Trends in Intellectual Property: Focus on Ownership and the IT Professional

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INTRODUCTION AND BACKGROUND

Information technology (IT) personnel did not traditionally see themselves as being involved in invention or the production of intellectual property. Even those employed in academia or corporate research and development did not consider the software they developed to be patentable in the same way a chemist or engineer might consider his or her work to be. Until 1995, it was unclear to what extent computer software was patentable and the information technology industry relied on copyright protection for protecting its investment in developing software. The limitations of copyright protection became increasingly apparent after the decision in Apple Computer v. Microsoft Corp., which demonstrated that the "look and feel" of an operating system interface would find limited protection under the copyright law (Byerly, 1998). In this case, the Court stated that because aspects of the user interface were utilitarian and functional it could not be protected by copyright, which only offers protection for artistic expression rather than functionality.

Although copyright protection was inadequate, corporations also had good reason to shy away from software patents. Those that were granted were sometimes invalidated because courts categorized computer programs as abstract ideas, due to their algorithmic nature. For public policy reasons, inventions which are merely abstract ideas, such as Fermat's theorem or Euler's formula, are specifically denied patent protection under Section 101 of Article 35 of the United States Code. The rationale for this policy would seem to be that allowing any one person the right to control an idea and all its applications could prove harmful to mankind. Because the courts were unsure how to handle the new inventive category of computer software, they dealt with it conservatively and this led to the denial of patent protection.

For example, in 1972, in Gottschalk v. Benson, the Supreme Court found that a program for converting binary coded decimal (BCD) numbers to binary was not patentable. Nevertheless, in 1981, there was a slight movement in favor of patent protection, in the case of Diamond v. Diehr. In this case, the Supreme Court held that a patent for molding rubber products was valid, despite the fact that a computer was involved. The Court found that because there was an *application* of the software to solving a particular problem, the invention was patentable. This holding indicated that as long as software produced a concrete result, it might be patentable.

By 1995, the metes and bounds of software patentability were further refined when the United States Patent and Trademark Office (USPTO) issued its "Proposed Examination Guidelines for Computer-Implemented Inventions." The Guidelines were stated to be a response to recent changes in the law and formally established that a computer program was *per se* patentable without any recitation of hardware being necessary other than a computer-readable memory for storing the program (Laurie & Siino, 1995).

THE BUSINESS METHOD PATENT COMES TO THE FORE

The most recent milestone in the software patent saga transpired in 1998, when the US Court of Appeals for the Federal Circuit upheld the patent for a business method, in the case of State Street Bank & Trust Co. v. Signature Financial Group, reversing a lower court's finding of patent invalidity under 35 USC Section 101. The patent at issue, (US Patent No. 5,193,056 (1991)), was a patent for a data processing system for managing a financial portfolio; what was patented was essentially a system design. The impact of the Court's decision was to raise the level of awareness in the business community regarding the type of invention that could be patented (Hanchuk, 2000). Many patents are now directed toward the functions a computer performs (its programs) rather than to the computer itself. As a result, every programmer can view himself or herself as a potential inventor, every corporation can view its information technology (IT) department as a product development center, and colleges and universities may also seek to maximize intellectual products that fall outside the hard sciences, which are the traditional areas for patent production.

At this juncture, most patents for automated business methods are grouped together in Class 705, entitled "Data Processing: Financial, Business Practice, Management, or Cost/Price Determination." The USPTO, which at one time primarily recruited electrical engineers as patent examiners, is now seeking examiners who not only have degrees in a science are but are also experienced in securities, sales, business information systems, marketing and financial analysis, and the like (Millin, 2002).

Between October 1998 and September 1999, the USPTO received 2600 business model patent applications and granted 583 of them (Petty, 2000). By 2001, 10,000 applications had been filed in Class 705 (Dunnam & Alderucci, 2002). Critics of the business model patent, which include the open source software movement, argue that using a computer to implement a well-known business process on the Internet does not constitute novelty and patents of this type should not be awarded. Public derision of some business method patents has also played a role. US Patent No. 6,329,919 (2001) entitled "System and Method for Providing Reservations for Restroom Use" is an example of a business method patent which was reexamined by the UPSTO for validity, following its characterization as "IBM's crappiest crapping patent" in the media (Bradley, 2002). The patent, later disclaimed by IBM, claimed the following as its inventive matter, which on its face does not appear new:

A method of providing reservations for restroom use, comprising: receiving a reservation request from a user; and notifying the user when the restroom is available for his or her use.

Partially in response to public criticism of business method patents, Congress passed the American Inventors Protection Act (1999). This statute provides that if a business has been using a business method one or more years before another party files a patent application for that same business method, the business may continue using the method and not worry about being sued by the patent holder for infringement. This legislation protects businesses which were using a software technique, before business patents became widely accepted, and did not take steps to patent their invention (Bernstein & Silver, 2000).

