBS Press, 1999

Paula Staunton, E-Commerce Raises Issues, The Lawyer (Feb 10, 1998).

D J G Visser, 'The database right and the spin-off theory', in: H. Snijders and S. Weatherill (eds.), *Ecommerce Law. National and transnational topics and perspectives*, Kluwer Law International, 2003, p. 105-110

Weiss, '[Borders in Cyberspace: Conflicting Public Sector Information Policies and their Economic Impacts](#)' (2002)



**A Review of the Academic Literature  
relating to the Fair Use and Fair Dealing  
Exceptions to Copyright**

**A study for the RSA  
by Europe Economics**

**Europe Economics  
Chancery House  
53-64 Chancery Lane  
London WC2A 1QU  
Tel: (+44) (0) 20 7831 4717  
Fax: (+44) (0) 20 7831 4515  
[www.europe-economics.com](http://www.europe-economics.com)**

**13 April 2006**

## TABLE OF CONTENTS

<b>1 EXECUTIVE SUMMARY .....</b>	<b>1</b>
Background .....	1
Copyright, fair use and fair dealing .....	1
Fair use issues.....	2
Conclusions and issues for future consideration .....	4
<b>2 ABOUT THIS REPORT .....</b>	<b>6</b>
The purpose of the report.....	6
The Gowers Review .....	6
Methodology adopted.....	7
The structure of this report .....	7
Europe Economics.....	8
<b>3 BACKGROUND TO COPYRIGHT LAW, FAIR USE AND FAIR DEALING .....</b>	<b>9</b>
Copyright law.....	9
Fair use and fair dealing .....	10
<b>4 FAIR USE ISSUES.....</b>	<b>12</b>
Fair use and economic incentives for creativity .....	12
Fair use as a means to resolve market failure .....	12
The public interest.....	14
The importance of monetary concerns.....	16
Transformative and non-transformative uses.....	17
Criticism and review .....	17
<b>5 CONCLUSIONS AND ISSUES FOR FUTURE CONSIDERATION .....</b>	<b>19</b>
Importance of fair use .....	19
Fair use to address market failure.....	19
Issues for further consideration .....	20
<b>APPENDIX 1: UK COPYRIGHT LEGISLATION .....</b>	<b>21</b>
<b>APPENDIX 2: US COPYRIGHT LEGISLATION .....</b>	<b>28</b>
<b>APPENDIX 3: EU COPYRIGHT DIRECTIVE .....</b>	<b>29</b>
<b>APPENDIX 4: ARTICLES CONSIDERED FOR REVIEW .....</b>	<b>46</b>

# 1 EXECUTIVE SUMMARY

## Background

- 1.1 This report provides an independent review of academic literature on the issue of the fair use and fair dealing exceptions to copyright. This report was commissioned by the Royal Society of Arts (RSA). We understand that it is intended that this report will contribute to the preparation of response comments by the RSA to HM Treasury's current Gowers Review of Intellectual Property.
- 1.2 Over 130 articles and other literature were identified in an initial literature search and these were reviewed at a high level on the basis of abstracts or summaries of their contents. A shortlist of 30 items of literature was identified on the basis of their relevance to the main issue of concern to the RSA, namely the economic and other means of justification for the fair use and fair dealing exceptions. These shortlisted items were subject to detailed review and the findings of these articles provide the main input to this report.
- 1.3 It is notable that there is very little detailed empirical evidence of the impacts of fair use.

## Copyright, fair use and fair dealing

- 1.4 Copyright law protects creative works and can be justified economically as a means to incentivise creativity by protecting the rights of creators by restricting others from free-riding by copying the work. Without some protection for creators, they might not produce works, ie. there would be suboptimal incentives to create. The development of copyright also creates a market structure where the creator can license the copying of the work, thus enabling allocative efficiency and the efficient exploitation of ideas and information.
- 1.5 However, copyright also generates costs. The effective monopoly power afforded by copyright risks monopoly pricing and deadweight loss, which is exacerbated by the inexhaustibility of information compared with tangible products. The monopoly created by copyright also increases the cost of future creativity by requiring prospective innovators to obtain licences, thus reducing the incentive to create. There can be significant transaction costs associated with licensing (such as the cost of identifying and locating the creator, and the cost of bargaining for access to the work), and implementing and enforcing the copyright system also produce administrative costs.
- 1.6 The aim of copyright law and its exceptions is to strike the optimum economic (and social) balance of the benefits and costs of copyright.
- 1.7 Fair use and fair dealing comprise exceptions to copyright or a defence to an allegation of copyright infringement. The US and UK (common law) approaches to fair use differ considerably. The US doctrine does not define "fair use" but sets out a number of non-exclusive factors for the courts to consider in each case. The UK approach ("fair dealing") constitutes a specific set of pre-defined defences against actions for

infringement of copyright, and is therefore considerably less flexible but carries less risk of uncertainty for both creator and user.

- 1.8 Examples of acts that may be considered as fair use and fair dealing include copying or reproducing extracts of original works for the purposes of research or private study, criticism or review, or to report current events. Areas where there has been controversy regarding the application of fair use and fair dealing have included the systematic copying of texts for students by university libraries, the copying of broadcast programmes for private viewing by means of videotape, and the availability of material for news reporting purposes.

## **Fair use issues**

### **Fair use and economic incentives for creativity**

- 1.9 The purpose of the copyright system is the advancement and dissemination of culture and knowledge and not the remuneration of the creator per se. Thus, the fair use doctrine balances the creator's need for remuneration against the social need for access. By increasing the accessibility and lowering the cost of access to a work, fair use reduces the social welfare loss due to under-utilisation and encourages the creation of new works. As a result, fair use can generate important economic benefits so long as the incentives for the original creator are not significantly adversely affected.

### **Fair use as a means to resolve market failure**

- 1.10 Fair use can be defined as a means to resolve market failure, the market failure which arises when:
- (a) the user can not appropriately purchase the desired user right through the market;
  - (b) transferring control over the right would serve the public interest; and
  - (c) the copyright owner's incentives would not be substantially impaired by allowing the use.
- 1.11 Fair use therefore provides a mechanism for the law to recognise the need to allow the uncompensated transfer of the property right in circumstances where it might otherwise not be possible in order to ensure the advancement and dissemination of culture and knowledge and in circumstances where the creator's rights (and incentives to create) would not be significantly adversely affected.

## **The public interest**

- 1.12 There is a wider debate concerning whether there should be a more generic "public interest" exception for copyright. However, the difficulty lies in defining what constitutes the "public interest" and, given the uncertainty in this area, devising a rule which could be robustly and predictably applied in practice.

- 1.13 Relevant factors in determining whether a use was in the public interest could include:
- (a) Whether the use was for commercial benefit or a non-profit activity, with particular emphasis placed on educational uses;
  - (b) Communitarian values, the extent to which the use contributes to the common goals of the community, “the greater the relationship of the work of art to the shared values of the community, the greater the need for widespread availability” (Lacey); and
  - (c) Relatively rare circumstances where copyright is being asserted in a way which would impact on public health or safety, the administration of justice, or freedom of information.
- 1.14 Within the UK, while there is a body of case law which had, until recently, indicated that there is common law public interest defence to an action for infringement of copyright, more recent cases have placed in doubt the scope and existence of the public interest defence and therefore, at present, there is little momentum for such a defence to develop.

#### **The importance of monetary concerns**

- 1.15 The issue of the financial impact on creators has been a primary concern of the courts when considering allegations of infringement of copyright. This is rational since the economic incentivisation of creation is dependent on the creators being able to realise the financial rewards from their work.
- 1.16 However, it may be questioned whether the emphasis on the monetary rewards available to creators always leads to optimal outcomes from an economic and social perspective. Not all creators are motivated purely (or even at all) by the prospect of monetary reward. Furthermore, an over-emphasis on the rights of creators to maximise their monetary reward may fail to take proper account of the positive externalities arising from wider dissemination of their works.

#### **Transformative and non-transformative uses**

- 1.17 The courts have always been more willing to consider a defence of fair use or fair dealing where the use made of the original is transformative, ie. that the user has added to or re-contextualised the part taken from the original. This approach recognises that the economic justification for copyright is to provide incentives for creation and the continued production of new works.

#### **Criticism and review**

- 1.18 Copyright law recognises the value of criticism and review, allowing a fair use or fair dealing defence in such cases. Criticism can be seen both as a transformative use, ie. as a new creation, and also as a means to provide improved information to the market as to the value of the original work. Since it would sometimes be in the creator’s interests to prevent such criticism or only to allow favourable criticism, fair use is a vital means of

ensuring that criticism can continue to offer valuable and impartial information for consumers.

- 1.19 In the UK, section 30(1) of the Copyright Designs and Patents Act 1988 (CDPA) provides that fair dealing with any work for the purpose of criticism or review does not infringe the copyright in the work. However, there are limitations on the use of this defence, which has led to criticism that UK legislators need to review and expand the fair dealing defence to address more appropriately the relationship between copyright and freedom of expression.

### **Conclusions and issues for future consideration**

- 1.20 The exceptions or defences to copyright comprised within the fair use or fair dealing doctrines form a critical factor in the effectiveness of copyright law in ensuring that the correct economic incentives exist for the encouragement of the creation of new works.
- 1.21 Fair use is best defined as a means to prevent (or overcome) market failure. Fair use therefore ensures the optimal utilisation of existing works where market solutions would otherwise be inadequate.
- 1.22 The extension of fair use to include “justified” fair use in the case of criticism and review is both important and rational from an economic point of view since such use generates wider social benefits rather than merely generating private benefits for the creator of the works.
- 1.23 Price discrimination techniques could, at the optimum, ensure the optimal balance between access and incentives for creativity. On-line methods for access licensing and collective licensing methods will significantly reduce the justification for fair use, while providing simple and (relatively) inexpensive means of access for users. Placing an incentive on the copyright owner to introduce practical and effective means of licensing should increase certainty for users as well as enhancing access.

### **Issues for further consideration**

- 1.24 Based on our review of the existing literature on copyright and fair use in particular, we believe it would be valuable to undertake further detailed consideration of:
  - (a) The measurable impact on schools and educational establishments of a market failure approach to fair use, ie. an empirical study of the costs of copying works for educational uses under licence and the effect on incentives to produce such educational works;
  - (b) Whether the terms of copyright law need to be amended in light of the development of digital technology and multimedia access, eg. if the main act restricted or controlled by copyright now needs to be the right of access to the content of a work; and

- (c) The extent to which any changes proposed to UK legislation will in future be restricted by the terms of the EC Copyright Directive and therefore whether the Directive requires amendment or reinterpretation.

## 2 ABOUT THIS REPORT

### The purpose of the report

- 2.1 This report provides an independent review of academic literature on the issue of the fair use and fair dealing exceptions to copyright. This report was commissioned by the Royal Society of Arts (RSA). We understand that it is intended that this report will contribute to the preparation of response comments by the RSA to HM Treasury's current Gowers Review of Intellectual Property.

### The Gowers Review

- 2.2 The Gowers Review was announced by the Chancellor of the Exchequer at the Enterprise Conference on 2 December 2005 as an Independent Review to examine the UK's IP framework. The Review will report to the Chancellor, the Secretary of State for Trade and Industry, and the Secretary of State for Culture Media and Sport in Autumn 2006. The current consultation phase of the Review was launched with a call for comments on 23 February, with comments to be received by 21 April 2006.
- 2.3 The purpose of the Review is to examine whether the current UK IP framework is fairly balanced between consumers and rights-holders and to address various practical issues arising with the existing framework. In particular, the IP framework should strike the right balance between providing incentives to invest in creative and inventive activities and appropriately limiting the costs of the statutory monopolies that are thus created, such as limited competition, high prices, and restrictions on the future sharing and further development of knowledge. The Review will examine whether improvements could be made to the UK's IP framework and will make targeted and practical policy proposals, as appropriate.
- 2.4 On the subject of the fair use and fair dealing exceptions to copyright, the Gowers Review call for evidence issues paper produced on 23 February 2006 sets out the following questions for consideration:

#### **"Copyright exceptions - fair use / fair dealing**

Background: There are a number of exceptions to copyright that allow limited use of copyright works without the permission of the copyright holder.

- (a) What are your views on the current exceptions in copyright law?
- (b) Could more be done to clarify the various exceptions?
- (c) Are there other areas where copyright exceptions should apply?
- (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”?

- (e) How would you see content owners being compensated for such use?
- (f) To what extent has technological change presented difficulties in use of copyrighted material in the field of education?
- (g) Are there issues concerning the archiving of material covered by copyright?”

## **Methodology adopted**

- 2.5 To prepare this report, Europe Economics conducted a search of possible sources of academic and other relevant literature on the subject of fair use. Using web-based search tools, the facilities of the library of the London School of Economics and desk research, over 130 articles and studies were identified (see Appendix 4 for the full list) and reviewed at a high level on the basis of abstracts or summaries of their contents. From this initial review, a shortlist of items of literature was identified based on their relevance to the main issue of concern to the RSA, namely the economic and other means of justification for the fair use and fair dealing exceptions, and on the extent to which the article contributed new thought or new evidence to the debate on fair use. We then cross-checked the bibliographies in the selected articles to ensure that we were not overlooking seminal papers and as a result identified some additional material to consider. On this basis we identified a shortlist of about 30 priority articles which were subject to detailed review and which form the basis for the findings set out in the rest of this report.
- 2.6 We found that there was very little detailed empirical evidence of the impacts of fair use and therefore relied mainly on theoretical studies. We also found that a significant majority of the literature derived from the US where there is considerable debate on the principles underlying the fair use doctrine and its future development. Nevertheless, where we identified significant contributions on the subject of fair use and fair dealing from the UK and other common law jurisdictions, we included this in our review.

