

JISC Briefing Paper- Software Patents

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This briefing paper identifies and summarises points to be considered in deciding whether and how to protect software through the patent system. The document presumes no legal background and is written for the technical computer scientist.

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JISC Legal would like to remind you that the information provided in this document is for guidance and should not be considered as legal advice.

1. First Steps

For the academic who is considering patent protection sound advice from the outset is to keep one's idea to oneself. The academic community has been traditionally encouraged to be open and to communicate ideas: indeed computer scientists tend to publish earlier than other scientists. This openness is in direct conflict with the patent system. If you have discussed your idea with others, published, given seminars on it, then it is unlikely that any patent application will be successful (or withstand attack). The patent system is based on the notion of absolute novelty and you will destroy this novelty by freely passing information about it to others.

Critics of the patent system as it is now utilised by Universities point to the negative effects which protection can have on the academic enterprise. That is not a topic for debate here; rather, the point has to be made that if you wish to use a commercial

tool such as a patent, then you have to abide by the rules of the commercial environment.

2. Why Patent Software?

There is protection available for software through the copyright system which is automatically given at no cost, so why - it could be asked - use a system as expensive as the patent system which requires applications to be prepared by professionals, examination by patent officers and then, if successful, annual fees to be paid? The answer is simple. The copyright system will protect the coding of your program from copying (which sometimes includes the structure of the program) but it does not protect your inventive idea. Say you find a completely novel algorithm which cuts the processing time of a tree search. You could protect one or more particular ways to code that through the copyright system, but you couldn't protect the algorithm itself. Only the patent system can offer that level of protection.

Patenting is about protection, but at a significant cost. Unfortunately, most patents have no real commercial value. Anecdotal evidence suggests that around 1% of patents will make a significant profit for their owner; 9% will cover their costs; and 90% will not produce sufficient income to cover these costs. Evidence from the European Patent Office shows that half of all patents granted through their office will be allowed to lapse by their owners by the halfway mark (10 years). The difficulty for patent applicants is that it is impossible to tell beforehand whether your application will be one of the 1%, the 9% or the 90%.

There are thus two kinds of advice which a potential patent applicant must consider. First, is whether the idea may pass the tests set by the patent offices and be granted protection. Second, is whether it is an idea which is potentially profitable. The first advice is relatively easy to get, whilst the second is much more difficult: involving questions of marketability of the idea. This briefing paper can only deal with the first advice.

Universities now see the linking of technical expertise from the academic with marketing expertise as being a major requirement in the new University/FE IPR regimes and many have set up support systems within their research and development units. Advice from these units – or their equivalent – is an essential element of seeking protection through the patent system. If there are neither inhouse Intellectual Property Officers, nor a Regional advice centre, then JISC Legal (<http://www.jisclegal.ac.uk/>) should be able to provide contact information.

3. Who will own the idea?

It is not easy to say who might own any invention. Universities are currently making claims that all inventions within the academic's University-supported research field are the property of the University. Many intellectual property academics would argue against this. In practice, it is probably less important than one might imagine: it takes a substantial effort (and sometimes money) to take an idea from patent application through to licensing and/or sale and profitability. The University will usually require the inventor to expend this effort – if he or she does not, the idea is unlikely to benefit either. It might also be that if the patent is valuable it may need to be defended in

the patent office (through 'opposition' procedures) or in the courts. These are very expensive and it is unlikely that a University will be able to fund these in any meaningful way without external commercial involvement.

Therefore, we can say that whether the inventor or the University is the owner is not as relevant as the fact that they are working together, have an agreement which suits both parties, and have a strategy which they are both prepared to follow. This common approach will usually also link in with that of a commercial partner.

4. A 'Software Patent' is a Patent

A 'software patent' (more formally known as a 'computer-related invention') is a controversial item of intellectual property. It is best understood, first by noting what a patent is, and then considering recent developments in information technology.

