SOFTWARE PATENT UNDER DIFFERENT JURISDICTIONS

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INTRODUCTION

Patent is a right granted for an invention; it is exclusive in nature. This is a right to exclude others from using an invention invented by an inventor. Patent can be granted on a product or process. If a patent is granted on a product prevents third parties from producing such products; it also includes storing and selling, etc., of the product. Patent is territorial, different patent applications are to be filed for protection in different jurisdictions.

Software is fundamental to technological development and the innovations in the field of automobiles, telecommunication, etc. Software is also central to the development of technologies such as Artificial Intelligence, Machine learning, etc., that are crucial to everyday life in today's context. The software can include computing programs, consumer portals, etc. Software is ordinarily protected under the Copyright Law but fails to protect the technical aspects. Therefore, patent provides protection in a broader form, but such patent is questionable in various jurisdictions.

Since a patent provides exclusive protection against a patented invention's making, selling, etc., it can help the owner provide a competitive advantage in the market. One can monopolize the market, but if the software is denied patent protection, it can be reverse-engineered, replicated, and even sold by anybody other than the inventor. There are two things in common around the world regarding patent application, i.e., the invention should be useful and novel. These might mean different in different jurisdictions; different legal systems might define these differently.

PATENTING

Different countries seem to have different approaches toward software patents; some are easy with the software patent, while others seem apprehensive about software patents. Reluctance to patentability is majorly to avoid patent that might restrain further innovation. Different jurisdictions have different limitations on Patents, and different jurisdictions have recently

Treated software patent cases. For example, the U.S. does not allow Patent on abstract ideas, and many inventions are rejected in the US on the ground of "abstract subject matter."

Similarly, computer programs are excluded from the ambit of the patent in the UK. And similar can be the case with other countries; a certain kind of patent can be rejected to be awarded at all.

Moreover, the patenting authorities do not favor patents that obstruct others' jobs, such as medical methods patents. Patenting medical methods or business methods can obstruct medical practitioners and businesses from practicing their respective practices.

There's an overlap between copyrights and patents sometimes. Especially in the case of Software, it can usually be copyrighted. A patent can be denied to software, considering copyright protection would suffice. It is easier to get an invention copyrighted, and it is not very expensive, and the term of copyright is comparatively more extended than that of a patent. Patent protection is significant even though it is challenging to get it because a patent covers things copyright does not, i.e., the technologies that constitute software. The software can be protected under copyright, but the technologies that constitute software are to be patented. And copyright can not protect it from being recreated. For example, the Zotero application is copyrighted as software, its name is trademarked, and there are also inventions that the application consists of that are patented. Since the software can exercise both the protections, i.e., copyright and patent, it's the applicant's strategic advantage as to which one will prevail.

COPYRIGHT PROTECTION

Software is a technical area of many inventions that are eligible for patent protection. Softwares work on source codes, and the arrangement or expression of same comes under literary work and so can come under copyright protection. Copyright Law protects the progression of an original work; any original literary work is protected under the copyright, including computer programs. Therefore software is protectable under copyright. Also, section 2(o) of the Indian Copyright Act specifies that computer programs fall under the ambit of literary works. There are cases in India, and Internationally wherein courts have treated software as literary work, and copyright protection has been provided. In the Microsoft Corporation v. Yogesh Papat[1], the plaintiff alleged that their software was being loaded on the hard disk of computers sold by the

[1] 118 (2005) DLT 580, 2005 (30) PTC 245 Del

defendants without a license. That Plaintiff has a copyright over the software. Delhi High court held the defendant liable for damages for copyright infringement.

Similarly, another relevant case pronounced by Canadian Supreme Court is Apple Computer programs, Inc. v. Makintosh Computer Ltd[2]; it was decided that perhaps a hexadecimal version of such a program encoded on a microchip should nevertheless be considered software and so protected under the Copyright Act.

PATENT PROTECTION

Although computer programs are covered under copyright protection, the functional aspect of the software can not be protected under copyright. The non-literary elements of the software are not protected by copyright, so a patent comes into the picture; it covers the functional character. This was introduced in the case of Navitaire v. Easyjet, where Pumfrey J. said, "Copyright protection for computer software is given, but I do not feel that the court should be astute to extend that protection into a reign where only the functional effects of a program are an issue. There is a good case for saying that copyright is not generally concerned with functional effects…"

Therefore, Patents came to the rescue when copyright failed to protect the functionality part of the software. Unlike the expression of an idea, an industrial application gets a monopoly if a patent provides protection. Novelty and inventive steps are required for a patent; any computer program that is novel, has an inventive step, and has industrial usage can be patented. Software patents come under technology-related patents, and the Indian Patent Act governs Patents in India. Section 3 (k) of the same excludes computer programs from the ambit of patent. It says Computer programs can not be patented per se, but it provides conditions that make a computer program worth patenting.