## **The structure of this report**

- 2.7 The first section (Section 1) of this report contains an executive summary of the main findings.
- 2.8 Section 3 describes the background to copyright law and the fair use doctrine.
- 2.9 Section 4 considers the key issues highlighted during the course of this study.

- 2.10 Section 5 sets out Europe Economics' conclusions and its recommendations of issues requiring future consideration.
- 2.11 Appendices 1 and 2 reproduce the pertinent sections of the UK and US (respectively) copyright legislation.
- 2.12 Appendix 3 reproduces the EU Copyright Directive.
- 2.13 Appendix 4 lists the academic and other literature considered for detailed review for this study.

### **Europe Economics**

- 2.14 Europe Economics is the trading arm of European Economic Research Limited. It is a London-based consultancy specialising in the application of economics and econometrics to matters of public policy, competition and regulation. Its clients in the UK and overseas include government departments, NGOs, regulators, competition authorities, trade associations, law firms and commercial organisations of all sizes. About one third of its UK revenues and about two thirds of its overseas revenues are derived from the public sector. More detail about Europe Economics can be found at its website, <http://www.europe-economics.com>

### **3 BACKGROUND TO COPYRIGHT LAW, FAIR USE AND FAIR DEALING**

#### **Copyright law**

- 3.1 Copyright law protects creative works. Copyright can be justified in a number of different ways. Economically, copyright is justified as a means to incentivise creativity by overcoming the public goods / free rider problem and as a means to facilitate the transfer of information to its highest valued use. Alternatively, copyright can be justified on the basis of fairness or the author's natural rights (see in particular the French legal doctrine of "droit moral"). This paper focuses mainly on the economic justification of copyright and of the copyright exceptions of fair use and fair dealing.
- 3.2 Copyright is intended to protect the rights of creators by restricting others from free-riding by copying the work. Since copiers avoid creation costs, they can sell at a lower price (a price the creator can not match) and, with modern technology, often can deliver products which have very similar quality to that of the original work. Without some protection for creators, they might not produce works, ie. there would be suboptimal incentives to create. The development of copyright also creates a market structure where the creator can license the copying of the work, thus enabling allocative efficiency and the efficient exploitation of ideas and information.
- 3.3 However, copyright also generates costs (see Gordon and Bone):
- (a) Copyright confers monopoly power and thus there is a risk of monopoly pricing and deadweight loss. The inexhaustibility of information exacerbates this problem because normally everyone can enjoy an information product without depleting its quality or quantity whereas, with a tangible good, supplying the item to person A means denying it to person B. Thus, the charging of high monopoly prices will exclude consumers who otherwise would have purchased the information, creating a social loss.
  - (b) Intellectual creation is a cumulative process, where new ideas build on existing ideas and the earlier work of others. The monopoly created by copyright increases the cost of future creativity by requiring prospective innovators to obtain licences, thus reducing the incentive to create.
  - (c) There can be significant transaction costs associated with licensing, such as the cost of identifying and locating the creator, and the cost of bargaining for access to the work. These costs can be reduced by clear definition of the property right, by consolidating ownership in a small number of entities (eg. licensing collectives) and through the application of modern technology (on-line licensing schemes).
  - (d) Implementing and enforcing the copyright system produces administrative costs. Such enforcement costs depend upon the frequency of infringement and the average cost of enforcing rights against an infringer.

- 3.4 The aim of copyright law and its exceptions is to strike the optimum economic (and social) balance of the benefits and costs of copyright. As Landes and Posner explain, copyright entitlements balance out the two effects of the copyright monopoly with the ultimate goal of maximising the social benefit, the two effects of the copyright monopoly being: the enhancement of the prospective creator's economic return, thus strengthening the incentive to create; and the increasing of the cost of borrowing from previous works, thus weakening the incentive to create.

### **Fair use and fair dealing**

- 3.5 Fair use and fair dealing comprise exceptions to copyright or a defence to an allegation of copyright infringement. The "fair use" doctrine, now incorporated into section 107 of the US Copyright Law, provides that the fair use of copyrighted material is not an infringement of copyright. However, what constitutes "fair use" is not exclusively defined but is an issue to be considered by the courts, based on a number of non-exclusive factors:

- (a) the purpose and character of the use, including whether such use is of a commercial nature or is for non-profit educational purposes;
- (b) the nature of the copyrighted work;
- (c) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
- (d) the effect of the use upon the potential market for or value of the copyrighted work.

- 3.6 This US approach to fair use allows for a high degree of flexibility but also risks considerable uncertainty, both on the part of the creators of works and of potential users. By comparison, the common law doctrine of "fair dealing" is a specific set of possible defences against actions for infringement of copyright, thus being more certain but also more inflexible than the US "fair use" doctrine. In the UK, the CDPA defines fair dealing and related defences to copyright in 49 separate sections in Chapter III of the Act.

- 3.7 In addition, the introduction of the Copyright Directive (Directive 2001/29/EC) requires EU Member States to operate certain exceptions and limits the circumstances in which other exceptions may be granted. Article 5 of the Copyright Directive specifies that Member States must provide for one mandatory exception (transient or incidental acts of reproduction) and also sets out a large number of defences which Member States may allow for. Any exception implemented by a Member State must meet the so-called "three-step test", as introduced by the Berne Convention for the Protection of Literary and Artistic Works:

All exceptions must be:

- (i) limited to certain special cases;
- (ii) not conflict with a normal exploitation of the work; and

(iii) not unreasonably prejudice the legitimate interests of the author.

3.8 Examples of acts that may be considered as fair use and fair dealing include copying or reproducing extracts of original works for the purposes of research or private study, criticism or review, or to report current events. Areas where there has been controversy regarding the application of fair use and fair dealing have included the systematic copying of texts for students by university libraries and the copying of broadcast programmes for private viewing by means of videotape, and the availability of material for news reporting purposes.

## **4 FAIR USE ISSUES**

4.1 This part of the report sets out our findings from the literature review. The principal findings and key issues arising are reviewed under the headings of:

- (a) Fair use and economic incentives for creativity;
- (b) Fair use as a means to resolve market failure;
- (c) The public interest;
- (d) The importance of monetary concerns;
- (e) Transformative and non-transformative uses ; and
- (f) Criticism and review.

### **Fair use and economic incentives for creativity**

4.2 The purpose of the copyright system is the advancement and dissemination of culture and knowledge and not the remuneration of the creator per se. Thus, the fair use doctrine balances the creator's need for remuneration against the social need for access. By increasing the accessibility and lowering the cost of access to a work, fair use reduces the social welfare loss due to under-utilisation and encourages the creation of new works. As a result, fair use can generate important economic benefits so long as the incentives for the original creator are not significantly adversely affected. This proviso is the reason why much of the law on fair use and fair dealing is concerned with the issue of the impact of the use (or dealing) on the creator, in particular the actual or potential commercial disadvantages.

4.3 Liebowitz (1986) argues that the ability of users to photocopy journals may not harm copyright owners when it increases their ability to price discriminate. Fair use allows individual users to copy articles from journals but, since publishers recognise this effect, they can price discriminate, charging libraries a higher subscription fee. Fair use has therefore made copyright protection more flexible by increasing consumption without unduly affecting the incentives for creation.

### **Fair use as a means to resolve market failure**

4.4 In a seminal article in 1982, Gordon defined and defended the doctrine of fair use as a means to resolve market failure, the market failure which arises when:

- (a) the user can not appropriately purchase the desired user right through the market;
- (b) transferring control over the right would serve the public interest; and

- (c) the copyright owner's incentives would not be substantially impaired by allowing the use.
- 4.5 As a result, the fair use doctrine provides a mechanism whereby the law recognises the need to allow the uncompensated transfer of the property right in circumstances where it might otherwise not be possible in order to ensure the advancement and dissemination of culture and knowledge and in circumstances where the creator's rights (and incentives to create) would not be significantly adversely affected.
- 4.6 The first "market failure" part of the test is important in order to ensure that market solutions are the primary means of mediating creator / user transactions. (Market solutions being considered to be the most effective means of ensuring allocative efficiency.) Market failure has been considered primarily in terms of high transaction costs, ie. practical difficulties for the user to identify, locate and negotiate use with the creator of the work in question. High transaction costs may also be caused by negotiation (eg. revealing ideas to potential competitors) or enforcement (eg. monitoring the copying of journals at libraries). Similarly, Sag has argued that the strong protection of music rights may lead to increased concentration to internalise the transaction costs.
- 4.7 However, in light of the development of on-line electronic and collective licensing systems, the question has been asked whether there is ever a sufficient market failure to justify fair use. In the normal workings of the market, problems arising from high transaction costs can create opportunities for innovative market solutions and therefore some have argued that basing exceptions on market failure in terms of transaction costs should be done sparingly.
- 4.8 Gordon herself suggested that possible market failures that may lead to fair use can be caused by several factors:
- (a) market barriers, such as limited time between inspiration and decision to use a specific work so that it would be unreasonable to expect timely response;
  - (b) the out-of-print status or availability of a work;
  - (c) high transaction costs where the costs of reaching and enforcing bargains with the creator are too high, eg. private research use at home; or
  - (d) if use is likely to be in the mutual interest of the user and creator, where trying to obtain consent might impose excessive transaction costs.
- 4.9 Depoorter and Parisi consider that another form of market failure which fair use may help to resolve is an "anti-commons", where many owners have rights to exclude the use of a resource and where, as a result, there may be under-use if the authors are unable to reach a co-ordinated agreement. Such a circumstance could arise in copyright where certain works are all complements (necessary inputs) into a derivative work (e.g. an anthology). The individual price to purchase each input will be too high because each author does not consider the externality of their action on the value of other author's rights

to exclude. The initial high prices charged will prevent the user contacting other authors to acquire permission also to use their work. This will then have a second effect because the under-use of the resource today will influence the works available in future. The authors' own interests are also harmed and there will be a deadweight loss, increasing with the number of necessary inputs. Fair use can help to resolve the anti-commons problem by ensuring dissemination.

- 4.10 The second test is that the use should be socially desirable, ie. that there should be educational or cultural externalities. Gordon suggested that such externalities could include: scholarship, public debate, and non-profit or educational purposes that would not be properly rewarded in the market. However, one must also be aware that commercial uses can also create beneficial externalities, and that non-profit organisations can also be full members of the market process and therefore should not be allowed to bypass the market if they have sufficient resources to use market channels.
- 4.11 The final test is that there should be no significant injury to the creator so that the incentives remain for creation. The calculation of injury should include not only the actual injury which would be caused by the use in question but also the potential injury that would be caused by recurrences of such fair use.
- 4.12 It is worth noting that the fair use rule under the market failure definition recognises that the creator would not expect to receive any revenue even if the use was banned (and strictly enforced) since the user is unable to obtain the required licence for the use. Therefore, so long as the use is a poor substitute for the actual work, eg. copying extracts from a journal, there should no impact on the creator's economic incentive. Similarly, the recording of television programmes and music recordings for time-shifting and space-shifting are unlikely to reduce the creator's expected revenues and may indeed increase demand for the original work.

## **The public interest**

- 4.13 The second test of Gordon's market failure rationale for fair use raises a wider issue about a more generic "public interest" defence to alleged copyright infringement. While there have been a number of proponents of such an approach, the difficulty lies in defining what constitutes the "public interest" and, given the uncertainty in this area, devising a rule which could be robustly and predictably applied in practice.
- 4.14 Within the literature and case law on fair use and fair dealing, relevant factors in determining whether a use was in the public interest have largely been based on:
  - (a) Whether the use was for commercial benefit or a non-profit activity, with particular emphasis placed on educational uses;
  - (b) Communitarian values, the extent to which the use contributes to the common goals of the community, "the greater the relationship of the work of art to the shared values of the community, the greater the need for widespread availability" (Lacey); and

(c) Relatively rare circumstances where copyright is being asserted in a way which would impact on public health or safety, the administration of justice, or freedom of information.

4.15 Within the UK, there is a body of case law which had, until recently, indicated that there is common law public interest defence to an action for infringement of copyright (as well as the statutory exceptions specified in the CDPA). Indeed, there is a specific provision in the CDPA, section 171(3), which allows for such a common law public interest defence:

“nothing in this Part affects any rule of law preventing or restricting the enforcement of copyright on the grounds of public interest or otherwise.”

4.16 However, two more recent cases have placed in doubt the scope and existence of the public interest defence in UK copyright law. In *Hyde Park v Yelland*<sup>1</sup>, the Court of Appeal refused to allow a defence of fair dealing and a majority of the court concluded that there is no general public interest defence to an action for infringement of copyright in the UK. Aldous LJ stated that the courts have no jurisdiction to refuse to enforce copyright where the author is not guilty of wrongdoing and where the work, although itself not inherently immoral or injurious to the public, reveals information which affects the public interest. In *Ashdown v Telegraph Group*<sup>2</sup>, the Court of Appeal drew back marginally from *Yelland's* outright rejection of the public interest defence, concluding that there are rare circumstances in which copyright can come into conflict with freedom of expression and in which a public interest defence will be available.

