PATENTING REGIME AND COMPUTER RELATED INVENTIONS: AN INTERNATIONAL PERSPECTIVE.

*Saurabh Chandra
Assistant Professor
Symbiosis Law School
Noida
&
**Dr. Meenakshi Kaul
Assistant Professor
Symbiosis Law School
Noida
India

ABSTRACT

With the advancement in science and technology one would find him amidst new inventions and ideas. Historically it is evident that with the growth of human ideas there have been growths in the inventions. What matters more and is worth drawing attention is one’s novel and innovative idea transformed into some kind of tangible ‘utility’ product. Patent is thus, how one is rewarded for his innovative useful contribution to the human kind.

With the emergence of technologies the computer software industry has grown quickly; but so, unfortunately, has the controversy surrounding the patentability of computer programs. Traditionally, ‘algorithms’, or sets of instructions, have been treated as abstract ideas, and not patentable inventions. But the case of computer programs, which essentially consist of algorithms, has compelled Courts to re-examine the meaning and rationale of this exclusion. This paper aims to discuss the debate on the patentability of the computer Related Inventions (the term Computer Software is used interchangeably) and to examine the position of India with other jurisdictions.
I. INTRODUCTION

The patent system of protecting new inventions, to encourage disclosure and promote innovation, is intended to have a wide reach. Typically, this is reflected in the language that patent laws employ to define the scope of patentable discovery. But although it is true that its thrust is to protect “anything under the sun that is made by man”\(^1\), the nature of patent protection—exclusive exploitation rights, for a specified period—can tend, if conferred indiscriminately, to subvert rather than promote its social objective. Not only, therefore, are the tests of novelty and non-obviousness applied to assess the patentability of inventions, but more fundamentally, the notion of an invention is itself used to separate what is patentable subject-matter from what is not. In the nature of things, however, this cannot be a static notion; the emergence of new forms of technology—like computer technology—is occasion for its renewed consideration.

Over the last three decades, the computer software industry has grown quickly; but so, unfortunately, has the controversy surrounding the patentability of computer programs. Traditionally, ‘algorithms’, or sets of instructions, have been treated as abstract ideas, and not patentable inventions. But the case of computer programs, which essentially consist of algorithms, has compelled Courts to re-examine the meaning and rationale of this exclusion. This has resulted in a series of (often conflicting) decisions in the United States, where software patent litigation has been most frequent. Nor has the European Union’s treatment of the problem been wholly satisfactory.

The first statutory form of protection to attract the attention of software developers was copyright since the writing of code was similar to any other form of writing, computer languages being regarded as just one other form of language. Moreover, in the 1970’s the case law in the patent field was showing some doubts as to whether computer programs could constitute patentable inventions. The early application of copyright law to computer software gave fairly broad protection. However, as the copyright case law developed, the application of traditional copyright limitations on the scope of protection to the new field of protection for computer programs led to a narrowing of the scope of protection afforded by copyright. The courts pointed out that the purpose of copyright was to protect particular expressions of

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\(^1\) Quoted from *Diamond v. Chakrabarty*, 447 U.S. 303, 309
an idea not the idea itself. Any broader protection had to meet the standards of novelty and nonobviousness required by the patent law.

At about the time that these decisions started to come down, case law relating to patentability of software-related inventions also started to change, this time in a liberalizing direction opening up the way to patent protection for software-related inventions. Part of the focus for protection therefore started to shift to patents, although the simplicity of securing copyright protection as compared with patent protection and the fact that for copyright protection there is no need to establish the inventivity of the work in question means that copyright protection remains of major importance in this field. Indeed, although it has become clear that traditional inhibitions on the grant of software related inventions have now been jettisoned in respect of inventions relating to business methods as well, as the Patent and Trademark Office develops its expertise in examining patent applications relating to software and business methods, it may become more difficult to obtain patents in this field and the focus may swing back to copyright protection.

II. FRAMEWORK FOR COMPUTER RELATED INVENTIONS

(a) Framework in the United States

The U.S. patent law encapsulates Thomas Jeffeerson’s philosophy that “ingenuity should receive a liberal encouragement” and reflects the constitutional vision which empowers the congress to make law “to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries”.

The existing U.S. patent law was enacted in 1952. The committee Reports accompanying the 1952 statute suggests that congress intended patentable subject matter to include “any thing under the sun that is made by man”. Under U.S. patent law “Whoever invents or discovers any new and useful process, machine, manufacture of composition of matter [...] may obtain a patent therefore [...]” (35 U.S.C. Sec 101). Section 102 sets out the novelty requirement, whereas Section 103 clarifies that patents are granted only for non-obvious subject matter. Unlike the EPC, the U.S. Patent Act does not comprise a list of subject matter that is excluded from patentability. Also, under U.S. law there is no statutory requirement of “technical character”.