SOFTWARE PATENTING UNDER THE TRIPS

TRIPS does not provide for full-fledged rules for the national protection of IP rights; it only ensures minimal practices. Two articles of the TRIPS are crucial concerning software; Article 27, which says that, Any invention in any sector of technology will be eligible for a patent if

[2] Apple Computer, Inc. v. Mackintosh Computers Ltd.; Apple Computer, Inc. v. 115778 Canada Inc. - SCC Cases, https://decisions.scc-csc.ca/scc-csc/scc-csc/en/item/626/index.do (last visited Nov 5, 2022).

it is... capable of industrial application. And Article 10 says that computer programs could be protected considering it a literary work. Also the source & object code part can be protected as under the Berne convention.

The articles do not seem to be in accord as they place a contradiction in relation to software.10 It has been said that only one form of protection should be allowed for intellectual achievement under TRIPS. TRIPS provides for copyrightability of computer programs , Article 27 says they should not be Patented. Article 10 of TRIPS provides a minimum level of protection; it permits Nations to decide on the patentable subject matter under Article 27. Therefore, computer programs are not just lines of code but have functional characteristics that hardware components employ algorithms and software.

SOFTWARE PATENTING IN INDIA

There is this conception in India that inventions-related software cannot be awarded a patent. That is why companies and inventors launch inventions in the market and do not generally bother about patent protection. Software inventions that are innovative and not protected in the market can weaken the market of software. Any third party can use, replicate, or distribute unprotected innovative software. Indian Patents Act 1970 fails to distinguish patentable and non-patentable objects, it is essential to scrutinize the provisions of the Patents Act for the same.

Indian Patents Act, 1970 excludes computer programs under section 3(k), and the section says that a computer program cannot be patented per se. Then arises a question of what “per se” means; if we look at the Indian Patents Act, there is no given definition for the same. According to the Guidelines on Computer Related Inventions, 2017, interpretation of the term “per se” is to be done as per the dictionary meaning. As per general dictionary meaning it is “by itself.” Therefore section 3(k) says that Computer Program is not patentable by itself and that it is essential for a computer program to be associated with some hardware to be eligible for a patent. This makes it necessary to include hardware limitations while drafting a patent application. And different courts in India have acted differently on determining a software patent and have laid different opinions;

Ericsson vs. Intex.

I was held by the High Court Delhi that, it should be noted that merely mentioning the use of

a 'procedure, "method,' or 'algorithm' in a device made up of various system or hardware elements, components, etc. to produce a technical effect or perform a specific process does not lessen the invention in question an algorithm, computer program, or any mathematical method or procedure as envisioned under section 3 (k). Ericsson vs. Intex & Ericsson vs. Lava are two such examples. In the judgments, the court made reference to software patents. The Court further determined that the 3(k) bar doesn't really apply unless hardware components doesn't use algorithms to perform a technical function. The Court continued by stating that the challenged patents just weren't computer programs as such themselves, abstracted algorithms, or mathematical procedures, and that the inventions in question had resulted in an advancement, a technical progress, and actual physical representation.

Ferid Allani v. Union of India & Ors.[4]

According to the Honorable Delhi HC, since most inventions are dependent on computer related programs these days, it'd be regressive to suggest that all of such inventions might not be patentable. Artificial intelligence, etc. are possibly made on computer programs, but they can't be denied patent just because of the given reason. The Court further observed that the definition of "technical effect" is no longer in question as a result of the evolution of judicial decisions and patents office practices both worldwide and in India..".

CRI Draft Guidelines, 2013

CRI Guidelines of 2013 or other guidelines did not define the term "technical effect", but the Guideline provides some examples, such as Improved hard-disk access time, better efficient memory utilization, better efficient database search method, more efficient data compression techniques, enhanced user interface, better robotic arm control, and improved radio signal reception/transmission. Therefore, we should think about some of the instances given..