4.17 A further consideration with regard to a possible general public interest defence is human rights legislation and the extent to which this permits the courts to consider a possible general public interest defence. Section 12(4) of the Human Rights Act seems on its face to allow the courts to refuse to grant injunctions to authors seeking to enforce copyright:

“The court must have particular regard to the importance of the Convention right to freedom of expression and, where the proceedings relate to material which the respondent claims, or which appears to the court, to be journalistic, literary or artistic material (or to conduct connected with such material), to –

(a) the extent to which –

(i) the material has, or is about to, become available to the public; or

(ii) it is, or would be, in the public interest for the material to be published;

(b) any relevant privacy code.”

4.18 However, the courts in the UK have thus far been reluctant to rely on this section for the purpose of providing a form of general public interest defence and therefore, at present, there is little momentum for such a defence to develop.

### **The importance of monetary concerns**

4.19 As stated above and as is encapsulated in the Berne Convention’s three-part test, the issue of the financial impact on creators has been a primary concern of the courts when considering allegations of infringement of copyright. To a large extent, this is a perfectly understandable and rational approach since the economic incentivisation of creation is dependent on the creators being able to realise the financial rewards from their work. Thus, in the UK courts, it has long been accepted that a user attempting to claim a defence under “fair dealing” will be unlikely to succeed where it can be shown that he derives a commercial benefit from the dealing.

4.20 However, it may be questioned whether the emphasis on the monetary rewards available to creators always leads to optimal outcomes from an economic and social perspective. It is clear, for example, that not all creators are motivated purely (or even at all) by the prospect of monetary reward. In such cases, the wider the dissemination of the work, the more likely the prospect of critical and public acclaim, which may be a stronger incentive for further creativity than monetary reward (although, arguably, the creator should be able to agree or refuse this kind of effect).

4.21 Furthermore, an over-emphasis on the rights of creators to maximise their monetary reward may fail to take proper account of the positive externalities arising from wider dissemination of their works. In the extreme case, almost any form of copying and fair use could be argued to have a possible effect on the creator’s financial interests so that, if courts were to lean towards this more extreme view, defences based on fair use or fair dealing would be almost certain to fail. For example, Anderson and Brown’s analysis of the *Kinko* case in the USA criticises the court’s ruling that, because Kinko was copying excerpts from books for college students for commercial profit, the educational use of these copies was irrelevant. Economically, the court’s approach on this point is hard to defend since, if the students themselves had made the copies, the impact on the authors’ incentives would not have been affected. However, the court in *Kinko* also properly considered that the copies made by Kinko acted as a direct substitution for the original works and therefore did have an impact on future sales of the works, to the detriment of the authors’ interests. Similarly, the UK fair dealing rules allow for copying by third parties for the purpose of research or private study but limits this defence in section 29(3)(b):

---

<sup>1</sup> [1999] RPC 655; [2001] Ch 143

<sup>2</sup> [2001] Ch 685

“Copying by a person other than the researcher or student himself is not fair dealing if -

- (b) in any other case, the person doing the copying knows or has reason to believe that it will result in copies of substantially the same material being provided to more than one person at substantially the same time and for substantially the same purpose.”

### **Transformative and non-transformative uses**

4.22 The courts have always been more willing to consider a defence of fair use or fair dealing where the use made of the original is transformative, ie. that the user has added to or re-contextualised the part taken from the original. This approach recognises that the economic justification for copyright is to provide incentives for creation and the production of works. Thus, where a previously produced work is used to generate the creation of a genuinely new work, the interests of the creator of the original must be sub-ordinated to the general interests of incentivising the creation and production of new works.

### **Criticism and review**

4.23 Copyright law recognises the value of criticism and review, allowing a fair use or fair dealing defence in such cases. Criticism can be seen both as a transformative use, ie. as a new creation, and also as a means to provide improved information to the market as to the value of the original work. Since it would sometimes be in the creator’s interests to prevent such criticism or only to allow favourable criticism, fair use is a vital means of ensuring that criticism can continue to offer valuable and impartial information for consumers.

4.24 Gordon (2001) argues that fair use in the context of criticism may be appropriate even if it causes substantial injury to the owner because the creator can be using the property right as a tool of suppression. While normally one would assume that governmental decision-makers should not question why someone refuses to sell or license their own work (as Posner states, economics “assumes that man is a rational maximiser of his ends in life”), in certain circumstances the market can not be relied upon and it might be economically desirable to refuse a creator’s right of suppression. Thus, although the copyright holder may suffer significantly from the use, society as a whole will benefit. Gordon’s four possible reasons for allowing fair use in this situation are that:

- (a) the audience’s views are not reflected in the bargain (in terms of gain from being informed about the creator’s work);
- (b) the alternative creators are not represented (those creators who can generate or have generated substitute products and who might benefit from criticism of the work in question);

- (c) there may be problems arising from the managerial discretion of the licensors, who may refuse to license use of the work for criticism, eg. through a desire to “play it safe”; and
- (d) there may be endowment effects, where the market is not capable of determining who is the highest value user, ie. where the most valued use for an asset depends on who owns that asset; thus, a creator’s reputation can be considered as “priceless”, something that he would not sell at any price but this is not a market effect since, if the right to tarnish the creator’s reputation were to be transferred to the critic, neither would he sell that right at any price.

4.25 In the UK, section 30(1) of the CDPA provides that fair dealing with any work for the purpose of criticism or review does not infringe the copyright in the work. Moreover, the CDPA extended the scope of the exception so that it became permissible to quote extracts from a play when reviewing the performance of a dramatic work. In addition, the courts have ruled that criticism or review can also be aimed at the underlying thoughts, ideas and principles of the work<sup>3</sup> and, so long as there is true criticism of the work, can be used as a means to introduce some other form of criticism<sup>4</sup> (see Benson).

4.26 However, there are limitations on the use of this defence, notably that the dealing must be criticism or review “of a work”. This language arguably does not cover criticism of a performance where there is no work (eg. it may not be permissible to include quotations from book on comedy in a criticism of a stand-up comedian’s performance), nor criticism of other issues where there is no work (eg. it may not be permissible to include quotations from a book on political theory when criticising political arrangements). As a result, there has been concern that UK legislators need to review and expand the fair dealing defence to address more appropriately the relationship between copyright and freedom of expression (see Burrell and Coleman).

---

<sup>3</sup> Hubbard v Vosper [1972] 2 QB 84

<sup>4</sup> Time Warner v Channel 4 [1994] EMLR 1 – this case concerned the film *A Clockwork Orange* where a Channel 4 programme used criticism of the film to frame its criticism of the withdrawal of the film from distribution in the UK

## **5 CONCLUSIONS AND ISSUES FOR FUTURE CONSIDERATION**

### **Importance of fair use**

- 5.1 The exceptions or defences to copyright comprised within the fair use or fair dealing doctrines form a critical factor in the effectiveness of copyright law in ensuring that the correct economic incentives exist for the encouragement of the creation of new works. As Gallagher states: “works will be under-produced in the absence of exclusive rights and under-utilised in the presence of exclusive rights”. Fair use provides the balance to the copyright owner’s exclusive rights.
- 5.2 The economic definition of fair use is perhaps best described in terms of Gordon’s analysis of fair use as a means to prevent (or overcome) market failure. Fair use, in these terms, provides the means for optimal utilisation of existing works where market solutions would otherwise be inadequate.
- 5.3 The development of Gordon’s analysis (which she herself has addressed) to include “justified” fair use in the case of criticism and review is both important and rational from an economic point of view. Since the economy wants creative works to be produced that add the most to social welfare, if a creator’s profits are harmed due to criticism or review rather than due to substitution, this should be accepted because this helps to generate wider social benefits (an opposing approach would merely generate private benefits for the creator).

### **Fair use to address market failure**

- 5.4 Adopting the market failure approach of defining fair use also allows for analysis of the efficiency of creation, in particular the idea that price discrimination techniques could, at the optimum, ensure the optimal balance between access and incentives for creativity. Thus, creators would know that fair use would allow copying of their works in certain circumstances and therefore should seek to charge higher licensing fees for those users who are likely to be the source for such fair use copying.
- 5.5 Adopting the market failure approach also means an acceptance that the relatively newly developed on-line methods for access licensing and collective licensing methods will significantly reduce the justification for fair use (because transaction costs, the main cause of the market failure, will be significantly reduced), while providing simple and (relatively) inexpensive means of access for users. This approach also places an incentive on the copyright owner to introduce practical and effective means of licensing, which should increase certainty for users as well as enhancing access.
- 5.6 It is worthwhile to examine the impact that the market failure approach would have in particular circumstances. One of the most important social and economic contexts is that of educational use of creative material. While there are specific exemptions for educational use in the UK’s CDPA, these are relatively limited and, in the opinion of some observers, too limited. However, if one adopts the market failure approach to fair use, one

can observe that the non-extension of fair use will tend to encourage the development of practical and effective means of licensing (if such development does not take place, fair use will allow non-licensed use) such that an optimal level of use is likely to result.

- 5.7 An opposing approach which would argue for more open access to educational material (ie. a broadening of the fair use doctrine in the context of education works) would seem to under-value (or to under-reward) the creation of educational works, which appears to contradict the underlying assumption of such an approach that educational works are of such value that access needs to be as wide as possible.

### **Issues for further consideration**

- 5.8 Based on our review of the existing literature on copyright and fair use in particular, we believe it would be valuable to undertake further detailed consideration of:
- (a) The measurable impact on schools and educational establishments of a market failure approach to fair use, ie. an empirical study of the costs of copying works for educational uses under licence and the effect on incentives to produce such educational works;
  - (b) Whether the terms of copyright law need to be amended in light of the development of digital technology and multimedia access, eg. if the main act restricted or controlled by copyright now needs to be the right of access to the content of a work; and
  - (c) The extent to which any changes proposed to UK legislation will in future be restricted by the terms of the EC Copyright Directive (for example, if there is to be a general public interest defence, how this would fit within the list of exceptions allowed under the Directive, if it would fit at all) and therefore whether the Directive requires amendment or reinterpretation.

## **APPENDIX 1: UK COPYRIGHT LEGISLATION**

### **Copyright, Designs and Patents Act 1988**

#### **Chapter III Acts Permitted in relation to Copyright Works (*extracts*)**

- 28.** (1) The provisions of this Chapter specify acts which may be done in relation to copyright works notwithstanding the subsistence of copyright; they relate only to the question of infringement of copyright and do not affect any other right or obligation restricting the doing of any of the specified acts.
- (2) Where it is provided by this Chapter that an act does not infringe copyright, or may be done without infringing copyright, and no particular description of copyright work is mentioned, the act in question does not infringe the copyright in a work of any description.
- (3) No inference shall be drawn from the description of any act which may by virtue of this Chapter be done without infringing copyright as to the scope of the acts restricted by the copyright in any description of work.
- (4) The provisions of this Chapter are to be construed independently of each other, so that the fact that an act does not fall within one provision does not mean that it is not covered by another provision.
- 29.** (1) Fair dealing with a literary, dramatic, musical or artistic work for the purposes of research or private study does not infringe any copyright in the work or, in the case of a published edition, in the typographical arrangement.
- (2) Fair dealing with the typographical arrangement of a published edition for the purposes mentioned in subsection (1) does not infringe any copyright in the arrangement.
- (3) Copying by a person other than the researcher or student himself is not fair dealing if -
- (a) in the case of a librarian, or a person acting on behalf of a librarian, he does anything which regulations under section 40 would not permit to be done under section 38 or 39 (articles or parts of published works: restriction on multiple copies of same material), or
- (b) in any other case, the person doing the copying knows or has reason to believe that it will result in copies of substantially the same material being provided to more than one person at substantially the same time and for substantially the same purpose.

- 30.** (1) Fair dealing with a work for the purpose of criticism or review, of that or another work or of a performance of a work, does not infringe any copyright in the work provided that it is accompanied by a sufficient acknowledgement.
- (2) Fair dealing with a work (other than a photograph) for the purpose of reporting current events does not infringe any copyright in the work provided that (subject to subsection (3)) it is accompanied by a sufficient acknowledgement.
- (3) No acknowledgement is required in connection with the reporting of current events by means of a sound recording, film, broadcast or cable programme.

**[31]**

- 33.** (1) The inclusion of a short passage from a published literary or dramatic work in a collection which -
- (a) is intended for use in educational establishments and is so described in its title, and in any advertisements issued by or on behalf of the publisher, and
- (b) consists mainly of material in which no copyright subsists,
- does not infringe the copyright in the work if the work itself is not intended for use in such establishments and the inclusion is accompanied by a sufficient acknowledgement.
- (2) Subsection (1) does not authorise the inclusion of more than two excerpts from copyright works by the same author in collections published by the same publisher over any period of five years.
- (3) In relation to any given passage the reference in subsection (2) to excerpts from works by the same author -
- (a) shall be taken to include excerpts from works by him in collaboration with another, and
- (b) if the passage in question is from such a work, shall be taken to include excerpts from works by any of the authors, whether alone or in collaboration with another.
- (4) References in this section to the use of a work in an educational establishment are to any use for the educational purposes of such an establishment.

**[34]**

- 35.** (1) A recording of a broadcast or cable programme, or a copy of such a recording, may be made by or on behalf of an educational establishment for the educational

purposes of that establishment without thereby infringing the copyright in the broadcast or cable programme, or in any work included in it.