Another quirk in the path to software patenting is the problem of determining whether any particular software program is in fact new. (Novelty is a requirement under 35 USC Section 102, in order to obtain a patent.) So-called "prior art," can be searched at the USPTO website, www.uspto.gov. However, because business methods were rarely patented until recently, there is no organized databank to search for them, either for inventors or the Patent Office examiners. Accordingly, as part of its Business Initiative, the USPTO published a list of databases that examiners must search before they award or deny a patent. The list includes ABI/INFORM, the Conference Papers Index, Wall Street Journal Abstracts, NTIS, Dialog, and others (Nigon & Etkowicz, 2002). Also, if a business method patent is initially allowed, the USPTO then initiates a second-level review which evaluates the broadness of the patent claims and whether an adequate search of the prior art has been conducted (Petty, 2000). Supporters of business patents include Jay Walker, founder of Priceline.com and Jeff Bezos, founder of Amazon.com. For today's software start-up, obtaining a patent is part of the business plan and a means for establishing and preserving an Internet market niche.

SPECIAL RELEVANCY FOR THE IT PROFESSIONAL

Over the past five years, there has been a growing awareness that patents are a strategic asset and it is also now clear, that patented software is one of those assets (Berman, 2003). Organizations with a number of patents in a particular area of innovation can compel other organizations to license these patents for a fee because competitors fear being sued for infringement. Some companies, such as IBM, are aggressive in licensing their technology and as a result in 2003, IBM earned $1.1 billion in licensing fees (Voorhees, 2003).

Generating software patents can be attractive because often the major investment is in salaries, rather than equipment such as a factory or a testing laboratory, resulting in a lower up-front investment. Also, the timeline for software development can be very short. (On the downside, software may have a very limited lifespan.) Even companies which are not in the software business can begin to view IT as a potential profit center, rather than just overhead, and devote resources to identifying intellectual property products.

For employees of large organizations, ownership of intellectual property is usually established by having all employees sign an assignment agreement. When IT personnel are not full-time employees, but are hired to work on a project basis, a contract should be in place to establish ownership. IT workers should be sure to weigh the economic value of what they may be assigning away in light of the new importance of software patents.

INTELLECTUAL PROPERTY AND ACADEMIA
Ownership and Federal Grants

For faculty and academic employees, the issue of ownership of intellectual property is becoming more complicated. In particular, inventions produced under federal grants are subject to new rules. In the past, inventions that were created under a federal grant were the property of the federal government. However a major change in federal law, the Bayh-Dole Act (1980), and a subsequent law, the Trademark Clarification Act (1984) led universities to retain title and interest in inventions made under government sponsorship. Along with the right of ownership came some reporting responsibilities and an obligation to try to commercialize these inventions, resulting in universities now needing to engage in inventions management.

In order to preserve rights to federally sponsored inventions under the law, an academic institution must: report all such inventions to the federal funding agency within sixty days; file a patent application within two years of title election; and seek out licensees to utilize the invention. The government retains certain rights to take back inventions not brought to commercialization after several years, as well as a nonexclusive right to use the inventions.

Ownership and Publication

Under current federal law (US Copyright Act, section 102[b], (2002)), authors automatically own the copyright to "original works of authorship fixed in any tangible medium of expression." However, almost all researchers end up signing their copyrights away to journal publishers, as a condition of publication. The publishers insist on copyright ownership, so that they have the legal right, without involving the author, to act to protect the works from plagiarism. As a result, even federally funded research ends up being controlled by journal publishers. Ironically, although universities play a role in producing the research, they may not be able to afford to purchase the published results of this research, through journal subscriptions.

One solution for increasing the availability of research articles, while protecting copyright ownership, is arXiv.org, which is owned, operated and funded by Cornell University. The service is a fully automated electronic archive and distribution server for research papers in the sciences and related disciplines. Authors can submit their papers to the archive either through the on-line web interface, using ftp, or by using e-mail.

Ownership and Distance Learning

Copyright ownership has its limitations, notably, the Fair Use Doctrine (2003). According to this doctrine, a single copy may be made of: a) chapter from a book; b) an article from a periodical; c) a short story, short essay or short poem; and d) a chart, graph, diagram, drawing, cartoon or picture from a book, or periodical. In addition, multiple copies (not to exceed more than one copy per student in a course) for classroom use may be made, provided that: a) the copying meets the prescribed tests of brevity, spontaneity, and cumulative effect tests; and b) each copy includes a notice of copyright. Brevity limits the numbers of words which may be copied from an individual work; spontaneity requires that the inspiration and decision to use the work does not allow a timely reply to a request for permission; and cumulative effect limits the number of times such exceptions can be made.

