Status of Intellectual Property Rights (IPR) With Respect To the Software Patentability in India and Other Countries: An Analysis

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Abstract: **Intellectual Property Rights (IPR) plays a crucial role in fostering innovations and protecting technological development of any country. Software per se is not patentable in India under section 3(k) of Patents Act 1970, other countries comparatively have adopted a more flexible approach to safeguard the software by patenting them. With the changing time there is a high need to work on software patentability laws of the country to save software industry from exploitation and piracy. The basic thing we can do to protect the interest of software engineers, MNCs, investors and all the persons that are directly or indirectly connected to the software industry by making amendment in the current patent laws, allowing patentability of the software in India. It will also contribute to the growth and development of the country as this move will surely attract investors in India. This research paper will throw a light on software patentability laws of India in comparison to other countries like EU, US etc.**

INTRODUCTION

The patent system endeavours to achieve a balance between promoting the creation and funding of new products. In doing so, it always tries not to hamper innovation or delay the development of future products to provide the maximum benefit to the citizens. With change in technology, there is a need to maintain a balance between the law and technology to provide competitive market and growth in innovation. Innovation has become a keyword in all kinds of industries. The Government of India, through its 'Make in India' campaign, is further promoting innovation in Indian industries. The speed of innovation in the fields of computer software, telecommunications and internet-based services in last ten years has been increasing at a fast pace. Revolution in the information technology has changed life, working habits and the living conditions of humans. Thus, to protect the innovation and promote an innovative environment it is important to ensure that the patent system can face the challenges posed by these new innovative technologies. In a challenging and globalized market system each and every country wants to prove their intellectual superiority through their products (Sharma and Mahapatra, 2010)

Knowledge is an inevitable part of economy of the 21st century and innovation is a key to hold this economy. Ability of converting knowledge into wealth and social good through the process of innovation will determine future of our nation. Thus, after Trade Related Intellectual Property Rights (TRIPS) Agreement was implemented, issues of generation, valuation, protection, prosecution, defense and exploitation of intellectual property (IP) have become critically important all around the world. Exponential growth of scientific knowledge, increasing demands for new forms of intellectual property protection, access to IP related information, increasing dominance of the new knowledge economy over the old 'brick and mortar' economy, complexities linked to IP in traditional knowledge and community knowledge are posing challenges in setting up a new 21st century IP agenda.

At the conceptual level, it is difficult to justify patents for software which are regarded as analogous in many ways to mathematical formulae or algorithms. The latter have for long, been universally denied patent "protection" on the ground that they would impede the progress of science. It is not questionable to apply the same rationale to the question of software patentability. The fears of the destructive impact of software patents have been powerfully articulated by Tim Berners-Lee, director of the World Wide Web Consortium:

"All the companies developing emerging technology are threatened by the possibilities of patent licensing royalties. You could never find out what patent could possibly apply to what technology. You could never guess what things people might have the gall to say

they have patented already. It really is a universal fear" (Berners-Lee, 2004).

A different kind of challenge to software patents is issued on behalf of the Indian software industry, which has been dedicatedly serving the Global software 'body shopping' market, without itself developing any consumer products (Chatterjee, 2021). Granting software patents in this scenario would mean that the Indian industry would be denied access to the knowledge which it had itself previously discovered (Purkayastha, 2005).

The patent system should be capable of handling them in a more rapidly advanced way and must not shut them out. The data available relating to number of patent applications filed and granted in the field of computer technology in countries like the US, Canada, European Countries and India shows that approaches towards patentability of software is different in all the countries. Software patent war is the ultimate result of diverse approaches creating differences in opinions about patenting of software. The current patent war in software industry has created issues of enforcement and protection of technology and growth of the industry.

European Patent condition is slightly mysterious. During European Patent Convention 1973(EPC) guidelines were given for the protection of invention under Article 52. Some flexibility was given under clause 3 of Article 52 due to which till now 20000 patents has been protected by European Patent Office (EPO). Then in 1979 EPO Guidelines issued where computer programme was excluded from patent protection. In 1985 rules guidelines became more liberal and provided that although the computer programme per se is not patentable, "the subject matter, if as known art, patentability should not be denied merely on the ground that a computer programme is involved in its implementation."