- (2) This section does not apply if or to the extent that there is a licensing scheme certified for the purposes of this section under section 143 providing for the grant of licences.
- (3) Where a copy which would otherwise be an infringing copy is made in accordance with this section but is subsequently dealt with, it shall be treated as an infringing copy for the purposes of that dealing, and if that dealing infringes copyright for all subsequent purposes.

For this purpose "dealt with" means sold or let for hire or offered or exposed for sale or hire.

- 36.**
- (1) Reprographic copies of passages from published literary, dramatic or musical works may, to the extent permitted by this section, be made by or on behalf of an educational establishment for the purposes of instruction without infringing any copyright in the work, or in the typographical arrangement.
  - (2) Not more than one per cent. of any work may be copied by or on behalf of an establishment by virtue of this section in any quarter, that is, in any period 1st January to 31st March, 1st April to 30th June, 1st July to 30th September or 1st October to 31st December.
  - (3) Copying is not authorised by this section if, or to the extent that, licences are available authorising the copying in question and the person making the copies knew or ought to have been aware of that fact.
  - (4) The terms of a licence granted to an educational establishment authorising the reprographic copying for the purposes of instruction of passages from published literary, dramatic or musical works are of no effect so far as they purport to restrict the proportion of a work which may be copied (whether on payment or free of charge) to less than that which would be permitted under this section.
  - (5) Where a copy which would otherwise be an infringing copy is made in accordance with this section but is subsequently dealt with, it shall be treated as an infringing copy for the purposes of that dealing, and if that dealing infringes copyright for all subsequent purposes.

For this purpose "dealt with" means sold or let for hire or offered or exposed for sale or hire.

- 37.**
- (1) In sections 38 to 43 (copying by librarians and archivists) -

- (a) references in any provision to a prescribed library or archive are to a library or archive of a description prescribed for the purposes of that provision by regulations made by the Secretary of State; and
  - (b) references in any provision to the prescribed conditions are to the conditions so prescribed.
- (2) The regulations may provide that, where a librarian or archivist is required to be satisfied as to any matter before making or supplying a copy of a work -
- (a) he may rely on a signed declaration as to that matter by the person requesting the copy, unless he is aware that it is false in a material particular, and
  - (b) in such cases as may be prescribed, he shall not make or supply a copy in the absence of a signed declaration in such form as may be prescribed.
- (3) Where a person requesting a copy makes a declaration which is false in a material particular and is supplied with a copy which would have been an infringing copy if made by him -
- (a) he is liable for infringement of copyright as if he had made the copy himself, and
  - (b) the copy shall be treated as an infringing copy.
- (4) The regulations may make different provision for different descriptions of libraries or archives and for different purposes.
- (5) Regulations shall be made by statutory instrument which shall be subject to annulment in pursuance of a resolution of either House of Parliament.
- (6) References in this section, and in sections 38 to 43, to the librarian or archivist include a person acting on his behalf.
- 38.** (1) The librarian of a prescribed library may, if the prescribed conditions are complied with, make and supply a copy of an article in a periodical without infringing any copyright in the text, in any illustrations accompanying the text or in the typographical arrangement.
- (2) The prescribed conditions shall include the following –
- (a) that copies are supplied only to persons satisfying the librarian that they require them for purposes of research or private study, and will not use them for any other purpose;

- (b) that no person is furnished with more than one copy of the same article or with copies of more than one article contained in the same issue of a periodical; and
  - (c) that persons to whom copies are supplied are required to pay for them a sum not less than the cost (including a contribution to the general expenses of the library) attributable to their production.
- 39.** (1) The librarian of a prescribed library may, if the prescribed conditions are complied with, make and supply from a published edition a copy of part of a literary, dramatic or musical work (other than an article in a periodical) without infringing any copyright in the work, in any illustrations accompanying the work or in the typographical arrangement.
- (2) The prescribed conditions shall include the following –
- (a) that copies are supplied only to persons satisfying the librarian that they require them for purposes of research or private study, and will not use them for any other purpose;
  - (b) that no person is furnished with more than one copy of the same material or with a copy of more than a reasonable proportion of any work; and
  - (c) that persons to whom copies are supplied are required to pay for them a sum not less than the cost (including a contribution to the general expenses of the library) attributable to their production.
- 40.** (1) Regulations for the purposes of sections 38 and 39 (copying by librarian of article or part of published work) shall contain provision to the effect that a copy shall be supplied only to a person satisfying the librarian that his requirement is not related to any similar requirement of another person.
- (2) The regulations may provide –
- (a) that requirements shall be regarded as similar if the requirements are for copies of substantially the same material at substantially the same time and for substantially the same purpose; and
  - (b) that requirements of persons shall be regarded as related if those persons receive instruction to which the material is relevant at the same time and place.
- 41.** (1) The librarian of a prescribed library may, if the prescribed conditions are complied with, make and supply to another prescribed library a copy of –
- (a) an article in a periodical, or

- (b) the whole or part of a published edition of a literary, dramatic or musical work,

without infringing any copyright in the text of the article or, as the case may be, in the work, in any illustrations accompanying it or in the typographical arrangement.

- (2) Subsection (1)(b) does not apply if at the time the copy is made the librarian making it knows, or could by reasonable inquiry ascertain, the name and address of a person entitled to authorise the making of the copy.

**[42]**

**43.** (1) The librarian or archivist of a prescribed library or archive may, if the prescribed conditions are complied with, make and supply a copy of the whole or part of a literary, dramatic or musical work from a document in the library or archive without infringing any copyright in the work or any illustrations accompanying it.

- (2) This section does not apply if –

- (a) the work had been published before the document was deposited in the library or archive, or
- (b) the copyright owner has prohibited copying of the work,

and at the time the copy is made the librarian or archivist making it is, or ought to be, aware of that fact.

- (3) The prescribed conditions shall include the following –

- (a) that copies are supplied only to persons satisfying the librarian or archivist that they require them for purposes of research or private study and will not use them for any other purpose;
- (b) that no person is furnished with more than one copy of the same material; and
- (c) that persons to whom copies are supplied are required to pay for them a sum not less than the cost (including a contribution to the general expenses of the library or archive) attributable to their production.

**[44 - 69]**

**70.** The making for private and domestic use of a recording of a broadcast or cable programme solely for the purpose of enabling it to be viewed or listened to at a more convenient time does not infringe any copyright in the broadcast or cable programme or in any work included in it.

**[71]**

- 72.** (1) The showing or playing in public of a broadcast or cable programme to an audience who have not paid for admission to the place where the broadcast or programme is to be seen or heard does not infringe any copyright in –
- (a) the broadcast or cable programme, or
  - (b) any sound recording or film included in it.
- (2) The audience shall be treated as having paid for admission to a place –
- (a) if they have paid for admission to a place of which that place forms part; or
  - (b) if goods or services are supplied at that place (or a place of which it forms part) –
    - (i) at prices which are substantially attributable to the facilities afforded for seeing or hearing the broadcast or programme, or
    - (ii) at prices exceeding those usually charged there and which are partly attributable to those facilities.
- (3) The following shall not be regarded as having paid for admission to a place –
- (a) persons admitted as residents or inmates of the place;
  - (b) persons admitted as members of a club or society where the payment is only for membership of the club or society and the provision of facilities for seeing or hearing broadcasts or programmes is only incidental to the main purposes of the club or society.
- (4) Where the making of the broadcast or inclusion of the programme in a cable programme service was an infringement of the copyright in a sound recording or film, the fact that it was heard or seen in public by the reception of the broadcast or programme shall be taken into account in assessing the damages for that infringement.

**[73 – 76]**

## **APPENDIX 2: US COPYRIGHT LEGISLATION**

### **Copyright Act of 1976: Chapter 1. Subject matter and scope of copyright**

#### **Section 107. Limitations on exclusive rights: Fair use**

Notwithstanding the provisions of sections 106 and 106A, the fair use of a copyrighted work, including such use by reproduction in copies or phonorecords or by any other means specified by that section, for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is a fair use the factors to be considered shall include -

- (1) the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
- (2) the nature of the copyrighted work;
- (3) the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
- (4) the effect of the use upon the potential market for or value of the copyrighted work.

The fact that a work is unpublished shall not itself bar a finding of fair use if such finding is made upon consideration of all the above factors.

## **APPENDIX 3: EU COPYRIGHT DIRECTIVE**

### **Directive 2001/29/EC of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society**

THE EUROPEAN PARLIAMENT AND THE COUNCIL OF THE EUROPEAN UNION,

Having regard to the Treaty establishing the European Community, and in particular Articles 47(2), 55 and 95 thereof,

Having regard to the proposal from the Commission,

Having regard to the opinion of the Economic and Social Committee,

Acting in accordance with the procedure laid down in Article 251 of the Treaty,

Whereas:

(1) The Treaty provides for the establishment of an internal market and the institution of a system ensuring that competition in the internal market is not distorted. Harmonisation of the laws of the Member States on copyright and related rights contributes to the achievement of these objectives.

(2) The European Council, meeting at Corfu on 24 and 25 June 1994, stressed the need to create a general and flexible legal framework at Community level in order to foster the development of the information society in Europe. This requires, inter alia, the existence of an internal market for new products and services. Important Community legislation to ensure such a regulatory framework is already in place or its adoption is well under way. Copyright and related rights play an important role in this context as they protect and stimulate the development and marketing of new products and services and the creation and exploitation of their creative content.

(3) The proposed harmonisation will help to implement the four freedoms of the internal market and relates to compliance with the fundamental principles of law and especially of property, including intellectual property, and freedom of expression and the public interest.

(4) A harmonised legal framework on copyright and related rights, through increased legal certainty and while providing for a high level of protection of intellectual property, will foster substantial investment in creativity and innovation, including network infrastructure, and lead in turn to growth and increased competitiveness of European industry, both in the area of content provision and information technology and more generally across a wide range of industrial and cultural sectors. This will safeguard employment and encourage new job creation.

(5) Technological development has multiplied and diversified the vectors for creation, production and exploitation. While no new concepts for the protection of intellectual property are needed, the current law on copyright and related rights should be adapted and supplemented to respond adequately to economic realities such as new forms of exploitation.

(6) Without harmonisation at Community level, legislative activities at national level which have already been initiated in a number of Member States in order to respond to the technological challenges might result in significant differences in protection and thereby in restrictions on the

free movement of services and products incorporating, or based on, intellectual property, leading to a refragmentation of the internal market and legislative inconsistency. The impact of such legislative differences and uncertainties will become more significant with the further development of the information society, which has already greatly increased transborder exploitation of intellectual property. This development will and should further increase. Significant legal differences and uncertainties in protection may hinder economies of scale for new products and services containing copyright and related rights.

(7) The Community legal framework for the protection of copyright and related rights must, therefore, also be adapted and supplemented as far as is necessary for the smooth functioning of the internal market. To that end, those national provisions on copyright and related rights which vary considerably from one Member State to another or which cause legal uncertainties hindering the smooth functioning of the internal market and the proper development of the information society in Europe should be adjusted, and inconsistent national responses to the technological developments should be avoided, whilst differences not adversely affecting the functioning of the internal market need not be removed or prevented.

(8) The various social, societal and cultural implications of the information society require that account be taken of the specific features of the content of products and services.

(9) Any harmonisation of copyright and related rights must take as a basis a high level of protection, since such rights are crucial to intellectual creation. Their protection helps to ensure the maintenance and development of creativity in the interests of authors, performers, producers, consumers, culture, industry and the public at large. Intellectual property has therefore been recognised as an integral part of property.

(10) If authors or performers are to continue their creative and artistic work, they have to receive an appropriate reward for the use of their work, as must producers in order to be able to finance this work. The investment required to produce products such as phonograms, films or multimedia products, and services such as "on-demand" services, is considerable. Adequate legal protection of intellectual property rights is necessary in order to guarantee the availability of such a reward and provide the opportunity for satisfactory returns on this investment.

(11) A rigorous, effective system for the protection of copyright and related rights is one of the main ways of ensuring that European cultural creativity and production receive the necessary resources and of safeguarding the independence and dignity of artistic creators and performers.

(12) Adequate protection of copyright works and subject-matter of related rights is also of great importance from a cultural standpoint. Article 151 of the Treaty requires the Community to take cultural aspects into account in its action.

(13) A common search for, and consistent application at European level of, technical measures to protect works and other subject-matter and to provide the necessary information on rights are essential insofar as the ultimate aim of these measures is to give effect to the principles and guarantees laid down in law.

(14) This Directive should seek to promote learning and culture by protecting works and other subject-matter while permitting exceptions or limitations in the public interest for the purpose of education and teaching.

(15) The Diplomatic Conference held under the auspices of the World Intellectual Property Organisation (WIPO) in December 1996 led to the adoption of two new Treaties, the "WIPO Copyright Treaty" and the "WIPO Performances and Phonograms Treaty", dealing respectively with the protection of authors and the protection of performers and phonogram producers. Those Treaties update the international protection for copyright and related rights significantly, not least with regard to the so-called "digital agenda", and improve the means to fight piracy world-wide. The Community and a majority of Member States have already signed the Treaties and the process of making arrangements for the ratification of the Treaties by the Community and the Member States is under way. This Directive also serves to implement a number of the new international obligations.