A patent is a registered right given to an 'invention'. This means that the applicant must apply for the right (unlike copyright which is automatically given [\(1\)](#) to a relevant patent office. It is also an examined right: the patent office will carry out an investigation of the application to see whether it is:

- **Novel** – that is, no previous instance of the idea has been published or used. All the documents and previous patents which precede this application are considered 'part of the prior art'. If prior art exists which proves that the idea in the application is not novel, then protection will not be granted. Even later on the life of a patent, if relevant prior art is found it will destroy the validity of the patent.[\(2\)](#)
- **Inventive** – that is, that is a proper invention which would not be obvious to a person who had reasonable skill and understanding of the area. The system thus rewards inventivity rather than general expertise.
- **A full detailing of the invention** – that is, that someone using the patent document would be enabled to utilise the invention without requiring further information. The reason for this is that the system provides reward in return for making information available to others which can later be used at the end of protection. Some prefer to use trade secret protection since it does not require making their ideas public.

5. The Different Patent Systems in Europe

Patents have been traditionally provided by the State, and thus a patent awarded has effect only within the borders of that particular state. With the introduction of the European community, there was an attempt to develop a common patent for all of the EU area. Thus one patent would cover all of Europe. This attempt to produce a *Community Patent* began in the early 1960s but was not successful – primarily due to a requirement that each patent would require translation into every national language: business was not prepared to pay the costs, but also due to the belief that some countries did not have sufficient judicial expertise in patent matters.

However, we have had, since the late 1970s, a 'transitional' system where a trans-national Patent Office (The European Patent Office, centred in Munich) carries out search and examination tasks, but patents then move into the 'national phase' and

become the responsibility of each country. Thus the EPO is said to provide a 'bundle of national patents' through a single mechanism. Most countries who are signatories to the EPC have also retained their own national patent system which operates in parallel with the European system. Further, international harmonisation through the World Intellectual Property Office (WIPO) has provided a means of gaining worldwide protection through the 'PCT system'.

The applicant has therefore several different systems through which his application can be made:

- He can go for national protection only through one or more national offices (say, UK, Germany, US). Here the application will be examined in each office.
- He can apply for protection through the European Patent Office. This will entail only one examination and, if successful, the patent can be valid in any of the member countries of the European Patent system which are requested. Costs are for one examination, but then annual renewal fees must be paid for each country.
- He can use the PCT system (filing the application in the national office) and having it examined by one of the PCT examination offices (usually also done by the EPO) and then the patent will be valid in any of the requested countries. Once again, the more countries requested, the higher the costs.

The national offices are now less important than they once were due to a number of reasons. They are, though, cheap and speedy. In Europe the European Patent Office is now the major force in protection: it is not very fast, quite expensive and has a substantial backlog of applications, but it has various advantages (expertise of examiners, opportunity of gaining protection without have to interact with various examiners, etc.) and is certainly the major route for protection in Europe.

6. Examination

The applicant prepares his application (usually with a patent agent/attorney) and forwards this to the relevant patent office – we presume the European Patent Office. This remains a secret document. This will be investigated (3) through a two-phase system of:

- **Search** – where the idea in the application is searched for novelty throughout the prior art. A good patent office contains many millions of prior art documents.
- **Examination** – to check whether the idea is inventive and accords with the other requirements of full disclosure etc...

The patent application will be published after 18 months and then becomes public. Previously, the US and Japanese offices did not publish applications. However, international harmonisation has brought procedures closer together and all countries now follow similar publishing practices. These applications can be viewed on-line at the European Patent Office's website: many companies keep a close eye on what their competitors are doing. University researchers, too, should pay close attention to these published applications for obvious reasons. When the application has been

searched, then information on what might be relevant to novelty is attached in the form of a search report. These, too, are public documents.

Patent documents contain details of inventor, owner, date of application and other relevant information. They also contain a description of the invention and claims – these are the claims being made by the inventor as to what is being claimed as the property right. Claiming too much may invalidate the patent, and claiming too little may allow competitors to work easily around the patent. The claims, we may say, are at the heart of the patent and their correct wording is vital – an infamous case found that replacing a spring with a slitted rubber tube (which acted in exactly the same manner as the spring) was not an infringement because the patent claims only specified a spring (4). Appendix 1 contains an example patent which covers an internet gambling system.