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In the United States, a person is entitled to a patent if:

1. the person is the inventor;

2. the invention is the proper subject matter for a patent: machines, articles of manufacture, compositions of matter, and processes; and

3. the invention is "useful", "new", and "unobvious".

The U.S. Supreme Court has held that Congress intended to allow patents for “anything under the sun made by man”.

The courts have clarified that “laws of nature, natural phenomena and abstract ideas” are not patentable. Such subject matter should be “free to all men and reserved exclusively to none”.

The first U.S. Supreme Court decision in the area of computer-program related inventions was Gottschalk v. Benson. The Court found that the computer program in fact implemented a mathematical algorithm. By granting a patent the algorithm would effectively be monopolised.

In the case of Diamond v. Diehr, the Supreme Court for the first decided time that under certain conditions patents could indeed be granted for computer programs. The mere use of a mathematical algorithm or computer program would not prevent an invention from being patented. The decisive test is whether the invention involves the “transformation and reduction of an article into a different state or thing”. That criterion was met by the invention at hand; it involved a computer-controlled process to cure synthetic rubber.

In a series of later cases the so-called Freeman-Walter-Abele test was developed, involving two steps:

1. Is a mathematical algorithm recited directly or indirectly in the claim?

2. If so: is the claimed invention as a whole no more than the algorithm itself, i.e. is the algorithm not applied to physical elements or process steps?

If the answer to both these questions is affirmative, then no patent can be granted. Recently, this test has been criticised by the courts. In re Alappat, the invention involved a software program for the

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3 S.Report No. 1979,82 Congress.,2nd Session1952, pp 394
4 Diamond v. Diehr 450 U.S. 175, 186 (1981)
5 Gottschalk v. Benson 409 U.S. 63 (1972)
6 Diamond v. Diehr 450 U.S. 175, 186 (1981)
7 Fellas 1999, p. 331.
8 33 F. 3d 1526 (Fed. Cir. 1994).
transformation of numerical values in a manner that creates a smooth display of data on an oscilloscope screen, so there are no “physical elements or process steps”. According to the Court of Appeal for the Federal Circuit the decisive test is whether an invention as a whole concerns a “disembodied mathematical concept”. If so, the invention is not patentable. If on the other hand the invention produces a “useful, concrete and tangible” result, there is no objection against patentability.

Another long-standing rule in U.S. patent law was the judicially created “business method exception”. Both this exception and the “mathematical algorithm exception” previously discussed were addressed in the State Street Bank and Trust Co. v. Signature Financial Group Inc. case.  

The District Court found that the invention could not be patented, as both the mathematical algorithm and the business method exceptions would apply.  

With regard to the former exception the Court of Appeals for the Federal Circuit again emphasized that the Freeman-Walter-Abele test no longer applies. Instead, the decisive criterion is whether a “useful, concrete and tangible” result is produced.

With regard to the business method exception the Court noted that this is not really an exception by itself. Business methods may be more likely not to pass the tests of novelty or non-obviousness. But really “since the 1952 Patent Act, business methods have been, and should have been, subject to the same legal requirements for patentability as applied to any other process or method”. In addition, the Court noted that neither it nor its predecessor had ever recognized the business method exception. Whether certain subject matter is patentable is to be decided on the basis of Section 101, which does not provide for any exception for business methods.

(b) Framework in the European Union

European patents are governed by the European Patent Convention a treaty between all member states of the European Union and several other European countries. European

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patents shall be granted for any inventions which are susceptible of industrial application, which are new and which involve an inventive step.

There is no definition of what an invention is or is not. However, Article 52(2) provides a list of things that "in particular" shall not be regarded as inventions (suggesting there might also be other things that are not inventions):

- discoveries, scientific theories and mathematical methods;
- aesthetic creations;
- schemes, rules and methods for performing mental acts, playing games or doing business, and programs for computers;
- presentations of information.

The law usually does not define explicitly what constitutes an invention. According to Art. 52 (1) of the European Patent Convention, “European patents shall be granted for any inventions which are susceptible of industrial application, which are new and which are not obvious.” It further provides the list of subject matter that cannot be the object of an invention. Some subject matter is inherently unpatentable, such as discoveries and scientific theories. There is also subject matter that is excluded for reasons of social policy, such as medical methods. Computer programs are explicitly mentioned on the exclusion list of Subsection (2). Subsection (3) however specifies that subject matter listed in Subsection (2) is only excluded from patentability “as such”. Chemical theories for instance cannot be patented “as such”, but a chemical theory leading to a new medicine can indeed be patented in the context of a pharmaceutical patent claim. Similarly, a computer program can be patented if it is part of diagnostic equipment patent claims.