(16) Liability for activities in the network environment concerns not only copyright and related rights but also other areas, such as defamation, misleading advertising, or infringement of trademarks, and is addressed horizontally in Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the internal market ("Directive on electronic commerce")(4), which clarifies and harmonises various legal issues relating to information society services including electronic commerce. This Directive should be implemented within a timescale similar to that for the implementation of the Directive on electronic commerce, since that Directive provides a harmonised framework of principles and provisions relevant inter alia to important parts of this Directive. This Directive is without prejudice to provisions relating to liability in that Directive.

(17) It is necessary, especially in the light of the requirements arising out of the digital environment, to ensure that collecting societies achieve a higher level of rationalisation and transparency with regard to compliance with competition rules.

(18) This Directive is without prejudice to the arrangements in the Member States concerning the management of rights such as extended collective licences.

(19) The moral rights of rightholders should be exercised according to the legislation of the Member States and the provisions of the Berne Convention for the Protection of Literary and Artistic Works, of the WIPO Copyright Treaty and of the WIPO Performances and Phonograms Treaty. Such moral rights remain outside the scope of this Directive.

(20) This Directive is based on principles and rules already laid down in the Directives currently in force in this area, in particular Directives 91/250/EEC, 92/100/EEC, 93/83/EEC, 93/98/EEC and 96/9/EC, and it develops those principles and rules and places them in the context of the information society. The provisions of this Directive should be without prejudice to the provisions of those Directives, unless otherwise provided in this Directive.

(21) This Directive should define the scope of the acts covered by the reproduction right with regard to the different beneficiaries. This should be done in conformity with the *acquis communautaire*. A broad definition of these acts is needed to ensure legal certainty within the internal market.

(22) The objective of proper support for the dissemination of culture must not be achieved by sacrificing strict protection of rights or by tolerating illegal forms of distribution of counterfeited or pirated works.

(23) This Directive should harmonise further the author's right of communication to the public. This right should be understood in a broad sense covering all communication to the public not present at the place where the communication originates. This right should cover any such transmission or retransmission of a work to the public by wire or wireless means, including broadcasting. This right should not cover any other acts.

(24) The right to make available to the public subject-matter referred to in Article 3(2) should be understood as covering all acts of making available such subject-matter to members of the public not present at the place where the act of making available originates, and as not covering any other acts.

(25) The legal uncertainty regarding the nature and the level of protection of acts of on-demand transmission of copyright works and subject-matter protected by related rights over networks should be overcome by providing for harmonised protection at Community level. It should be made clear that all rightholders recognised by this Directive should have an exclusive right to make available to the public copyright works or any other subject-matter by way of interactive on-demand transmissions. Such interactive on-demand transmissions are characterised by the fact that members of the public may access them from a place and at a time individually chosen by them.

(26) With regard to the making available in on-demand services by broadcasters of their radio or television productions incorporating music from commercial phonograms as an integral part thereof, collective licensing arrangements are to be encouraged in order to facilitate the clearance of the rights concerned.

(27) The mere provision of physical facilities for enabling or making a communication does not in itself amount to communication within the meaning of this Directive.

(28) Copyright protection under this Directive includes the exclusive right to control distribution of the work incorporated in a tangible article. The first sale in the Community of the original of a work or copies thereof by the rightholder or with his consent exhausts the right to control resale of that object in the Community. This right should not be exhausted in respect of the original or of copies thereof sold by the rightholder or with his consent outside the Community. Rental and lending rights for authors have been established in Directive 92/100/EEC. The distribution right provided for in this Directive is without prejudice to the provisions relating to the rental and lending rights contained in Chapter I of that Directive.

(29) The question of exhaustion does not arise in the case of services and on-line services in particular. This also applies with regard to a material copy of a work or other subject-matter made by a user of such a service with the consent of the rightholder. Therefore, the same applies to rental and lending of the original and copies of works or other subject-matter which are services by nature. Unlike CD-ROM or CD-I, where the intellectual property is incorporated in a material medium, namely an item of goods, every on-line service is in fact an act which should be subject to authorisation where the copyright or related right so provides.

(30) The rights referred to in this Directive may be transferred, assigned or subject to the granting of contractual licences, without prejudice to the relevant national legislation on copyright and related rights.

(31) A fair balance of rights and interests between the different categories of rightholders, as well as between the different categories of rightholders and users of protected subject-matter must

be safeguarded. The existing exceptions and limitations to the rights as set out by the Member States have to be reassessed in the light of the new electronic environment. Existing differences in the exceptions and limitations to certain restricted acts have direct negative effects on the functioning of the internal market of copyright and related rights. Such differences could well become more pronounced in view of the further development of transborder exploitation of works and cross-border activities. In order to ensure the proper functioning of the internal market, such exceptions and limitations should be defined more harmoniously. The degree of their harmonisation should be based on their impact on the smooth functioning of the internal market.

(32) This Directive provides for an exhaustive enumeration of exceptions and limitations to the reproduction right and the right of communication to the public. Some exceptions or limitations only apply to the reproduction right, where appropriate. This list takes due account of the different legal traditions in Member States, while, at the same time, aiming to ensure a functioning internal market. Member States should arrive at a coherent application of these exceptions and limitations, which will be assessed when reviewing implementing legislation in the future.

(33) The exclusive right of reproduction should be subject to an exception to allow certain acts of temporary reproduction, which are transient or incidental reproductions, forming an integral and essential part of a technological process and carried out for the sole purpose of enabling either efficient transmission in a network between third parties by an intermediary, or a lawful use of a work or other subject-matter to be made. The acts of reproduction concerned should have no separate economic value on their own. To the extent that they meet these conditions, this exception should include acts which enable browsing as well as acts of caching to take place, including those which enable transmission systems to function efficiently, provided that the intermediary does not modify the information and does not interfere with the lawful use of technology, widely recognised and used by industry, to obtain data on the use of the information. A use should be considered lawful where it is authorised by the rightholder or not restricted by law.

(34) Member States should be given the option of providing for certain exceptions or limitations for cases such as educational and scientific purposes, for the benefit of public institutions such as libraries and archives, for purposes of news reporting, for quotations, for use by people with disabilities, for public security uses and for uses in administrative and judicial proceedings.

(35) In certain cases of exceptions or limitations, rightholders should receive fair compensation to compensate them adequately for the use made of their protected works or other subject-matter. When determining the form, detailed arrangements and possible level of such fair compensation, account should be taken of the particular circumstances of each case. When evaluating these circumstances, a valuable criterion would be the possible harm to the rightholders resulting from the act in question. In cases where rightholders have already received payment in some other form, for instance as part of a licence fee, no specific or separate payment may be due. The level of fair compensation should take full account of the degree of use of technological protection measures referred to in this Directive. In certain situations where the prejudice to the rightholder would be minimal, no obligation for payment may arise.

(36) The Member States may provide for fair compensation for rightholders also when applying the optional provisions on exceptions or limitations which do not require such compensation.

(37) Existing national schemes on reprography, where they exist, do not create major barriers to the internal market. Member States should be allowed to provide for an exception or limitation in respect of reprography.

(38) Member States should be allowed to provide for an exception or limitation to the reproduction right for certain types of reproduction of audio, visual and audio-visual material for private use, accompanied by fair compensation. This may include the introduction or continuation of remuneration schemes to compensate for the prejudice to rightholders. Although differences between those remuneration schemes affect the functioning of the internal market, those differences, with respect to analogue private reproduction, should not have a significant impact on the development of the information society. Digital private copying is likely to be more widespread and have a greater economic impact. Due account should therefore be taken of the differences between digital and analogue private copying and a distinction should be made in certain respects between them.

(39) When applying the exception or limitation on private copying, Member States should take due account of technological and economic developments, in particular with respect to digital private copying and remuneration schemes, when effective technological protection measures are available. Such exceptions or limitations should not inhibit the use of technological measures or their enforcement against circumvention.

(40) Member States may provide for an exception or limitation for the benefit of certain non-profit making establishments, such as publicly accessible libraries and equivalent institutions, as well as archives. However, this should be limited to certain special cases covered by the reproduction right. Such an exception or limitation should not cover uses made in the context of on-line delivery of protected works or other subject-matter. This Directive should be without prejudice to the Member States' option to derogate from the exclusive public lending right in accordance with Article 5 of Directive 92/100/EEC. Therefore, specific contracts or licences should be promoted which, without creating imbalances, favour such establishments and the disseminative purposes they serve.

(41) When applying the exception or limitation in respect of ephemeral recordings made by broadcasting organisations it is understood that a broadcaster's own facilities include those of a person acting on behalf of and under the responsibility of the broadcasting organisation.

(42) When applying the exception or limitation for non-commercial educational and scientific research purposes, including distance learning, the non-commercial nature of the activity in question should be determined by that activity as such. The organisational structure and the means of funding of the establishment concerned are not the decisive factors in this respect.

(43) It is in any case important for the Member States to adopt all necessary measures to facilitate access to works by persons suffering from a disability which constitutes an obstacle to the use of the works themselves, and to pay particular attention to accessible formats.

(44) When applying the exceptions and limitations provided for in this Directive, they should be exercised in accordance with international obligations. Such exceptions and limitations may not be applied in a way which prejudices the legitimate interests of the rightholder or which conflicts with the normal exploitation of his work or other subject-matter. The provision of such exceptions

or limitations by Member States should, in particular, duly reflect the increased economic impact that such exceptions or limitations may have in the context of the new electronic environment. Therefore, the scope of certain exceptions or limitations may have to be even more limited when it comes to certain new uses of copyright works and other subject-matter.

(45) The exceptions and limitations referred to in Article 5(2), (3) and (4) should not, however, prevent the definition of contractual relations designed to ensure fair compensation for the rightholders insofar as permitted by national law.

(46) Recourse to mediation could help users and rightholders to settle disputes. The Commission, in cooperation with the Member States within the Contact Committee, should undertake a study to consider new legal ways of settling disputes concerning copyright and related rights.

(47) Technological development will allow rightholders to make use of technological measures designed to prevent or restrict acts not authorised by the rightholders of any copyright, rights related to copyright or the sui generis right in databases. The danger, however, exists that illegal activities might be carried out in order to enable or facilitate the circumvention of the technical protection provided by these measures. In order to avoid fragmented legal approaches that could potentially hinder the functioning of the internal market, there is a need to provide for harmonised legal protection against circumvention of effective technological measures and against provision of devices and products or services to this effect.

(48) Such legal protection should be provided in respect of technological measures that effectively restrict acts not authorised by the rightholders of any copyright, rights related to copyright or the sui generis right in databases without, however, preventing the normal operation of electronic equipment and its technological development. Such legal protection implies no obligation to design devices, products, components or services to correspond to technological measures, so long as such device, product, component or service does not otherwise fall under the prohibition of Article 6. Such legal protection should respect proportionality and should not prohibit those devices or activities which have a commercially significant purpose or use other than to circumvent the technical protection. In particular, this protection should not hinder research into cryptography.

(49) The legal protection of technological measures is without prejudice to the application of any national provisions which may prohibit the private possession of devices, products or components for the circumvention of technological measures.

(50) Such a harmonised legal protection does not affect the specific provisions on protection provided for by Directive 91/250/EEC. In particular, it should not apply to the protection of technological measures used in connection with computer programs, which is exclusively addressed in that Directive. It should neither inhibit nor prevent the development or use of any means of circumventing a technological measure that is necessary to enable acts to be undertaken in accordance with the terms of Article 5(3) or Article 6 of Directive 91/250/EEC. Articles 5 and 6 of that Directive exclusively determine exceptions to the exclusive rights applicable to computer programs.

(51) The legal protection of technological measures applies without prejudice to public policy, as reflected in Article 5, or public security. Member States should promote voluntary measures taken by rightholders, including the conclusion and implementation of agreements between

rightholders and other parties concerned, to accommodate achieving the objectives of certain exceptions or limitations provided for in national law in accordance with this Directive. In the absence of such voluntary measures or agreements within a reasonable period of time, Member States should take appropriate measures to ensure that rightholders provide beneficiaries of such exceptions or limitations with appropriate means of benefiting from them, by modifying an implemented technological measure or by other means. However, in order to prevent abuse of such measures taken by rightholders, including within the framework of agreements, or taken by a Member State, any technological measures applied in implementation of such measures should enjoy legal protection.

(52) When implementing an exception or limitation for private copying in accordance with Article 5(2)(b), Member States should likewise promote the use of voluntary measures to accommodate achieving the objectives of such exception or limitation. If, within a reasonable period of time, no such voluntary measures to make reproduction for private use possible have been taken, Member States may take measures to enable beneficiaries of the exception or limitation concerned to benefit from it. Voluntary measures taken by rightholders, including agreements between rightholders and other parties concerned, as well as measures taken by Member States, do not prevent rightholders from using technological measures which are consistent with the exceptions or limitations on private copying in national law in accordance with Article 5(2)(b), taking account of the condition of fair compensation under that provision and the possible differentiation between various conditions of use in accordance with Article 5(5), such as controlling the number of reproductions. In order to prevent abuse of such measures, any technological measures applied in their implementation should enjoy legal protection.

(53) The protection of technological measures should ensure a secure environment for the provision of interactive on-demand services, in such a way that members of the public may access works or other subject-matter from a place and at a time individually chosen by them. Where such services are governed by contractual arrangements, the first and second subparagraphs of Article 6(4) should not apply. Non-interactive forms of online use should remain subject to those provisions.