The final stage is examination proper and if this is passed, the patent is granted. The patent is awarded for 20 years (5). It does not give the right to commercially use the invention, it provides only ‘ownership’ of that invention: the patent may be for an improvement of an already protected invention, so the second invention can only be worked with permission of the first inventor. Thus frequently companies need to cross-licence their patents simply to be enabled to work those they own.

7. After Grant

A patent which is granted is not free from problems – it may be attacked in the months after grant in ‘opposition’ hearings at the EPO by competitors, or it may be attacked during its lifetime in court in the national phase. A patent can potentially be found invalid throughout its life. Anecdotally it has been suggested that only 1 patent in 100 is financially successful, with 10 out of 100 breaking even on costs. Many patents are therefore allowed to lapse before the 20 years protection ends. Unfortunately, it is impossible to tell which of 100 patents will be the one which is successful.

However, patents are not simply cash generators – they are commercial tools, and are usually used by their owners in a commercially strategic manner. There is the story of how the Japanese optics industry started: it built up a portfolio of patents relating to optics prior to entering the marketplace. When it did enter, its control was so total that the existing (and pre-eminent) German industry could not compete since the new technical knowledge was tied up by the Japanese firms. There have been several inquiries into the utility of the patent system. All have found flaws – particularly with regard to small firms and their use of the system – but the system remains the only way in which invention can be rewarded and can be the basis of development without fear of the idea being simply purloined and worked – for example, in seeking funding for a company developing novel products, funders will investigate the patent portfolio. It has been said that with this in mind, the first page of any patent (which includes the abstract describing the invention) should be written to help to ‘sell’ the idea to a non-expert.

There are three main patent offices in the world: the EPO, the US office and the Japanese office. Our concern here is with the first two, being those most likely that UK University researchers will use to protect their ideas. The relevant legislation for

these two offices is the European Patent Convention (6) and Title 35 of the US Code (7).

8. The Problem of Software

The patent system has existed, in some form or other, for centuries and has traditionally been concerned with various engineering, manufacturing and (from the early 19th century) chemical industries. Until the 1970s software was usually bundled with hardware by the manufacturer and was not viewed as being an independent entity worth protecting (8). It was in 1973 that the EPC was signed, and – fortunately or unfortunately, depending upon one’s viewpoint – Art 52 of the EPC included exceptions to patentability:

Article 52 EPC Patentable inventions

- (1) European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step.
- (2) The following in particular shall not be regarded as inventions within the meaning of paragraph 1:
 - (a) discoveries, scientific theories and mathematical methods;
 - (b) aesthetic creations;
 - (c) schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;
 - (d) presentations of information.
- (3) The provisions of paragraph 2 shall exclude patentability of the subject-matter or activities referred to in that provision only to the extent to which a European patent application or European patent relates to such subject-matter or activities as such

Since the implementation of the EPC software has become a major industry and from a position where almost all machinery was controlled by analogue means, we now live in a digital world. It can therefore be seen that the patent system in Europe has spent the last 30 years trying to come to terms with the tensions between digitisation and Art 52. A similar situation was found in the US (though not arising from statute) but we deal with Europe first.

The ‘problem’ of software has recently become worse. In the 1980 and 1990s, the major requirement was for protection for properly technical inventions. Since the rise of the internet, there have been many ‘inventions’ which are closer to ‘ways of doing business’ than to controlling a machine tool digitally, yet still are based on computing techniques. We will first look at the more traditional software and then look at these computer-based business method patents as they are termed.

9. Software and Art 52 EPC

An example of what might be an early major software invention would have been the invention of a mainframe operating system using round-robin techniques to allow multi-user access. This obviously used hardware, but the essential control mechanism was from software, sequentially providing users with a time slot, moving

data in from disk for that user, carrying out finite processing, moving data out again and then onto the next user. This appears to offer the requirements novelty (being a new technique) and inventiveness (not an obvious technique to use at that time in computing). A literal reading of Art 52(2) would suggest that it was not possible to gain protection for this as a software invention. Under Art 52, protection would seemingly be denied since this was obviously a computer program which was at the centre of the invention.