Title 35 US Code in Section 101 Defines patentable subject matter as "Any new or useful process, machine or manufacture, or composition of matter or any new and useful improvement thereof." This wide definition given under section 101 allows US to provide patent in the field of technology without any limitation, but it is required that inventions should fulfill all the criterion of patentability. During 1981 courts rejected the software patents. After rejecting patents in all types of the software in Gottschalk v. Benson and Parker v. Flook the US SC held that software was like mathematics and law of nature both of which are being excluded from being patented and therefore was per se not patentable. In another case of Re Bradely it was held that the invention related to firmware was patentable. Gradually, the USPTO started granting patents to means-cum-function claims and finally ended up in recognizing software as an article of manufacture. In Diamond v. Diehr (1981) is the trend-setter, in which the US Supreme court accepted a claim related to a process for curing of synthetic rubber that used a computerized process to simplify the calculations involved in such process for patent (Verma 2021).

Software based inventions are still patentable in the US. But to get it patent, eligible software patent applications must meet certain technical requirements, and must be written very carefully. From a technical standpoint, software may be patentable: -

(1) if it improves computer functionality in some way (i.e. it enables certain computations that were previously unavailable, speeds up processes, or requires fewer resources)

(2) if it solves a computing challenge in an unconventional way.

Issues in European Patent Convention (EPC) and Patent Cooperation Treaty (PCT):

According to Paragraph 2 of Article 52 of European Patent Convention (EPC) programmes for computer are not patentable inventions. The scope of Paragraph 2 has been limited by Paragraph 3 which states that the provision of Paragraph 2 shall exclude patentability of the subject matter or activities referred to therein only to the extent that an application or a patent relates to such subject matter or activities as such. The term as such is not properly defined. The practice followed by the European Patent Office and the decisions by the Board of Appeals show that the computer programme having some technical effect can be considered for patent.

The patent issued by European Patent Office under European Patent Convention is binding on all countries of European Union. However, each country maintains its own patent law and own patent office. It is observed that the efforts of reconciling the laws with EU standards is underway.

Patent Cooperation Treaty (1970) facilitates centralized filing procedure whereby a single application can be filed in a PCT governmental receiving office. This application can be considered as worldwide patent application. However, PCT does not provide worldwide patent. To get patent, a separate application must be filed in the country. The patent is granted by that country based

on the patent law of the country. In case of software patent, it always becomes problematic as software is considered as a non patentable subject matter in most of the countries. The US started granting patent to software, but this is not the case in EPO and other countries. Thus, it can be said that according to Article 27 of PCT the patentability of invention can be determined by the national law of the applicant.
In India there is no separate section or law for patentability. Under section 3(k) its given that a computer programme, algorithm or mathematical methods per se are not inventions. Apart from that the things that are new(novelty), has some inventive steps and which are useful can be patented in India. There are still no powerful laws for software patenting in India as comparison to US, Europe etc. This project deals with the patentability of software in India in comparison to the other countries. In the lack of patentability laws for software industry in India, the threat to the growth of software industry is increasing day by day. In India patents are not granted to the pure software which obviously includes computer programmes, mathematical algorithms etc. For many reasons ex- conceptual, political and practical difficulties the patentability of computer programmes has been as a troublesome issue in India.

The term "software" does not have a precise definition and even the software industries fail to give a specific definition. But it is basically used to describe all the different types of computer programmes. Computer programmes are basically divided into "application programmes" and "operating system programmes". Application programmes are designed to do specific tasks to be executed through the computer and the operating system programmes are used to manage the internal functions of the computer to facilitate use of application programme.

Though the term 'Software patent' does not have a universally accepted definition. One definition suggested by the Foundation for a Free Information Infrastructure is that a software patent is a "patent on any performance of a computer realized by means of a computer programme".

According to Richard Stallman, the co-developer of the GNU-Linux operating system and proponent of Free Software says, "Software patents are patents which cover software ideas, ideas which you would use in developing software.

That is Software patents refer to patents that could be granted on products or processes (including methods) which include or may include software as a significant or at least necessary part of their implementation, i.e. the form in which they are put in practice (or used) to produce the effect they intend to provide.