HTC Europe Co. Ltd vs. Apple Inc.[6]

The term "technical effect" has been defined in the said case. The UK Court of Appeals regards it as "any invention that addresses a technical fault well within the computer and that will have a significant technical effect." For the invention to be labeled a "technical effect," it should improve the computer. A technological consequence on the computer could be an improvement in the bolt. Any such invention that addresses a problem of technical nature beyond the physical

aspect of the computer can have an impact of technical nature.

There are a few things to be taken into consideration while drafting an application for patenting software-related inventions as per the observations made by courts in the above-discussed cases;

- Structural hardware features: Hardware is an essential feature as per the Indian Patents Act. It is crucial to illustrate hardware limitations, claims, and drawings in the description of patent application. During the prosecution, it is critical to emphasize the control of hardware limitations there in program..

- Provides a technical solution to a technical problem: Technical problems, to qualify the invention as patentable, should be the problems being solved that are 'technical' in nature. A technical solution to a non-technical problem does not suffice. In particular, in Yahoo Inc. versus Assistant Controller of Patents & Designs[7], the IPAB determined that the claimed 'innovation' is nothing more than executing the advertisement business electronically. Even the claimed technical advance over prior art is just an improvement in business technique, and Sec. 3(k) clearly states that business method could never be protected; the mere fact that it's a little advanced really hasn't helped the case." This means that proposing a technological solution to a non-technical situation does not qualify as patentable subject matter.

It's crucial to take into account that the unconventional steps for the technical solutions are also highlighted in the patent application. The steps should be different from what a generic computer user would use.

Technical Advancement over arts that have been existing: If the foregoing requirements are met, it can be concluded that invention is essentially superior to existing technological arts. An invention needs to solve a technical problem with a technical solution. Also, if the invention has completely[3] different features than the existing prior art, such inventions are technically advanced.

- Technical Effect in Real Life: According to the discussion above, the technical effect is what inventors desire; it is desired result derived from the invention in question.

[3] U.S. 175, 209 U.S.P.Q. (BNA) I (1991)

It is to be looked at as a real-world technical effect since it is crucial for the invention must have several-world applications.

It is critical to remember that other patent offices use a similar technique when examining computer/software inventions for patentability. For competitive advantage, it would be prudent to achieve a priority date for these kinds of inventions there at Patent Office well before product is released to the market.

UNITED STATES

The US is among some countries that are reluctant to grant software patents. US Courts have treated software patenting suspiciously, and also they have ruled in several cases holding software is just a mathematical formula that should not be copyrighted. But in the case of Diamond v. Diehr[3], it was held that an invention is to be looked at as a whole, not just the mathematical formula involved. It was held that a patent should not be denied only because an invention contains a mathematical formula. To Which, two exceptions were left in place, i.e., mathematical algorithm & business method. In Diamond v. Diehr[4], the method of curing rubber was in question, the method was to be accomplished using a computer, it was determined that the mere presence of either a computer application or mathematical formula doesn't really render the aspect non-patentable. The software was patented except for the mathematical formulae part. The patentability of computer-related inventions involving mathematical algorithms was further scrutinized by the Court of Customs and Patent Appeals after the Diehr case. A two-step test was introduced, the Freeman Walter Abele test.[5] The test gives two tests, and if both questions are answered affirmatively, the invention in issue is patentable.[6]

(i) The claim for patent will be scrutinized to see whether a math algorithm is quoted directly or indirectly; as well as;

(ii) When a mathematical method is discovered, the whole claim is reviewed to determine whether the algorithm is applied to any physical features or process steps.

[4] Ibid

[5] The CCPA triology of cases inspired this test.: re Freemen, re Walter, and re Abele.

[6] The test has been applied in various cases e.g. Schrader, Arrhythmia, etc.

However, courts have not uniformly applied these tests. The court, in case of Alappat[7], seemed to return to the primary authorities. The practical application of the software-related invention was looked into to decide the patentability of the same, and the test was not used to reject the subject matter's patentability. The entire invention may be patented. Another example is State Bank and Trust Co ltd., it was held that a computerized business method could be patented if "a useful, concrete and tangible result" is produced. The Freeman-Walter-Abele test was explicitly turned down, and it was stated that the Freeman-Walter-Abele test is not equipped enough and cannot be applied to determine whether the statutory subject matter is present or not. Therefore, it is clear that practical application of the software is a must for it to be eligible for patenting, it is also crucial to see that a software is not a mere manipulation of an abstract idea.