Examiners at the European Patent Office indeed first took this view (9) and would deny protection to any application which was based on a program. However, developing case law within the EPC led to a more sophisticated approach. That is, that a program on its own would not be protected, but if it was part of system which had a technical effect then it could be protected. A 'technical effect' is a difficult concept to simply define and one which was never formalised, but means that the invention should be looked at in a wider technical context and/or as a whole system. Thus the round robin coding is not to be seen as a program as such but as a solution to a technical problem and thus protectable (10).

This technical effect approach opened the floodgates. So long as a software invention could be tied to hardware, then it was protectable. The patent attorney needed to ensure that a software invention was described as a technical solution to a technical problem and then Art 52 could be overcome. For the latter part of the 1980s and most of the 1990s it was possible to get protection for the invention as a whole, so long as the patent attorney was aware of the required form of claim wording. Most attorneys with this expertise, for example, would carefully describe their client's inventions in both hardware and software terms (11).

This 'half solution' to the problem worked reasonably well for industry. However, it meant that programs could only be protected as part of a working system. A company could not sue a seller of a program for patent infringement since that program was not itself protected – it was only protected when operating in a hardware context. It was not until IBM's appeals in the European Patent Office Boards of Appeal (T1173/97 and T935/97) in 1998 that this limitation was overcome. The Board took the view that, despite Art 52(2), a program itself could be protected so long as there was a 'technical effect':

A computer program claimed by itself is not excluded from patentability if the program, when loaded on a computer, produces a technical effect which goes beyond the "normal" interaction between a program and the computer on which it is run.

Thus in the Europe Patent Office, software as an independent entity will now be protected so long as the description and claims are set out in a manner which shows a full technical effect. This is the law to date (12) and we look at the implications below. The EU has published a proposed Directive which would harmonise this situation across the member states. (13)

10. The US Situation

A similar kind of situation had developed in the US with several cases being considered where the underlying element which was to be protected was software, each with a divided panel of judges. Once again, software could be protected but required understanding of the essential claim format. However, this situation changed quite radically with *State Street Bank v Signature* (14). The patent involved a computer system to organise and implement a financial processing system. State Street Bank requested that Signature's patent should be declared invalid due to being outwith the field of inventions it was possible to patent. This was agreed by the trial judge who held that a purely software based system was not patentable under Title 35. However, on appeal the court noted the statutory wording in US Patent Law:

US Code Title 35, Section 101. Inventions patentable

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

They held that there should be no general limitation on what should be patentable, so long as the idea was useful. This position, they argued, was a harking back to the fundamental reasons for offering patent protection – that an invention could be protected so long as it was not from nature or an abstract idea.

The difference, then, between US patent law and European patent law is that the latter is more technically constrained – US inventions to be protected simply have to prove that they are primarily novel, not obvious, and useful to gain protection.

11. Protecting Software (and business methods) by Patent

It is clear from the above that software inventions can be patented in both Europe and in the US. The points to bear in mind are:

1. In Europe the application must emphasise the technical effect which is wrought through the software invention.
2. In the US, the most important element is the usefulness of the invention.
3. A further, very important point, is that since there is no limit upon what is an 'invention', it can include inventions where software is utilised, but not necessarily in a purely technical sense (as in controlling a production device, say, or utilising novel data structures).
4. If software can be protected, then there is also the potential to protect business methods which are based upon software. One controversial patent was the Amazon.com 'one-click' patent: the inventive idea being that the user could 'order' with one click rather than having to use a 'basket' into which 'purchases' were put (at least two clicks). Amazon.com has built up a body of patents/applications related to e-commerce sites. (15)

State Street Bank itself concerned not just a program, but a way of doing business: using hub and spoke techniques, a financial collaboration could be arranged to be profitable purely because a computing solution was used. Without the computer implementation, there was no invention but it was still essentially a business model which was being claimed. Many of the applications being made for inventions cover this kind of financial processing system, both to the US Patent Office (USPTO) and to the EPO. One European invention (which was partially judicially considered (16)) related to a gambling system. Appendix 1 contains the patent. The US Patent Office, in the wake of State Street Bank produced a white paper on business methods and noted that they in fact have a long history of protection in the US:

Automated financial/management business data processing method patents cannot trace their origins back to the founding of our nation. However, contrary to popular view, they did not suddenly spring into being in the late 1990's. On January 8, 1889, the era of automated financial/management business data processing method patents was born. United States patents 395,781; 395,782; and 395,783 were granted to inventor-entrepreneur Herman Hollerith on that date. ... Mr. Hollerith's method and apparatus patents automated the tabulating and compiling of statistical information for businesses and enterprises. They were acclaimed nationally and viewed as revolutionizing business data processing. The protection of his patents allowed his fledgling Tabulating Machine Company to succeed and thrive. (17)

In Europe whether a business method was patentable would have depended upon what was being claimed. Thus in both patent offices the construction of claims and the specification are extremely important to ensure that full protection for the invention is achieved.

There is therefore certainly no legal reason why computer scientists in Universities should not actively consider protection for their inventions in both offices should they consider that the invention has sufficient merit and that the aims of their department and University are supported by this patenting project.

12. The Controversial Nature of Software Patents

While patenting is possible, it is still problematic for a number of reasons. There are a number of arguments which are against patenting of software per se:

- patents are needed for software since there is plenty of invention about without having to reward more;
- the system is too expensive for smaller firms, given that the cost of European protection for a patent could easily be £20,000 in patent office, professional and translations fees;
- software is already protected by copyright and doesn't need further protection;
- 'business methods' are not appropriate for patent protection which was designed for industrial products and processes, not 'accounting' products and processes;
- interoperability is particularly sensitive to patents;
- Microsoft will buy up all the important patents;

- etc. etc..

There is a substantial literature dealing with these points and other anti-patent points and we list some relevant web sites below. This anti-patent perspective does not simply come from the extremes of the open source movement; it is a view which very many commercial software firms hold, too – particularly smaller firms (18). It must be said, though, that with decisions such as IBM and State Street Bank, the battle has been lost – software and business method patents are here to stay in some form or other. The anti-patent movement has attempted other methods to counter the rise of protection – for example encouraging users to use non-proprietary formats such as PNG rather than JPEG for disseminating compressed web images. (19)

There remain a number of problems with software patents which even those who are strongly supportive recognise as being problems which must be resolved before general confidence in the system of protecting software can be achieved.

The best patent is a well examined patent. A well examined patent will be a patent in which the inventor can have reasonable confidence: in opposition and litigation it should be able to withstand attack. A well examined patent also means that it offers clarity to competitors – they can see just what is owned and what they must either pay for (if licenses are available) or work round if licenses are not. Unfortunately, there have been views expressed that some of the patents being awarded are not good, well examined patents.

There are particular problems in examining software patents:

- Examiners may not have a computing or financial systems background. Most examiners will have expertise in physics, chemistry, engineering etc... since until the 1990s recruitment focussed on these skills.
- Patent offices do not have such a store of prior art in software subjects as in other more mainstream subjects;
- Software is more difficult to describe than other patentable subjects, partly due to there being less of an agreed vocabulary;
- Much of the prior art in software has not been published – it simply exists as coding in a program (perhaps produced by an individual and never described in the literature);
- With a new kind of patent, it can be difficult to decide where inventivity actually lies – what is obvious and what is not;
- In Europe the Software Directive (20) prohibits much reverse engineering of software, so it can be difficult to analyse techniques which comprise the prior art;
- Etc. etc...

These are major problems acting against the production of well examined patents in software and business methods. The patent offices have been aware of their weakness here and are attempting to recruit staff and to raise the level of expertise. Others, too, who welcome software patents – such as the Software Patent Institute – have undertaken projects to increase access to prior art. The SPI welcomes descriptions of software for their prior art database.

We are thus in a state of transition: software patents are protectable in the US and Europe, but there is worry that patent offices may not be producing sufficiently well examined output. Web sites exist which highlight 'bad software patents'.