Legal framework of the study:

In UK on 21st September 1962, a patent application, entitled 'A computer arranged for the automatic solution of linear Programming problems' was filed. The invention was concerned with efficient memory management for the simplex algorithm and may be implemented by purely software means. The patent was granted on August 17th, 1966, and seems to be one of the first software patents.

In 1989, the US Patent Office issued its first set of guidelines on software patenting according to which, although algorithms per se were not patentable but the practical applications of mathematical algorithms may be patented. Under the current patentability regime in the United States, software patent applications must meet one of the following two requirements to be patent eligible:

- the invention should be much more than an "abstract idea," or
- if the invention is directed to an "abstract idea," then it must include/claim additional elements that "transform" the abstract idea into a patent-eligible application

In the case of Alice v CLS, the Supreme Court articulated a two-step inquiry for determining whether a particular software is patentable. First, a computer-related patent application must not be directed to an "abstract idea." But, if it is, then the patent application must claim some elements that "transform" the claimed invention into a patent-eligible invention.
The Supreme Court, in its articulation of the rule, however, provided little guidance about what an "abstract idea" is, and how much detail in needed to "transform" an abstract idea to a patentable invention.
In Indian Scenario, The Patents (Amendment) Act 2002 (No. 38 of 2002) came into effect on 20th May

2003. It amended the definition of invention under section 2(1)(j) as "Invention" means a new product or process involving an inventive step and capable of industrial application; and as per section 2(1)(ja) term "inventive step" means a feature of an invention which involves technical advance in comparison to the existing knowledge or having economic significance and which makes an invention not obvious to the person skilled in the art. Further, section 2(1)(ac) cites that "capable of industrial application" in relation to an invention, it means that the invention is capable of being made or used in some industry. Patenting of computer programme was formally introduced in the Indian Patent Act 1970 in 2002(Amendment Act), ironically, through an amendment that excluded "computer programme per se" from the scope patentability. A new section 3(k) was added what reads:

Very importantly the following are not inventions within the meaning of this Act-3(k) a mathematical or business method or a computer programme per se or algorithms". The Manual of Patents Practice and Procedure (MPPP) with regards to the Section 3(k), cites that 'mathematical methods' are the acts of mental skill. That's why, a method of calculation, formulation of equations, finding square roots, cube roots etc. are not patentable. Computer technology has been developing and so that mathematical methods are used for writing algorithms and computer programme for different applications and the claimed invention is sometimes cloaked as one relating to the technological development rather than the mathematical method itself. Such methods, claimed in any form, are as non-patentable.

If any company seeking to file a patent application under the ordinance of 2004, then it should ensure that it follows the given steps:

a) Novelty
b) Inventive Steps
c) Usefulness

Further on 19 February 2016, the Government issued some new guidelines for the examination of software patents in India. A new term has been introduced here i.e. '*Technical Effect*' given under the Computer Related Invention (CRI) guidelines to further explain the term of '*Technical Advancement'* under section 2(1) (ja) of the Patents Act.

Also, Article 27.1 of TRIPS does not create the obligation to grant patents for computer programmes. The refusal by the European Commission to consider computer programmes as such to be patentable is motivated by the concern that otherwise the distinction between patent rights on the one side and copyrights on the other might be blurred. For developing countries, this approach has an important implication: if a computer programme were patentable, the practice of reverse engineering, which is legal under copyright protection, could be prevented by the patent holder.

Research Objectives

a) To find out the status of patentability of software in India.
b) To compare the status of software Patentability laws in India and other countries

RESEARCH METHODOLOGY

This study was basically a descriptive exploratory design which contains the survey of the documents.