(54) Important progress has been made in the international standardisation of technical systems of identification of works and protected subject-matter in digital format. In an increasingly networked environment, differences between technological measures could lead to an incompatibility of systems within the Community. Compatibility and interoperability of the different systems should be encouraged. It would be highly desirable to encourage the development of global systems.

(55) Technological development will facilitate the distribution of works, notably on networks, and this will entail the need for rightholders to identify better the work or other subject-matter, the author or any other rightholder, and to provide information about the terms and conditions of use of the work or other subject-matter in order to render easier the management of rights attached to them. Rightholders should be encouraged to use markings indicating, in addition to the information referred to above, *inter alia* their authorisation when putting works or other subject-matter on networks.

(56) There is, however, the danger that illegal activities might be carried out in order to remove or alter the electronic copyright-management information attached to it, or otherwise to distribute, import for distribution, broadcast, communicate to the public or make available to the

public works or other protected subject-matter from which such information has been removed without authority. In order to avoid fragmented legal approaches that could potentially hinder the functioning of the internal market, there is a need to provide for harmonised legal protection against any of these activities.

(57) Any such rights-management information systems referred to above may, depending on their design, at the same time process personal data about the consumption patterns of protected subject-matter by individuals and allow for tracing of on-line behaviour. These technical means, in their technical functions, should incorporate privacy safeguards in accordance with Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and the free movement of such data.

(58) Member States should provide for effective sanctions and remedies for infringements of rights and obligations as set out in this Directive. They should take all the measures necessary to ensure that those sanctions and remedies are applied. The sanctions thus provided for should be effective, proportionate and dissuasive and should include the possibility of seeking damages and/or injunctive relief and, where appropriate, of applying for seizure of infringing material.

(59) In the digital environment, in particular, the services of intermediaries may increasingly be used by third parties for infringing activities. In many cases such intermediaries are best placed to bring such infringing activities to an end. Therefore, without prejudice to any other sanctions and remedies available, rightholders should have the possibility of applying for an injunction against an intermediary who carries a third party's infringement of a protected work or other subject-matter in a network. This possibility should be available even where the acts carried out by the intermediary are exempted under Article 5. The conditions and modalities relating to such injunctions should be left to the national law of the Member States.

(60) The protection provided under this Directive should be without prejudice to national or Community legal provisions in other areas, such as industrial property, data protection, conditional access, access to public documents, and the rule of media exploitation chronology, which may affect the protection of copyright or related rights.

(61) In order to comply with the WIPO Performances and Phonograms Treaty, Directives 92/100/EEC and 93/98/EEC should be amended,

HAVE ADOPTED THIS DIRECTIVE:

## **CHAPTER I**

### **OBJECTIVE AND SCOPE**

#### **Article 1**

##### **Scope**

1. This Directive concerns the legal protection of copyright and related rights in the framework of the internal market, with particular emphasis on the information society.

2. Except in the cases referred to in Article 11, this Directive shall leave intact and shall in no way affect existing Community provisions relating to:

- (a) the legal protection of computer programs;
- (b) rental right, lending right and certain rights related to copyright in the field of intellectual property;
- (c) copyright and related rights applicable to broadcasting of programmes by satellite and cable retransmission;
- (d) the term of protection of copyright and certain related rights;
- (e) the legal protection of databases.

## **CHAPTER II**

### **RIGHTS AND EXCEPTIONS**

#### **Article 2**

##### **Reproduction right**

Member States shall provide for the exclusive right to authorise or prohibit direct or indirect, temporary or permanent reproduction by any means and in any form, in whole or in part:

- (a) for authors, of their works;
- (b) for performers, of fixations of their performances;
- (c) for phonogram producers, of their phonograms;
- (d) for the producers of the first fixations of films, in respect of the original and copies of their films;
- (e) for broadcasting organisations, of fixations of their broadcasts, whether those broadcasts are transmitted by wire or over the air, including by cable or satellite.

#### **Article 3**

##### **Right of communication to the public of works and right of making available to the public other subject-matter**

1. Member States shall provide authors with the exclusive right to authorise or prohibit any communication to the public of their works, by wire or wireless means, including the making available to the public of their works in such a way that members of the public may access them from a place and at a time individually chosen by them.

2. Member States shall provide for the exclusive right to authorise or prohibit the making available to the public, by wire or wireless means, in such a way that members of the public may access them from a place and at a time individually chosen by them:

- (a) for performers, of fixations of their performances;
- (b) for phonogram producers, of their phonograms;
- (c) for the producers of the first fixations of films, of the original and copies of their films;

(d) for broadcasting organisations, of fixations of their broadcasts, whether these broadcasts are transmitted by wire or over the air, including by cable or satellite.

3. The rights referred to in paragraphs 1 and 2 shall not be exhausted by any act of communication to the public or making available to the public as set out in this Article.

#### **Article 4**

##### **Distribution right**

1. Member States shall provide for authors, in respect of the original of their works or of copies thereof, the exclusive right to authorise or prohibit any form of distribution to the public by sale or otherwise.

2. The distribution right shall not be exhausted within the Community in respect of the original or copies of the work, except where the first sale or other transfer of ownership in the Community of that object is made by the rightholder or with his consent.

#### **Article 5**

##### **Exceptions and limitations**

1. Temporary acts of reproduction referred to in Article 2, which are transient or incidental which are an integral and essential part of a technological process and the sole purpose of which is to enable:

(a) a transmission in a network between third parties by an intermediary, or

(b) a lawful use

of a work or other subject-matter to be made, and which have no independent economic significance, shall be exempted from the reproduction right provided for in Article 2.

2. Member States may provide for exceptions or limitations to the reproduction right provided for in Article 2 in the following cases:

(a) in respect of reproductions on paper or any similar medium, effected by the use of any kind of photographic technique or by some other process having similar effects, with the exception of sheet music, provided that the rightholders receive fair compensation;

(b) in respect of reproductions on any medium made by a natural person for private use and for ends that are neither directly nor indirectly commercial, on condition that the rightholders receive fair compensation which takes account of the application or non-application of technological measures referred to in Article 6 to the work or subject-matter concerned;

(c) in respect of specific acts of reproduction made by publicly accessible libraries, educational establishments or museums, or by archives, which are not for direct or indirect economic or commercial advantage;

(d) in respect of ephemeral recordings of works made by broadcasting organisations by means of their own facilities and for their own broadcasts; the preservation of these recordings in official archives may, on the grounds of their exceptional documentary character, be permitted;

(e) in respect of reproductions of broadcasts made by social institutions pursuing non-commercial purposes, such as hospitals or prisons, on condition that the rightholders receive fair compensation.

3. Member States may provide for exceptions or limitations to the rights provided for in Articles 2 and 3 in the following cases:

(a) use for the sole purpose of illustration for teaching or scientific research, as long as the source, including the author's name, is indicated, unless this turns out to be impossible and to the extent justified by the non-commercial purpose to be achieved;

(b) uses, for the benefit of people with a disability, which are directly related to the disability and of a non-commercial nature, to the extent required by the specific disability;

(c) reproduction by the press, communication to the public or making available of published articles on current economic, political or religious topics or of broadcast works or other subject-matter of the same character, in cases where such use is not expressly reserved, and as long as the source, including the author's name, is indicated, or use of works or other subject-matter in connection with the reporting of current events, to the extent justified by the informatory purpose and as long as the source, including the author's name, is indicated, unless this turns out to be impossible;

(d) quotations for purposes such as criticism or review, provided that they relate to a work or other subject-matter which has already been lawfully made available to the public, that, unless this turns out to be impossible, the source, including the author's name, is indicated, and that their use is in accordance with fair practice, and to the extent required by the specific purpose;

(e) use for the purposes of public security or to ensure the proper performance or reporting of administrative, parliamentary or judicial proceedings;

(f) use of political speeches as well as extracts of public lectures or similar works or subject-matter to the extent justified by the informatory purpose and provided that the source, including the author's name, is indicated, except where this turns out to be impossible;

(g) use during religious celebrations or official celebrations organised by a public authority;

(h) use of works, such as works of architecture or sculpture, made to be located permanently in public places;

(i) incidental inclusion of a work or other subject-matter in other material;

(j) use for the purpose of advertising the public exhibition or sale of artistic works, to the extent necessary to promote the event, excluding any other commercial use;

(k) use for the purpose of caricature, parody or pastiche;

(l) use in connection with the demonstration or repair of equipment;

(m) use of an artistic work in the form of a building or a drawing or plan of a building for the purposes of reconstructing the building;

(n) use by communication or making available, for the purpose of research or private study, to individual members of the public by dedicated terminals on the premises of establishments referred to in paragraph 2(c) of works and other subject-matter not subject to purchase or licensing terms which are contained in their collections;

(o) use in certain other cases of minor importance where exceptions or limitations already exist under national law, provided that they only concern analogue uses and do not affect the free circulation of goods and services within the Community, without prejudice to the other exceptions and limitations contained in this Article.

4. Where the Member States may provide for an exception or limitation to the right of reproduction pursuant to paragraphs 2 and 3, they may provide similarly for an exception or limitation to the right of distribution as referred to in Article 4 to the extent justified by the purpose of the authorised act of reproduction.

5. The exceptions and limitations provided for in paragraphs 1, 2, 3 and 4 shall only be applied in certain special cases which do not conflict with a normal exploitation of the work or other subject-matter and do not unreasonably prejudice the legitimate interests of the rightholder.

### **CHAPTER III**

## **PROTECTION OF TECHNOLOGICAL MEASURES AND RIGHTS-MANAGEMENT INFORMATION**

### **Article 6**

#### **Obligations as to technological measures**

1. Member States shall provide adequate legal protection against the circumvention of any effective technological measures, which the person concerned carries out in the knowledge, or with reasonable grounds to know, that he or she is pursuing that objective.

2. Member States shall provide adequate legal protection against the manufacture, import, distribution, sale, rental, advertisement for sale or rental, or possession for commercial purposes of devices, products or components or the provision of services which:

(a) are promoted, advertised or marketed for the purpose of circumvention of, or

(b) have only a limited commercially significant purpose or use other than to circumvent, or

(c) are primarily designed, produced, adapted or performed for the purpose of enabling or facilitating the circumvention of,

any effective technological measures.

3. For the purposes of this Directive, the expression "technological measures" means any technology, device or component that, in the normal course of its operation, is designed to prevent or restrict acts, in respect of works or other subject-matter, which are not authorised by the rightholder of any copyright or any right related to copyright as provided for by law or the sui generis right provided for in Chapter III of Directive 96/9/EC. Technological measures shall be deemed "effective" where the use of a protected work or other subject-matter is controlled by the rightholders through application of an access control or protection process, such as encryption, scrambling or other transformation of the work or other subject-matter or a copy control mechanism, which achieves the protection objective.

4. Notwithstanding the legal protection provided for in paragraph 1, in the absence of voluntary measures taken by rightholders, including agreements between rightholders and other parties concerned, Member States shall take appropriate measures to ensure that rightholders make

available to the beneficiary of an exception or limitation provided for in national law in accordance with Article 5(2)(a), (2)(c), (2)(d), (2)(e), (3)(a), (3)(b) or (3)(e) the means of benefiting from that exception or limitation, to the extent necessary to benefit from that exception or limitation and where that beneficiary has legal access to the protected work or subject-matter concerned.

A Member State may also take such measures in respect of a beneficiary of an exception or limitation provided for in accordance with Article 5(2)(b), unless reproduction for private use has already been made possible by rightholders to the extent necessary to benefit from the exception or limitation concerned and in accordance with the provisions of Article 5(2)(b) and (5), without preventing rightholders from adopting adequate measures regarding the number of reproductions in accordance with these provisions.

The technological measures applied voluntarily by rightholders, including those applied in implementation of voluntary agreements, and technological measures applied in implementation of the measures taken by Member States, shall enjoy the legal protection provided for in paragraph 1.

The provisions of the first and second subparagraphs shall not apply to works or other subject-matter made available to the public on agreed contractual terms in such a way that members of the public may access them from a place and at a time individually chosen by them.

When this Article is applied in the context of Directives 92/100/EEC and 96/9/EC, this paragraph shall apply *mutatis mutandis*.

## **Article 7**

### **Obligations concerning rights-management information**

1. Member States shall provide for adequate legal protection against any person knowingly performing without authority any of the following acts:

(a) the removal or alteration of any electronic rights-management information;

(b) the distribution, importation for distribution, broadcasting, communication or making available to the public of works or other subject-matter protected under this Directive or under Chapter III of Directive 96/9/EC from which electronic rights-management information has been removed or altered without authority,

if such person knows, or has reasonable grounds to know, that by so doing he is inducing, enabling, facilitating or concealing an infringement of any copyright or any rights related to copyright as provided by law, or of the *sui generis* right provided for in Chapter III of Directive 96/9/EC.

2. For the purposes of this Directive, the expression "rights-management information" means any information provided by rightholders which identifies the work or other subject-matter referred to in this Directive or covered by the *sui generis* right provided for in Chapter III of Directive 96/9/EC, the author or any other rightholder, or information about the terms and conditions of use of the work or other subject-matter, and any numbers or codes that represent such information.

The first subparagraph shall apply when any of these items of information is associated with a copy of, or appears in connection with the communication to the public of, a work or other subject matter referred to in this Directive or covered by the sui generis right provided for in Chapter III of Directive 96/9/EC.