There does seem to be a problem in the UD Office. For example, IBM's patent 6,658,642 (Granted December 2003) relates to a method of building software:

"The present invention is a system, method and program product for solving software development needs of customers by unleashing the full potential of world-wide skilled personnel, with the possibility that when the offered price is high, many developers will try to compete and deliver a module even with no money up front. A new computer program to be developed is outlined and the outline organized to identify required modules. Required modules are provided to the system, which categorizes them and posts a list of required modules with corresponding requirements on, for example, a dedicated web site. Module requirements may include module specifications, a corresponding price and a deadline. Software developers intending to participate may provide an intention to submit. If fewer than two developers intend to submit module candidates for one or more required modules, the computer program outline may be reorganized to encourage more participants. For each required module where at least two module candidates are received, the candidates are tested for compliance with corresponding module requirements. A module candidate is selected for each required module for inclusion as a module included in the software package and payment is transferred to developers of the selected module candidates. The selected module candidates may be included in the computer program and the computer program may be tested"

Is this really an invention? Another IBM patent which received dismissive responses was US 6,329,919 where protection was given for allocating access to the 'rest room' on a plane (according to how much the ticket cost, for example). IBM were embarrassed into requesting re-examination and withdrawal of the patent,

Some commentators suggest that the real problem is one of obviousness: that patents are being awarded which do not show sufficient inventive input. This is termed the 'inventive height' required by an Office. It may be that fears of software patentability will only really be overcome when Offices begin to set the level of inventive height higher than they seem they are doing at present.

13. Application Tactics

It is clear from the above that preparation of a patent application is a difficult task and that in the case of software patents there it is even more problematical due of the difficulty of carrying out full pre-application prior art searching. It seems unlikely that robust software patents can be produced without expert professional aid.

The patent applicant must also consider the geographical extent to which he requires protection. Since there is still no workable community wide patent, the application to the EPO must consider which of the various member states require protection to be

filed. The cost of patent protection is not negligible, and a patent strategy should consider how best to protect within the allowable budget.

Further the application must consider which route to take: an application can be lodged with a national patent office (which gives *priority*) and then over the coming 12 months decide whether the idea is worth protecting in, for example, the US, Europe and Japan. A further international route, PCT, gives some further time advantages although at some extra cost.

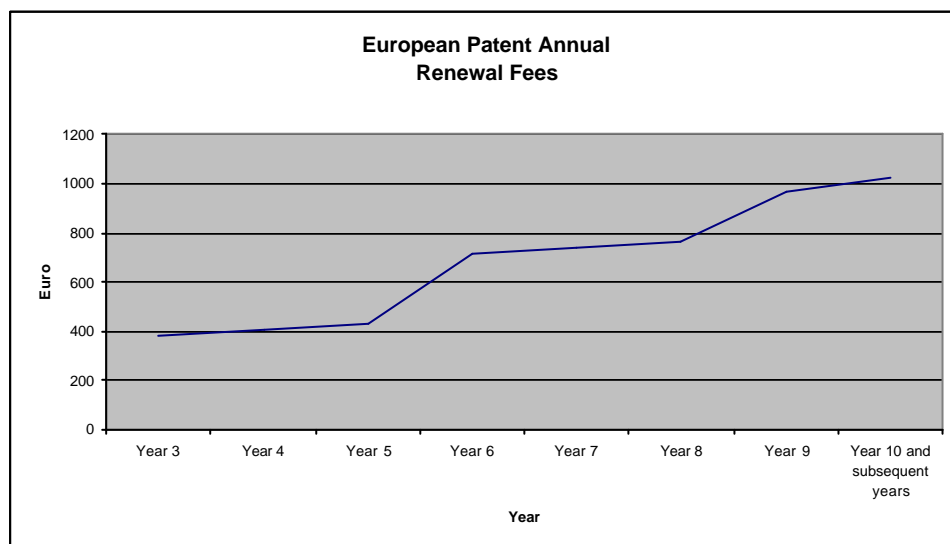
A University research department which is seriously considering protecting their output through the patent system should give consideration to deciding a patent strategy in the same manner as would a fully commercial entity. This means building a patent portfolio and choosing which ideas to protect so that the portfolio as a whole is strengthened, rather than protecting individual and un-related ideas which will – as isolated ideas – be potentially easier to work around and attack in opposition or invalidity hearings.