Analysis of data

After analyzing the documents and the data available, the following are the points of differences between the EU, US and India on the basis of document analysis: -

a) First to file or first to invent:

In European Union as given under Article 60 of the EPC and in India Section 2(y), 6 and 7 of the Patents (Amendment) Act, 2005 when two or more persons apply for a patent on the same invention, the first person who files the patent application is considered as the inventor. Its always been assume that invention is patentable and the person who is first filing the patent will get the patent for the invention. In US the person who first files the patent will not get it as the patent is given to the person who first invent it. Before some days only a bill has been passed according to which first to file will get the patent.

b) Period of Grace:

In EU under Article 54 EPC and in India under Sections 2(l), 29, 30 and 31 of the Patents (amendment) Act, 2005 if an invention becomes publically available will not get any patent whether it's done by some inventor, one of the inventors or any other third party. Under 35 US code Section 102 it's been given that US has a one-year grace period. It means that the inventor can make his work public one year before filing the invention. In case if inventor make his work public before more than one year then patent will not be granted to that invention.

c) Patentability:

In EU and India there are following two types of patents-

a) product patents and
b) process patents

While in US there are following three types of patents: -

a) utility patents,
b) design patents and
c) plant patents.

d) Requirement of Novelty, Utility and Non-obviousness/ Inventive step:

Under the legal systems of EU, India and US certain features are common like- novelty, utility and non-obviousness/ inventive step which are the necessary requirements to get an invention patented. In EU its given under Article 52 of EPC that invention must be novel and involve an inventive step. Whereas in US its given under 35 US code sections 102 and 103 that the invention should be novel, industrially applicable and non-obvious.

e) Non-patentable inventions:

In EU under Articles 52 (2) and 53 of the EPC it provides for what is not regarded as invention and which cannot be patented like-Inventions, Discoveries, Scientific theories, Mathematical methods etc. In India under section 3 and 4 of the Patents (Amendment) Act, 2005 many of the things given which cannot be patented like- a method of agriculture, mere discovery of scientific principle of the formulation etc. In US the statute indicates only those inventions that are patentable under Section 101 of the U.S.C. It does not expressly exclude anything anywhere in the statute. A business method is patentable in the US but not in EU and India.

f) Best mode requirement:

In India under Section 10 (4)(b) of the Patents (amendment) Act, 2005 needs an applicant to disclose the best method of performing the invention which is known to the applicant and for which he is entitled to claim protection. Whereas in EU there is no such requirement. At least one way of practicing the invention must be included in the application but there is nothing that states this way must be the best way.

In Us under 35 US Code Section 112 US statute requires the inventor to include the best way to practice the invention the patent application.

g) Language:

The US and Indian Patent Office deals only with the English language. Whereas the official languages of European Patent Office (EPO) are English, French and German. Patent applications may be filed in any language provided that a translation into one of the official languages is submitted within two months period.

h) Types of Patents:

Patenting is possible in three categories in the US i.e. Utility Patents (Protecting functional characteristics), Design Patents (Protecting ornamental features) and Plant Patents (Protecting plant varieties). Patenting from India is mainly done in Utility Patents.

i)Two-part claims:

It's a unique feature of European Patent application as it contains two-part claims. The first part of claims is the former features that are found in the prior art. And another part of claims is what constitutes the invention, often called the characterizing features. Whereas in US and Indian Patent applications will almost always have one-part claims.

Software Patentability in European Scenario:

Within European Union member states, the EPO and other national patent offices have issued many patents for inventions involving software since the European Patent Convention (EPC) came into force in the late 1970s. Article 52 EPC excludes "programmes for computers" from patentability (Art. 52(2)) to the extent that a patent application relates to a computer programme "as such" (Art. 52(3)).

This has been interpreted to mean that any invention which makes a non-obvious "technical contribution" or solves a "technical problem" in a non-obvious way is patentable even if a computer programme is used in the invention. Computer-implemented inventions which only solve a business problem using a computer, rather than a technical problem, are considered unpatentable as lacking an inventive step. Nevertheless, the fact that an invention is useful in business does not mean it is not patentable if it also solves a technical problem.

Patentability in US Scenario:

For patentability an abstract idea needs to be "transformed" into a patentable software in US

Software that is deemed to be an "abstract idea" may nonetheless become patent eligible if it solves a problem that is "necessarily rooted" in computer

technology or solves the problem in an unconventional way (or with unconventional components). Moreover, the claims of the patent must be written in a way that does not preempt every application of the idea.