## **CHAPTER IV**

### **COMMON PROVISIONS**

#### **Article 8**

##### **Sanctions and remedies**

1. Member States shall provide appropriate sanctions and remedies in respect of infringements of the rights and obligations set out in this Directive and shall take all the measures necessary to ensure that those sanctions and remedies are applied. The sanctions thus provided for shall be effective, proportionate and dissuasive.
2. Each Member State shall take the measures necessary to ensure that rightholders whose interests are affected by an infringing activity carried out on its territory can bring an action for damages and/or apply for an injunction and, where appropriate, for the seizure of infringing material as well as of devices, products or components referred to in Article 6(2).
3. Member States shall ensure that rightholders are in a position to apply for an injunction against intermediaries whose services are used by a third party to infringe a copyright or related right.

#### **Article 9**

##### **Continued application of other legal provisions**

This Directive shall be without prejudice to provisions concerning in particular patent rights, trade marks, design rights, utility models, topographies of semi-conductor products, type faces, conditional access, access to cable of broadcasting services, protection of national treasures, legal deposit requirements, laws on restrictive practices and unfair competition, trade secrets, security, confidentiality, data protection and privacy, access to public documents, the law of contract.

#### **Article 10**

##### **Application over time**

1. The provisions of this Directive shall apply in respect of all works and other subject-matter referred to in this Directive which are, on 22 December 2002, protected by the Member States' legislation in the field of copyright and related rights, or which meet the criteria for protection under the provisions of this Directive or the provisions referred to in Article 1(2).
2. This Directive shall apply without prejudice to any acts concluded and rights acquired before 22 December 2002.

## **Article 11**

### **Technical adaptations**

1. Directive 92/100/EEC is hereby amended as follows:

(a) Article 7 shall be deleted;

(b) Article 10(3) shall be replaced by the following: "3. The limitations shall only be applied in certain special cases which do not conflict with a normal exploitation of the subject-matter and do not unreasonably prejudice the legitimate interests of the rightholder."

2. Article 3(2) of Directive 93/98/EEC shall be replaced by the following: "2. The rights of producers of phonograms shall expire 50 years after the fixation is made. However, if the phonogram has been lawfully published within this period, the said rights shall expire 50 years from the date of the first lawful publication. If no lawful publication has taken place within the period mentioned in the first sentence, and if the phonogram has been lawfully communicated to the public within this period, the said rights shall expire 50 years from the date of the first lawful communication to the public.

However, where through the expiry of the term of protection granted pursuant to this paragraph in its version before amendment by Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society the rights of producers of phonograms are no longer protected on 22 December 2002, this paragraph shall not have the effect of protecting those rights anew."

## **Article 12**

### **Final provisions**

1. Not later than 22 December 2004 and every three years thereafter, the Commission shall submit to the European Parliament, the Council and the Economic and Social Committee a report on the application of this Directive, in which, inter alia, on the basis of specific information supplied by the Member States, it shall examine in particular the application of Articles 5, 6 and 8 in the light of the development of the digital market. In the case of Article 6, it shall examine in particular whether that Article confers a sufficient level of protection and whether acts which are permitted by law are being adversely affected by the use of effective technological measures. Where necessary, in particular to ensure the functioning of the internal market pursuant to Article 14 of the Treaty, it shall submit proposals for amendments to this Directive.

2. Protection of rights related to copyright under this Directive shall leave intact and shall in no way affect the protection of copyright.

3. A contact committee is hereby established. It shall be composed of representatives of the competent authorities of the Member States. It shall be chaired by a representative of the Commission and shall meet either on the initiative of the chairman or at the request of the delegation of a Member State.

4. The tasks of the committee shall be as follows:

(a) to examine the impact of this Directive on the functioning of the internal market, and to highlight any difficulties;

- (b) to organise consultations on all questions deriving from the application of this Directive;
- (c) to facilitate the exchange of information on relevant developments in legislation and case-law, as well as relevant economic, social, cultural and technological developments;
- (d) to act as a forum for the assessment of the digital market in works and other items, including private copying and the use of technological measures.

## **Article 13**

### **Implementation**

1. Member States shall bring into force the laws, regulations and administrative provisions necessary to comply with this Directive before 22 December 2002. They shall forthwith inform the Commission thereof.

When Member States adopt these measures, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication. The methods of making such reference shall be laid down by Member States.

2. Member States shall communicate to the Commission the text of the provisions of domestic law which they adopt in the field governed by this Directive.

## **Article 14**

### **Entry into force**

This Directive shall enter into force on the day of its publication in the Official Journal of the European Communities.

## **Article 15**

### **Addressees**

This Directive is addressed to the Member States.

Done at Brussels, 22 May 2001.

For the European Parliament

The President

N. Fontaine

For the Council

The President

M. Winberg

## APPENDIX 4: ARTICLES CONSIDERED FOR REVIEW

Author	Title	Reference	Comments
Alexander, Adrian W	Whither Fair Use? A Library Consortium Viewpoint	Libraries and the Academy - Volume 1, Number 2 197-202 (2001)	
Ames, E. Kenly	Beyond Rogers v. Koons: A Fair Use Standard for Appropriation	Columbia Law Review, Vol.93, No.6 1473-1526 (1993)	
Anderson, Michael G and Brown, Paul F	The Economics Behind Copyright Fair Use: A Principled and Predictable Body of Law	24 Loyola University of Chicago Law Journal 143 (1993)	Reviewed in detail
Australian Information Industry Association (AIIA)	Submission to the Attorney-General's Department in response to the May 2005 Issues Paper on Fair Use and Other Copyright Exceptions		
Baron, Robert A	Copyright and Fair Use	Routledge (1997)	
Bell, Tom W	Fair Use vs. Fared Use: The Impact of Automated Rights Management on Copyright's Fair Use Doctrine	76 (2) North Carolina Law Review 557 (1998)	
Benson, Christopher	Fair Dealing in the United Kingdom: A Clockwork Orange	European Intellectual Property Review 17(6) 304 (1995)	Reviewed in detail
Bentley, Lionel and Sherman, Brad	Intellectual Property	Blackstone Press	Reviewed in detail
Besen, S and Kirby, S	Private Copying, Appropriability and Optimal Copyright Royalties	32 Journal of Law and Economics 255 (1989)	
Besser, Howard	The Erosion of Public Protection: Attacks on the Concept of Fair Use	Paper delivered at the Town Meeting on Copyright & Fair Use, College Art Association, Toronto, February 1998	

Blair, Roger D and Cotter, Thomas F	Intellectual Property: Economic and Legal Dimensions of Rights and Remedies	Cambridge University Press	
Braunstein, Yale M	Economic Impact of Database Protection in Developing Countries and Countries in Transition	WIPO Study	
Breyer, Stephen	The Uneasy Case for Copyright: A Study of Copyright in Books, Photocopies, and Computer Programs	84 Harvard Law Review 281 (1970)	
Breyer, Stephen	Copyright: A Rejoinder	20 UCLA Law Review 75 (1972)	
Buchanan J and Yoon, Yong J	Symmetric Tragedies: Commons and Anticommons Property	43 (1) Journal of Law and Economics 1 (2000)	
Burk, Dan L and Cohen, Julie E	Fair use infrastructure for copyright management systems		
Burke LeFevre, Karen	The Tell-Tale "Heart": Determining "Fair" Use of Unpublished Texts	Law and Contemporary Problems, Vol. 55, No. 2, Copyright and Legislation: The Kastenmeier Years 153-183 (1992)	
Burrell, Robert and Coleman, Allison	Copyright Exceptions: the Digital Impact	Cambridge University Press	Reviewed in detail
Christie, Andrew	Reconceptualising Copyright in the Digital Era	European Intellectual Property Review 17(11) 522 (1995)	Reviewed in detail
Ciolino, Dane S	Rethinking the Compatibility of Moral Rights and Fair Use	54 Washington & Lee Law Review 33 (1997)	
Cirace, John	When Does Complete Copying of Copyrighted Works for Purposes Other Than for Profit or Sale Constitute Fair Use? An Economic Analysis of the Sony Betamax and Williams & Wilkins Cases	28 Saint Louis University Law Journal 647 (1984)	Reviewed in detail

Cohen, Julie E	Lochner in Cyberspace: The New Economic Orthodoxy of "Rights Management	97 Michigan Law Review 462 (1998)	
Cohen, Julie E	WIPO Copyright Treaty Implementation in the United States: Will Fair Use Survive?	21 European Intellectual Property Review 236 (1999)	
Congressional Budget Office	Copyright Issues in Digital Media		
Cordier, Justine	Mass-Market Agreements v. Fair Dealing Exceptions		
Crews, Kenneth D	The Law of Fair Use and the Illusion of Fair Use Guidelines	Ohio State Law Journal Vol.62 2001	
Davies, William	Markets in the online public sphere	IPPR	
Davis, Kevin	Comment: Fair Use on the Internet: A Fine Line Between Fair and Foul	34 University of San Francisco Law Review 129 (1999)	
Depoorter, Ben and Parisi, Francesco	Fair use and copyright protection: a price theory explanation	International Review of Law and Economics Vol.21(4) 453 (2002)	Reviewed in detail
DeWolf, RC	An Outline in Copyright Law	143 (1923)	
Digital Connections Council of the Committee for Economic Development	Promoting innovation in the on-line world: the problem of digital intellectual property	Website of the Committee for Economic Development: <a href="http://www.ced.org/docs/report/report_dcc.pdf">www.ced.org/docs/report/report_dcc.pdf</a>	Reviewed in detail
Dixon, Pdraig and Greenhalgh, Christine	The Economics and Intellectual Property: A Review to Identify Themes for Future Research	Intellectual Property Advisory Committee (2002)	
Dowell, Jonathan	Bytes and Pieces: Fragmented Copies, Licensing, and Fair Use in A Digital World	86 California Law Review 843 (1998)	

Duhl, Gregory M	Old Lyrics, Knock-Off Videos, And Copycat Comic Books: The Fourth Fair Use Factor In U.S. Copyright Law	54 Syracuse Law Review 665 (2004).	
Espana, Mauricio A	The Fallacy That Fair Use and Information Should Be Provided for Free: An Analysis of the Responses to the DMCA's Section 1201	Fordham Urban Law Journal, Vol.31 (2003)	
European Audiovisual Observatory	The Impact of Piracy on the Audiovisual Industry – Sources of Economic and Statistical Information on Physical Piracy and File-Sharing		
Farrell, A Hunter	Fair Use of Copyrighted Material in Advertisement Parodies	Columbia Law Review, Vol.92, No.6 1550-1591 (1992)	
Fisher, William W III	Reconstructing the Fair Use Doctrine	Harvard Law Review Vol.101 No.8 1659-1795 (1988)	Reviewed in detail
French, William J and Parker Thompson M	Trifecta: Creating P2P Software that Enables Fair Use		
Gallagher, T	Copyright Compulsory Licensing and Incentives	Oxford Intellectual Property Research Centre Working Paper Series No.2 (2001)	Reviewed in detail
Ginsburg, Jane C	Creation and Commercial Value: Copyright Protection of Works of Information	Columbia Law Review Vol.90 No.7 1865 (1990)	
Ginsburg, Jane C	Copyright and Excuse on the Internet	24 VLA Journal of Law and the Arts (2000)	
Gordon, Wendy J	Authors, Publishing and Public Goods: Trading Gold for Dross	Loyola Law Review Vol.36 (2002)	

Gordon, Wendy J	Excuse and justification in the law of fair use: commodification and market perspectives	Boston University School of Law Working Paper 01-22	Reviewed in detail
Gordon, Wendy J	Fair Use as Market Failure: A Structural and Economic Analysis of the "Betamax" Case and Its Predecessors	Columbia Law Review Vol. 82 No. 8 1600-1657 (1982)	Reviewed in detail
Gordon, Wendy J	Market Failure and Intellectual Property: A Response to Professor Lunney	82 Boston University Law Review 1031	
Gordon, Wendy J	Reality as Artifact: From "Feist" to Fair Use	Law and Contemporary Problems, Vol. 55, No. 2, Copyright and Legislation: The Kastenmeier Years 93-106 (1992)	
Gordon, Wendy J and Bone, Robert G	Copyright	In B. Bouckaert and G. De Geest eds. Encyclopedia of Law and Economics, Volume II, 189-215. Northampton, MA: Edward Elgar (2000)	Reviewed in detail
Gould, David M and Gruben, William C	The Role of Intellectual Property Rights in Economic Growth	Journal of Development Economics, Vol. 48, 323-350 (1996)	
Harnett, Deborah A	A New Era for Copyright Law: Reconstituting the Fair Use Doctrine	39 ASCAP Copyright Law Symposium 167 (1992)	
Harvard Law Review, Editor	Gone With The Wind Done Gone: Re-Writing and Fair Use	Harvard Law Review Vol.115 No.4 1193 (2002)	
Hillman, Noel L	Intractable Consent: a Legislative Solution to the Problem of the Aging Consent Decrees in United States v. ASCAP and United States v. BMI	8 Fordham Intellectual Property, Media & Entertainment Law Journal 733 (1998)	
Hurt, Robert M and Schuchman, Robert M	The Economic Rationale of Copyright	56 (2) American Economic Review 421 (1966)	