14. Costs of Software Patents

Formal costs of the patenting system are relatively low. For example the EPO charges (at time of writing) are:

- Search Fee – €1735
- Examination Fee – €1430

Renewal fees are on a sliding scale:



However, the major costs are not procedural costs. Rather they are the professional costs in preparing the application and, if granted, the translation of the specification into the language of each of the countries in which the patent is to have effect is substantial. Also, while opposition/appeal costs at the EPO are low and do not reflect actual costs, professional representation to present the defensive case may well cost £20,000.

Litigation in an invalidity action is particularly high in UK patent cases due to the costs of preparing the case (e.g. discovery, prior art searching, expert witnesses, etc.) and lower in other countries such as Germany which try to tightly limit litigation costs. In the US patent cases are heard before a jury which also requires that relatively expensive presentation techniques must be considered. Litigation costs can thus be a major stumbling block for any University who wishes to protect its patent portfolio.

15. Books

Any of the standard textbooks on IT Law or IP Law will provide an overview of the legal position re: software patents. However, there are two more detailed and specialist texts which offer excellent detailed insights to the topic:

- Patenting Software Under the European Patent Convention, Keith Beresford, Sweet & Maxwell, London, 2000.
- Software Patents, Gregory A Stobbs, Aspen Law and Business, New York, 2000.

For a study of the examination procedure European Patent Office see:

- Harmonisation of Intellectual Property in Europe: a case study in patent procedure, Vol. 3, Perspectives on Intellectual Property, Philip Leith, Sweet & Maxwell, London, 1998.

16. Links

Patent Offices now offer on-line searching of patents. This is a very useful method for researchers to keep up to date with commercial developments. It also allows some initial prior art searching by potential applicants. The Offices also offer much material of interest: case law, reports, and other relevant documentation – for example, the ‘Guidelines’ which are followed by examiners.

- USPTO: <http://www.uspto.gov/> The US Patent and Trademark Office
- European Patent Office: <http://www.european-patent-office.org/>
- UK Patent Office: <http://www.patent.gov.uk/>

Two particularly useful resources from the Offices are

- Business Methods White Paper: <http://www.uspto.gov/web/menu/busmethp/index.html> by the USPTO which deals with how best to examine a computer-related invention in the business field.
- An overview of case law of the EPO Boards of Appeal: http://www.european-patent-office.org/legal/case_law/e/index.htm

The EU web site on Industrial Property also carries various reports, draft directives as well as European law in force. See: http://europa.eu.int/comm/internal_market/en/indprop/index.htm (Note that in Europe, intellectual property relates to copyright, trademarks etc, which industrial property relates to patents).

For two organisations with opposed views of the usefulness of software patents, see:

- The Software Patents Institute <http://www.spi.org/>
- Foundation for a Free Information Infrastructure <http://swpat.ffii.org/index.en.html>

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Professor Leith was previously a Visiting Fellow at the Institute of Advanced Legal Studies in London, a visiting professor at the Maximillians University in Munich, and is presently a Research Associate at the AHRB IP Centre in Edinburgh University and Visiting Fellow at the Institute of Governance at Queen's. He has been an active participant in a number of exchange programmes including the Eulisp programme (European law schools teaching IT Law) and has now become a member of an Alfa project (South American developments in IT Law).

He has been active with the British & Irish Law and Technology Association (BILETA) since its inception (including having been Chair), is currently a Trustee of the British & Irish Legal Information Institute (BAILII) and has in the recent past been active with the Society for Computers and Law, both in Northern Ireland and as a council member.

His current teaching includes the undergraduate module, Law and the Information Society and the postgraduate LLM in Computers and Law.

He is external examiner for a number of universities focusing on intellectual property and information technology courses: LLM, Intellectual Property Unit, QMW LLM & LLB, Cork, Galway, and UCD. LLM in IT Law, Strathclyde.

End Notes

1. Copyright protection is given when something is recorded ('fixated' in the terminology of the lawyer). This simply means that if you write down or put into a computer a few sentences (a 'work') then this has been fixated and you have the copyright in it. There is no need to apply a copyright symbol ('©') though there is certainly no harm in doing this.