Art. 52 it follows, that a statutory invention must meet other requirements in order to qualify for a patent. Firstly, the invention must involve what is called an inventive step which makes it non-obvious. The requirements for an invention to be novel are further set out in Article 54. The requirement of inventive step is elaborated in Article 56, which states that an invention must not be “obvious to a person skilled in the art”. “Industrial application” is clarified in Article 57, which requires that an invention must be “made or used in any kind of industry”. In addition, it is generally assumed that an invention must also be technical in order to qualify for a patent. This requirement is not mentioned explicitly in the EPC, but rather derived from

15 Art. 52(2) (a) European Patent Convention
16 Art. 52(4) European Patent Convention.
European Patent Convention Rule 27, which explains that the description of the invention shall specify the technical field to which the invention relates. There is no generally agreed legal definition of the word “technical” within this context. In particular, there is considerable debate to what extent computer software is to be considered “technical” for the purpose of the patent law.

In the VICOM case\(^\text{17}\), image processing was considered to lead to a result sufficiently technical to qualify for patentability, even though it is based on a mathematical method. In the Koch & Sterzel decision\(^\text{18}\) likewise a computer program was considered to be used for a technical purpose, in this case controlling X-ray equipment. Software that was used for the co-ordination and exchange of data between interconnected processors was also considered to have a sufficiently technical character.\(^\text{19}\) Even a business problem solution requiring “technical considerations” was held to be technical in the SOHEI case.\(^\text{20}\) In particular, it was emphasised that an otherwise statutory invention would not become non-statutory because of the fact that a business method is involved. Software to be used in conjunction with the display of special (e.g. Arabic) characters was, however, not considered sufficiently technical.\(^\text{21}\)

In several of these cases, the technical character was derived in a straightforward manner from the involvement of traditional “hardware” technology. Other decisions are less convincing. Is there really a relevant difference between the display of graphical objects and the display of special characters? Isn’t systems control software really a computer program “as such” and “technical” software at the same time? The delimitation between patentable and non-patentable inventions as shown by these decisions seems rather arbitrary.

Two recent decisions of the EPO Technical Board of Appeal, both involving IBM patent applications,\(^\text{22}\) mark a change in policy of the EPO. In these decisions the Board expressed the following opinion:

“In the view of the Board, a computer program claimed by itself is not excluded from patentability if the program, when running on a computer or loaded into a computer, brings about, or is capable of bringing about, a technical effect which goes beyond the “normal”

\(^{17}\) [1987] EPOR 74.
\(^{18}\) T26/86, Official Journal of the EPO 1988
\(^{19}\) T6/83, Official Journal of the EPO 1990.
\(^{22}\) [1999] EPOR 301
physical interactions between the program (software) and the computer (hardware) on which it is run.” Such an effect would obviously be present if the computer program controls, for instance, a conventional (“technical”) piece of machinery, such as x-ray equipment in the case mentioned above. In the present cases, the further technical effect was found in the control of computer system resources, distinguishing systems control software from application programs.

The Board’s decisions in the IBM cases indicate that patents may be obtained for computer program products. Computer Program as such patentable if it provides a further technical effect beyond a simple functioning of computer. The required technical character cannot reside in the physical modification of the hardware, but need to be looked elsewhere.

(c) Framework in India.

Is software patentable in India? There is not clarity under the Indian Patent law about the patentability requirements for Computer Related Inventions (CRI). In addition to the basic requirement of patentability viz, novelty, inventive step and industrial applicability the Computer Related Invention must demonstrate “technical effect” and the relevant claims must have “machine limitation”. There exists a legislative mandate as well as an official interpretation of it, which warrants consideration. Very much like the European Convention, the Patents Act of 1970 specifically excludes “a computer program per se” from patentability. It is not clear whether India is under an international obligation to include computer programs within the category of patentable invention. TRIPS lays down that patent protection should be available for all areas of technology, but it does not specifically make computer program patentable.

In Yahoo Inc. (Formerly Overture Service Inc.) vs. Assistant Controller of Patents and Designs, the One Overture Services Inc. (original patent applicant) applied on 14.05.2004 for patent of its invention titled in respect of “System and method for influencing a position on a search result listing generated by a computer network search engine” which was later amended to “A method of operating a computer network search apparatus”. The application claimed priority from an US application dated 28.05.1999. The patent office

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23 Koch & Sterzel, T26/86, Official Journal of the EPO.
24 Article 27 of the TRIPS states that patents shall be available and patentable rights enjoyable without discrimination as to the field of technology.
invalidated the business method patent claim to Yahoo. This decision clearly provided that business method cannot be patented in India as per bar ok Sec 3(K).