Imfeld, Cassandra	Playing Fair With Fair Use? The Digital Millennium Copyright Act's Impact on Encryption Researchers and Academicians	Communication Law and Policy Vol.8, No.1, 111-144 (2003)	
Industry Canada	Assessing the Economic Impact of Copyright Reform in the Area of Technology-Enhanced	Website of Industry Canada: <a href="http://strategis.ic.gc.ca/epic/internet/inippd-dppi.nsf/en/ip01098e.html">http://strategis.ic.gc.ca/epic/internet/inippd-dppi.nsf/en/ip01098e.html</a>	Reviewed in detail
Intellectual Property Institute	Report to the EC on The Economic Impact of Patentability of Computer Programs	Study Contract ETD/99/B5-3000/E/106	
Jackson, Professor Margaret and Shah, Ashish	The Impact of DRMs on Personal Use Expectations and Fair Dealing Rights		
Johnson, W	The Economics of Copying	93 Journal of Political Economy 158 (1985)	Reviewed in detail
Kaplan, B	An Unhurried View of Copyright	New York: Columbia University Press (1967)	
Kitch, Edmund W	Can the Internet Shrink Fair Use?	78 Nebraska Law Review 880 (1999)	
Klein, Benjamin, Lerner, Andres V and Murphy, Kevin M	The Economics of Copyright Fair Use in a Networked World	American Economic Review Vol.92(2) 205 (2002)	Reviewed in detail
Krishnan, Ramayya, Smith, Michael D and Telang, Rahul	The Economics of Peer-To-Peer Networks	Journal of Information Technology Theory and Applications 5(3) 31 (2003)	
Ku, Raymond Shih Ray	Consumers and Creative Destruction: Fair Use Beyond Market Failure	18 Berkeley Technical Law Journal 539 (2003)	
Lacey, Linda J	Of Bread, Roses and Copyrights	Duke Law Journal 1532 (1989)	Reviewed in detail

Lai, Edwin J	International Intellectual Property Rights Protection and the Rate of Product Innovation	Journal of Development Economics (1997)	
Landes, William M and Posner, Richard A	The Economic Structure of Intellectual Property Law	Belknap University Press of Harvard University Press	Reviewed in detail
Landes, William M and Posner, Richard A	An Economic Analysis of Copyright Law	18 Journal of Legal Studies 325 (1989)	Reviewed in detail
Lawrence, John Shelton and Timberg, Bernard	Fair Use and Free Inquiry: Copyright Law and the New Media	Norwood, NJ: Ablex Pub. Corp (1989)	
Leaffer, Marshall	The Uncertain Future of Fair Use in a Global Information Marketplace		
Leval, Pierre N	Toward a Fair Use Standard	103 Harvard Law Review 1105 (1990)	
Lévêque, Francois and Ménière, Yann	The Economics of Patents and Copyright	Berkeley Electronic Press (2004)	
Liebowitz, Stan J	Policing Pirates in the Networked Age	Cato Policy Analysis (2002)	
Liebowitz, Stan J	Copyright Law, Photocopying and Price Discrimination	8 Research in Law and Economics: The Economics of Patents and Copyrights 181 (Palmer and Zerbe eds) (1986)	Reviewed in detail
Liebowitz, Stan J	The Economics of Betamax: Unauthorized Copying of Advertising Based Television Broadcasts	Working paper (1985), available at: <a href="http://www.utdallas.edu/~liebowit/intprop/betamax.pdf">www.utdallas.edu/~liebowit/intprop/betamax.pdf</a>	Reviewed in detail
Lipton, Jacqueline	Facilitating Fair Use in the Digital Age	Information and Communications Technology Law Vol.14 No.3 (2005)	
Liu, Joseph P	Copyright and Time: A Proposal	Michigan Law Review Vol.101 No.2 409 (2002)	
Longdin, Louise	Copyright and Fair Use in the Digital Age		

Loren, Lydia Pallas	Redefining The Market Failure Approach to Fair Use in an Era of Copyright Permission Systems	5 Journal of Intellectual Property Law 1 (1997)	Reviewed in detail
Lunney, Glynn S	Fair Use and Market Failure: Sony Revisited	82 Boston University Law Review 975 (2002)	
MacQueen, Hector	Copyright Law Reform: Some Achievable Goals	Oxford Intellectual Property Research Centre Working Paper Series No.4 (2006)	Reviewed in detail
Marley, Judith L	Guidelines Favoring Fair Use: An Analysis of Legal Interpretations Affecting Higher Education	Journal of Academic Librarianship, Vol.25 No.5 367 (1999)	Reviewed in detail
Marsh, Adrienne J	Fair Use and New Technology: The Appropriate Standards to Apply	5 (3) Cardozo Law Review 635 (1984)	
Marsh, Adrienne J	Betamax and Fair Use: A Shotgun Marriage	21 Santa Clara Law Review 49 (1981)	
Maskus, Keith E	The International Regulation of Intellectual Property		
McDonald	Non-Infringing Uses	9 Bulletin of the Copyright Society of the United States. 466 (1962)	
Merges, Robert P	The End of Friction? Property Rights and the Contract in the 'Newtonian' World of On-Line Commerce	12 Berkeley Technology Law Journal 115 (1997)	
Merges, Robert P	The End of Friction? Property Rights and Contract in the "Newtonian" World of On-Line Commerce	12 Berkeley Technology Law Journal 115, 130-34 (1997)	
Merges, Robert P	Intellectual Property Rights and Bargaining Breakdown: The Case of Blocking Patents	62 Tennessee Law Review 75 (1994)	

Metcalfe, Amy	Academe, Technology, Society, and the Market: Four Frames of Reference for Copyright and Fair Use	Libraries and the Academy - Volume 3, Number 2 191-206 The Johns Hopkins University Press (2003)	
Miceli, Thomas J and Adelstein, Richard P	An Economic Model of Fair Use	University of Connecticut, Dept of Economics, WP 2003-38 (2003)	Reviewed in detail
Murphy, Anthony	Queen Anne and Anarchists: Can Copyright Survive in the Digital Age?	Oxford Intellectual Property Research Centre Working Paper Series No.2 (2002)	Reviewed in detail
National Commission on New Technology Uses of Copyrighted Works	Final Report		
Newby, Tyler G	What's Fair Here Is Not Fair Everywhere: Does the American Fair Use Doctrine Violate International Copyright Law?	Stanford Law Review, Vol. 51(1999)	
Nimmer, Melville B	Copyright Liability for Audio Home Recording: Dispelling the Betamax Myth	68 Virginia Law Review 1505 (1982)	
Novos, I and Waldman, M	The Effects of Increased Copyright Protection: An Analytic Approach	92 Journal of Political Economy 236 (1984)	Reviewed in detail
O'Rourke, Maureen A	Toward a Doctrine of Fair Use in Patent Law	Columbia Law Review, Vol. 100, No.5 1177-1250 (2000)	
Oberholzer, Felix and Strumpf, Koleman	The Effect of File Sharing on Record Sales: An Empirical Analysis*		
OECD, Directorate of Science, Technology and Industry	Research Use of Patented Knowledge	OECD STI Working Paper 2006/2 (2006)	Reviewed in detail
Okediji, Ruth	Givers, Takers, And Other Kinds of Users: A Fair Use Doctrine For Cyberspace	53 Florida Law Review 107 (2001)	

Parisi, Francesco, Schulz, Norbert and Depoorter, Ben	Duality in Property: Commons and Anticommons	University of Virginia Public Law Working Paper Series # 00-8 (2000)	
Patry, William F	The Fair Use Privilege in Copyright Law	6-17; Anderson and Brown	
Patry, William F and Perlmutter, Shira	Fair Use Misconstrued: Profit, Presumption, and Parody	11(3) Cardozo Arts & Entertainment Law Journal 667 (1993)	
Patterson, L Ray	Understanding Fair Use	Law and Contemporary Problems Vol.55 No.2 Copyright and Legislation: The Kastenmeier Years 249 (1992)	
Patterson, Ray L	Free Speech, Copyright, and Fair Use	40(1) Vanderbilt Law Review 1 (1987)	
Patterson, Ray L and Lindberg, Stanley W	The Nature of Copyright: A Law of Users' Rights	Athens: The University of Georgia Press Party (1991)	
Phan, Dan Thu Thi	Will Fair Use Function on the Internet?	Columbia Law Review, Vol. 98, No.1 169-216 (1998)	
Pilch, Janice T	Fair Use and Beyond: The Status of Copyright Limitations and Exceptions in the Commonwealth of Independent States		
Plant, Arnold	The Economic Aspects of Copyright in Books	48 Economica 167 (1934)	
Posner, Richard and Patry, William	Fair Use and Statutory Reform in the Wake of Eldred	92 California Law Review 1639 (2004)	
Post, David	Battle or Dance?	Jan./Feb The American Lawyer 116 (1996)	
Ramos, Carey R	The Betamax Case : Accommodating Public Access and Economic Incentive in Copyright Law	Stanford Law Review Vol.31 No.2 243 (1979)	

Rees, Jeremy	Information Access versus Document Supply	Interlending and Document Supply Vol.22 No.1 20 (1994)	
Richardson, David	Intellectual property rights and the Australia—US Free Trade Agreement	Research Paper No. 14, 31 May (2004)	
Rupp-Serrano, Karen	Copyright and Fair Use: A Policy Analysis	Government Information Quarterly Voo.14 No.2 155 (1997)	
Rushton, Michael	Economic Impact of WIPO Ratification on Private Copying Regime		
Rutner, Michael B	The ASCAP Licensing Model and the Internet: a Potential Solution to High-tech Copyright Infringement	39 Boston College Law Review 1061 (1998)	
Sag, Matthew	God in the Machine: A New Structural Analysis of Copyright's Fair Use Doctrine	11 Michigan Telecommunications Technology Law Review 381 (2005)	
Sag, Matthew J	The Law and Economics of Copyright Scope and Fair Use	Working Paper (2005), available at: <a href="http://law.wustl.edu/wipip2005/papers/MatthewSag_CopyrightScope(WIPIP%20version).pdf">http://law.wustl.edu/wipip2005/papers/MatthewSag_CopyrightScope(WIPIP%20version).pdf</a>	Reviewed in detail
Samuelson, Pamela	Intellectual Property and the Digital Economy: Why the Anti-Circumvention Regulations Need to Be Revised		
Schockmel, Richard B	The Premise of Copyright, Assaults on Fair Use and Royalty Use Fees	Journal of Academic Librarianship (1996)	
Schulman, Robert M	Fair Use and the Revision of the Copyright Act	53 Iowa Law Review 832 (1986)	

Seltzer, Leon E	Exemptions and Fair Use in Copyright: The 'Exclusive Rights' Tension in the New Copyright Act	24 Bulletin of the Copyright Society 215, reprinted in Leon E. 29 Seltzer, Exemptions and Fair Use in Copyright : The Exclusive Rights Tensions in the 1976 Copyright Act. Cambridge, Mass.: Harvard University Press (1977)	
Silberberg, Carol M	Preserving Educational Fair Use in the Twenty-First Century		
Sinclair, M B W	Fair Use Old and New: The Betamax Case and its Forebears	33 Buffalo Law Review 269 (1984)	
Stanford Law Review, Editor	The Betamax Case: Accommodating Public Access and Economic Incentives in Copyright Law	31 Stanford Law Review 243 (1979)	
Steiner, Christine	The Reach of Fair Use On the Web	ALI-ABA Course of Study: Legal Problems in Museum Administration 419 (1999)	
Stokes, Simon	Some Reflections on Art and Copyright	Oxford Intellectual Property Research Centre Working Paper Series No.6 (2004)	Reviewed in detail
Strickland, Lee S	Copyright's Digital Dilemma Today: Fair Use or Unfair Constraints? Part I: The Battle over File Sharing	College of Information Studies, University of Maryland	
Timberg, Bernard	A Modernized Fair Use Code for the Electronic as Well as the Gutenberg Age	75 Northwestern University Law Review 193 (1980)	
Towse, Ruth	Assessing the Economic Effects of Copyright and its Reform	Oxford Intellectual Property Research Centre Working Paper Series No.7 (2003)	Reviewed in detail
Tushnet, Rebecca	Copy This Essay: How Fair Use Doctrine Harms Free Speech and How Copying Serves It	Yale Law Journal, Vol. 114 (2004)	

Tyerman, Barry W	The Economic Rationale for Copyright Protection for Published Books: A Reply to Professor Breyer	18 UCLA Law Review 1100 (1971)	
Van Wijk, Jeroen	Dealing with Piracy: Intellectual Asset Management in Music and Software	European Management Journal Vol.20 No.6 689 (2002)	
Walker, William C Jr	'Fair Use:' The Adjustable Tool for Maintaining Copyright Equilibrium	43 Louisiana Law Review 735 (1983)	
Weinberg, Louise	The Photocopying Revolution and the Copyright Crisis	38 The Public Interest 107 (1975)	
Weinreb, Lloyd L	Fair's Fair: A Comment on the Fair Use Doctrine	103 Harvard Law Review 1137 (1990)	
Withers, Kay	Intellectual Property and the Knowledge Economy	IPPR: Intellectual Property and the Public Sphere: Balancing Competing Priorities (2006)	
Yen, Alfred C	When Authors Won't Sell: Parody, Fair Use and Efficiency in Copyright Law	62 University of Colorado Law Review 79 (1991)	