This rule supersedes an earlier rule that permitted software patents to be issued if the patent merely recited some concrete or tangible components along with the software. The courts justify this rule change by arguing that mere recitation of concrete, tangible components is insufficient to confer patent eligibility to an otherwise abstract idea. Rather, the components must involve "more than" performance of well understood, routine, conventional activities previously known to the industry.

With the given case laws, we can understand the above given statement.

i. Microsoft v. Enfish

In one case database software that used a self-referential table was deemed patent eligible because it "improved the way a computer stores and retrieves data in memory." (As opposed to an "abstract idea" for storing, organizing, and retrieving memory in a logical table as argued by the other side). The *Enfish* court was convinced that the invention improved computer functionality because the patent specification "disparaged conventional data structures," and described the claimed invention "as including the features that make up a self-referential table."

ii. TLI v. AV Automotive

the same court found that a patent was directed to an "abstract idea" because it claimed generic steps for recording, administrating, and archiving digital images from a cellphone over a cellular network (as opposed to presumably patent eligible steps for improving image retrieval speeds). In this case, the court noted that the patent application did not describe any challenges associated with transmitting digital images over a cellular network or structuring the data for optimal storage. It was not sufficient to simply claim a method for "recording, administration and archiving of digital images simply, fast and in such way that the information therefore may be easily tracked." The court wanted the inventors to describe *how* these improvements were achieved.

So, from the above given case laws we can understand that if there is abstract idea that can transmit into something productive it can be protected.

Software Patentability in Indian Scenario:

With respect to computer software, in Patents (Amendment) Act, 2002, the scope of non-patentable subject matter in the Act was amended to include the following: "a mathematical method or a business method or a computer programme per se or algorithms". However, the recent amendment changes (Ordinance, 2004), which amends the Patents Act, 1970, has been promulgated after receiving assent from the President of India and has come into effect from 1st Jan., 2005. Apart from change in pharmaceuticals and agro chemicals, one of the seminal amendments this Ordinance seeks to bring is to permit the patenting of embedded software. Hence, the amendment means that while a mathematical or a business method or an algorithm cannot be patented, a computer programme which has a technical application in any industry, or which can be incorporated in hardware can be patented. Since any commercial software has some industry application and all application ns can be construed as technical applications, obviously it opens all software patenting.

In any case, any company seeking to file a patent application for software under the Ordinance should ensure that its invention firstly, follows the three basic tests: novelty, usefulness, inventive steps.

Therefore, it is important that the software sought to be protected is not merely a new version or an improvement over an existing code. Further, in accordance with the specific requirements of the Ordinance regarding patentability of software, the software should necessarily have a technical application to the industry or be intrinsic to or "embedded" in hardware. This is to prevent against any future litigation or claims of infringements being raised, which is a distinct probability even after a patent has been granted.

DISCUSSIONS, RESULTS & SUGGESTIONS

On closely analyzing the patent laws of EU, India and US, it can be said that the procedure of grant of patents in India is like that of EU and different from that of US. Almost every Country has its own Patent law, and when you desire a Patent in a particular Country, you must make an application for Patent in that country, in accordance with that country's requirements. Patentability rules are not uniform across the world. An effort must be made to bring the patent laws of different countries in compliance with

each other. This is a step that is essential to maximize the benefit to the inventors all over the globe, thus allowing patent laws to truly serve those it is meant to protect. India for its part seems to have adopted the more conservative approach of the European patenting norms for software. But the Ordinance has its use and relevance in today's India, particularly for our growing domestic semi-conductor industry. This, along with judicial tempering might ensure a judicious use of patent protection while allowing the industry to grow through innovations and inventions, thereby, mitigating the risks of trivial patents chocking the life out of real innovations and inventions. This is the reason a patent should always be treated as a "double edged sword", to be wielded with caution and sensitivity. Now whether, this will be implemented on a rigid basis or will become broad in scope through application (as in the U.S.), and, more importantly, whether the Ordinance would, in fact, result in increased innovation and inventions in the software industry, remains to be seen.

The research revealed that there is high need to work on the patentability laws in India as there are only few sections that cover the definition of invention and in that too patentability of software is nowhere to be found. US and Europeans laws are far better than the Indian laws in respect to the software patentability. Therefore, there is high need to amend Indian patent laws for the protection of software and intellectual skills like other countries.

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