It is generally assumed that computer programs that computer programs having technical application are entitled for patent protection, the next issue arise is whether a computer program that executes a business method should fall within the purview of patent protection? There are two possible ways of dealing with such situation. On approach could be that of assessing the result of the computer program. The focus is on the effect of the patent and not on its subject matter. This is known as the whole content approach.

The whole content approach has been applied by the Supreme Court in cases like Bishwanath Prasad Radhey Shyamv. Hindustan Metal Industries\(^{26}\), and by the Himachal Pradesh High Court in Dhanpat Seth v. Nil Kamal Plastic Crates Ltd.\(^{27}\) This approach states that the mere presence of a business method does not invalidate the patent application as the invention will be evaluated as whole.

The other approach is a prima facie enquiry whether the software executes a business method or not. This approach focuses on the subject matter and not on the result of the invention. This approach was applied in the case of Yahoo v. Controller of Patents.\(^{28}\)

Provision Under sec 3 (K) and the decision of the Yahoo case has made clear that business methods cannot be granted patent protection in India. Patent grant to Huawei Technologies\(^{29}\), in this case patent was granted to Huawei Technologies for a method devised to monitor and manage nomic arrears in the field of post paid telephonic services. The present invention creates a method by which the credit worthiness of the subscriber is assessed before the call is made rather than a control after the end of the call.

After a series of decisions the Indian Patent Office has published draft guidelines for the examination of computer related inventions. These guidelines were aimed for consistency and uniformity in the examination of application of Computer related inventions. The guidelines incorporate various provisions of the patentability of computer related inventions. It discusses the procedure to be adopted by the examiners while examining such applications and jurisprudence evolved in granting/rejecting Patents in these fields of

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\(^{26}\) AIR 1982 SC 1444.


\(^{28}\) IPAB, OA/22/2010/PT/CH.

\(^{29}\) Patent No. 252951, Method for call control, Applicant: Huawei Technologies Co. Ltd., Date of Grant: 11/06/2012
technology. However, these guidelines do not constitute Rule making. In case of any conflict between these guidelines and the provisions of the Patents Act, 1970 and the Rules made thereunder, the said provisions of the Act and Rules will prevail over these guidelines. The guidelines are subject to revision from time to time based on interpretations by a Court of Law, statutory Amendments and valuable inputs from the stakeholders.  

III. CONCLUSION

The protection is given to the patent is the strongest form of protection granted to any type of Intellectual Property, where the owner of a patent may prevent all others from making, using, or selling the patented inventions. In connection with software, an issued patent may prevent others from utilizing a certain algorithm without permission, or may prevent others from creating software programs that perform a function in a certain way.

The primary benefit of protecting computer software through the patent system is the strength of protection provided by the patent laws. An owner of a patent may prevent all others from making, using, or selling the patented inventions. In connection with software, an issued patent may prevent others from utilizing a certain algorithm without permission, or may prevent others from creating software programs that perform a function in a certain way.

There is still a great deal of confusion in the software industry over the exact status of the patenting of computer software. The overall scope of patent protection for software related invention is still not clear. Moreover whether algorithms are patentable or not is a debatable question. While one will likely not get a patent for a program per se, a patent may be issued to the extent that the program is an embodiment of a statutory process otherwise patentable. The issue of statutory subject matter for computer programs is inextricably entangled with the problem of defining the scope of the patentable invention. Technically, it is not possible to patent a computer program in the sense of instructions on a disk or on a listing, in the same sense that one cannot patent the information in a book. That is why you may hear it said that "software per se is unpatentable." The operation of a computer when it exercises the instructions in software is, however, patentable. Under the patent law, software inventions are viewed either as a computer process, or as a programmed computer which has a unique set of functionality moving from a copyright regime to software patenting one, makes the cost of

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30 Guidelines for Examination of Computer Related Inventions(CRIs)
www.ipindia.nic.in/iponew/draft_Guidelines_CRIs_28June2013.pdf
developing new software many times higher. Copyright is virtually automatic, there are no costs associated with copyrights; as noted earlier patents filing imposes fairly high costs. Clearly the existing model of patent protection is proving inadequate to address the concern of intellectual property rights protection in software. The present intellectual property systems have the theoretical soundness to afford effective protection to the creativity and investment in developing computer program. As with any new technological advance, judicial, and legislative bodies have been slow in adapting the law to meet the needs of these advances. Examining software patent applications is not an easy task as involves technical and complex nature of software. After analyzing the situation in these jurisdictions there can be an effort to evolve new system to reward the inventions taking place in this field.
IV. References:


18) Manual of patent office practice and procedure


    http://www.uspto.gov/web/offices/pac/mpep/s2106.html#d0e198001.

26) http://www.iusmentis.com/patents/software/epc/