2. Historically the patent system has been used to reward new developments, not re-use of older developments or ideas. Europe has a very strong novelty requirement and some believe that this should be altered to benefit the smaller enterprise or inventor. It seems – though – that such a change is unlikely to be implemented.

3. In an ideal system, the process would be speedy. At the EPO it is not, though it possible to request an accelerated examination. Often, though, applicants are not unhappy with delayed processing of the application since there are time and cost advantages.

4. This was also an invention (an epilator for removing hair from women's bodies) which demonstrated problems within Europe as some countries found for the patentee and some for the attacker. Patent lawyers discuss this under the concept of 'the doctrine of equivalents'.

5. Except for drugs which are allowed a short extension to this period. The reason for this is that drugs frequently take substantial periods to go to market due to testing. In order to stimulate development many countries (US and Europe included) have offered extended periods of protection. Usually 3 or 4 years is typical.

6. <http://www.european-patent-office.org/legal/epc/index.html>

7. <http://www4.law.cornell.edu/uscode/35/>

8. There were also worries as to whether it was protectable in law.

9. The Office began work in 1977 and it took several years before cases began to be heard by the Boards of Appeal and procedures and attitudes to software to change. Any standard textbook on IP law will outline the development of EPO case law. The EPO also publishes a useful on-line review of their case law.

10. It is not only the first implementation of this which can be protected. Anyone who considers that they have improved the technique in a novel way can apply for patent protection of their improved multi-tasking operating

system or part thereof. This is no different from the steam engine – the first patent does not remove the possibility of protecting all improvements or developments, indeed the system acts to encourage developments and improvements of this incremental sort.

11. However, many thought that software was not protectable at all – this has never been the case since the decision in *Vicom* (T84/0208).

12. As far as we can tell. The actual situation with respect to litigation is difficult to predict. There have been no relevant cases in the UK since the IBM BoA decisions. It is likely, however, that the UK Patents Court would follow this line of reasoning. There have been recent attempts to reword the European Patent Convention to more accurately reflect what is patentable, but these have not as yet succeeded.

13. The proposed Directive was very controversial with many opposed to software patents lobbying the European Parliament. It is likely to be agreed in 2004. Note that it does not try to extend protection, simply to formalise the protection already available from the European Patent Office.

14. Trial judgement - *State Street Bank & Trust Co. v. Signature Fin. Group*, 927 F.Supp. 502 (D. Mass 1996). Appeal judgment - *State Street Bank & Trust Co. v. Signature Fin. Group*, 47 USPQ2d 1596, 1599 (BNA) (Fed. Cir. 1998). These two judgments are available at several locations on-line. Both are worth reading for their discussion of patent policy with regard to software and business methods.

15. The perceived problem for the Amazon.com 'one click' patent was that it was of such low inventive height (seemingly obvious). Amazon.com was involved in litigation with Barnes and Noble over this. The patent was not granted in Europe.

16. *Menashe Business Mercantile Ltd. & Anor v William Hill Organization Ltd.* [2002] EWHC 397 (Patents). The judgment was confirmed on appeal. There was a report that agreement had been made between the parties over licensing of this in mid-2003. The case did not cover validity of the patent, only whether an internet-based patent where part of the invention was in the UK and another part abroad, could be protected by a patent. For UK case law on-line see <http://www.bailii.org>

17. White Paper, *Automated Financial Or Management Data Processing Methods (Business Methods)*, USPTO, 2000. The paper was produced in an atmosphere where criticism of the USPTO's examining of these patents was rife. See link to this below.

18. See the response to the EU consultation at http://europa.eu.int/comm/internal_market/en/indprop/comp/softpatanalyse.htm

19. The jpeg algorithm (US Patent 4,698,672) was subject of controversy in 2002 when it's owners began to request licensing fees. By April 2004 the company stated that 30 companies had paid US\$90 million in royalties. In 2004 it also initiated litigation against Adobe, Apple and IBM amongst others.

20. EU Member States approve patentability of computer-implemented inventions - <http://europa.eu.int/ida/en/document/2558/330>

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