Although the Doctrine of Fair Use (2003) met the needs of most academics, a new copyright problem surfaced, when distance learning and electronic reserve became technically feasible. Colleges and universities were faced with the dilemma of not being able to make digital copies of readings and other course materials, without violating the Copyright Law. However, in November of 2002, Public Law 107-273 went into effect, which resolved this problem. The Technology, Education, and Copyright Harmonization Act (TEACH Act) made electronic reserve legal and distance education easier. In general, faculty who want to incorporate works into digital transmissions for instructional purposes need only: a) avoid use of commercial works that are intended for digital distance education; b) avoid use of pirated works; c) limit use of works, to that which would be displayed in a physical classroom setting; d) supervise and interactively use the copyrighted work as part of a class assignment in the distance education course; e) limit access to the works to students enrolled in the course, and to prevent the students from retaining the works for longer than a class session; and f) notify the students that the works may be subject to copyright protection.

Ownership and Experimental Use

Paralleling copyright law, the Experimental Use Doctrine (2001) specified that university researchers could freely borrow patented technologies for use in basic research, for non-commercial ventures, on a limited basis. However, the Federal Circuit Court of Appeals, in October 2002, nullified this doctrine in the case of Madey vs. Duke University. In June 2003, the Supreme Court denied Duke's petition to review the case.

After leaving Duke for Stanford University, Professor John Madey sued Duke for patent infringement (Madey v. Duke University (2002)). In deciding this case, the Federal Circuit Court of Appeals, which has nationwide jurisdiction over patent issues, narrowed the Experimental Use Doctrine in a way that effectively eliminates the doctrine. The court observed that universities are increasingly acting like commercial enterprises in profiting from their patents and suing others for patent infringement. As such, the Court ruled that universities would no longer qualify for the research exemption, and would have to seek licenses for technologies they use in their laboratories, just like non-academic businesses. Accordingly, universities will be paying more attention to

whether or not their faculty members will be allowed to retain ownership of inventions they develop.

WHO SHOULD OWN WHAT AT ACADEMIC INSTITUTIONS

Administrators of colleges and universities are increasingly aware of the value of intellectual property developed at their institutions. This is particularly true for patents because licenses fees can generate an individual university, in excess of $100 million per year.

While revenues from patents can be considerable, the same cannot be said for copyrightable materials. Even large academic institutions have found that the cost of supporting development of copyrightable materials, such as on-line courses, far exceeds the revenue that they generate. Institutions that have developed a large number of on-line courses have found that a significant infrastructure is required to undertake that development.

Typically for on-line courses, faculty retain ownership of the material they create, but the university retains the right to use the course. Academic books and other works rarely generate much income for authors, and the law is unclear as to whether a chapter or two written while on sabbatical, or with release time, belongs to the sponsoring institution. In New Jersey, the American Federation of Teachers recently concluded an agreement with the State Colleges and Universities which provides that faculty, who make only incidental use of college facilities, whether or not they are on sabbatical, retain ownership of the works they create.

Patents can have great value, compared with copyrights, but a considerable investment must be made by an institution to realize this value. Only a small percentage of patentable ideas are commercially successful and therefore a process must be in place to evaluate all ideas not just for their potential patentability but also for their commercial potential, before an institution invests its resources. To undertake these evaluations, an institution must establish an evaluation process administered by experts in patent law, technology, commercialization, and tech-transfer. For each viable invention, the legal costs alone, for obtaining a patent, can easily surpass $10,000. In addition, there are significant maintenance fees that must be paid to the USPTO, during the lifetime of each patent.

Furthermore, an institution needs to address the problem of generating the patentable ideas in the first place. Research is expensive. Research universities have faculty that spend all, or a large portion of their time, exclusively on research. Their laboratories are well funded and have full-time support staff, model shops, post-docs, and graduate student assistants. Most importantly, such institutions also have a research culture. Institutions having teaching as their primary mission generally lack the infrastructure, finances, expertise, and culture to benefit from patents and should not be beguiled by the shimmer of a brass ring they cannot hope to grasp.

CONCLUSION

Due to changes in the legal environment surrounding the patent process, today's IT professional can view himself or herself as a potential inventor with the ability to produce a patentable product with commercial value, The recognition that software and business methods are now patentable and that a researcher may retain ownership of IP that the researcher develops under federal grants have opened a new window of opportunity for both individual and organizational financial gain.

In the academic sphere, institutions and their faculty will be able to achieve agreement regarding ownership of intellectual property, when dreams of instant endowment or personal gain are tempered by the reality that not all intellectual property is financially worthwhile and that the cost to develop such property may be prohibitive. Too much assertion of ownership by an institution will be a disincentive to faculty creativity. On the other hand, too little assertion may, in some cases, cost an institution a great sum. For IT professionals both within and without academia, IP creation is still in its infancy, and they should take some time to understand their rights to own and to exploit, what they create.

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