The given limitation is essential so as to make sure inventions with certain amount of real-world value get the protection and to limit patent protection to such inventions. It is therefore necessary to avoid subjects that simply provide an idea or notion or something that serves only as a beginning point for future research or investigation. If we put the qualifier for patentability for the computer-related invention as an examination guideline, it would go like this,

- a computer-related invention to be statutory subject matter should result in such a physical change in the computer that a skilled artisan would know its practical application in technological arts or such application be specified. or

- A computer-related invention ought to have practical applicability in the arts of technology.[8]

According to the Examining Guidelines, pre and post-computer processes can be considered the rightful subject matter. The Post Process Activity refers to any form of process that performs physical work autonomously outside the computer once the underlying stages of given computer program have been performed. Per contra, the Pre Process Activity is the any kind of process of performing physical things independently outside of the computer, these are processes before the stages/steps of an internal computer program are done. Therefore, if a process in question qualifies any of the discussed categories, it can be called statutory. There

[7] 33 F. 3d 1526, 31 USPQ 2d 1545 (Fed. Cir. 1994)
[8] Guidelines for Computer-Related Inventions, https://www.uspto.gov/web/offices/com/sol/og/con/files/cons093.htm (last visited Oct 23, 2022).

are non-statutory processes and claims that can be called non-statutory processes either if such processes entirely consist of mathematical operations and no practical operation of same, be it the execution of this kind of mathematical method, or when the processes solely manipulate abstract notions with no practical use.

The United States is known for having aptly lenient laws regarding software patents, and it has recognized the patentability of software in numerous situations. Several examples include: I Patentability has been determined for computer algorithms unrelated to mathematics Computer algorithms related to hardware processes have been determined to be patentable[9]. (iii) It has been determined that devices or any processes that include computer programs as part of the overall invention that is patentable and if it includes computer programs as part of the overall invention, such devices or the processes integrates computer programs as part of the overall invention.[10] The extent of software patentability cannot be claimed to be resolved in the US, notwithstanding this extensive jurisprudence. This is demonstrated by the most recent case, In re Bilski[11], which is currently being debated before the SC. In the given case, an application was made for patenting one technique for offsetting danger in the trade of energy products, which is something that all traders do. The application was denied by the USPTO, and the CAFC concurred, ruling that software and processes could only be covered by patents if they also claimed to cover "specialized machines" or "transformations of matter." This ruling is significant because it specifically said that the case of State Street Bank[12] could not be cited anymore. The software patentability dispute has been given additional avenues to explore as a result of this case, and new aspects of software patentability may emerge.

EUROPEAN UNION

The discussion of software patenting in Europe has consistently been characterized by disputes and debates. According to the European Patent Convention[13], an invention must be novel, subject to industrial application, and entail an inventive step in order to qualify for patentability.[14] An invention is considered original or we could say new when it doesn't constitute the majority of the current state of the art, according to Article 54 of the EPC. A

[9] In re Toma, 575 F.2d 872, 197 U.S.P.Q. (BNA) 853 & Re Pardo, 684 F.2d 912, 214 USPQ (BNA) 673
[10] Re Abele, 684 F.2d 902, 214 USPQ 682 (CCPA 1982) and Re Iwahashi, 888 F.2d 1370, 12 USPQ2d (BNA) 1908 (Fed. Cir. 1989)
[11] 545 F.3d 943, 88 U.S.P.Q.2d 1385
[12] 545 F.3d 943, 88 U.S.P.Q.2d 1385
[13] ILM 268 (1977)
[14] EPC, Art. 52(1)

further definition of an inventive step can be found in Article 56, which states that an invention qualifies if given, it is not obvious to a competent person with in relevant field that it is state of the art. Finally, industrial application has been defined in Article 27. According to Article 27,If an innovation may be manufactured or employed in whatsoever enterprise, including agriculture, it is suited for industrial use. It is also essential to underline that "methods of doing business and computer programs" are expressly restricted out from the definition of innovations qualified for patent protection pursuant EPC Article 52(2)(c). Despite this clear restriction, the European Patent Office had already issued over 30,000 software-related innovations since 1978.[15] It was done in accordance with European Patent Convention Article 52(3), which states that; The patentability of all those goods would be excluded only to the degree that perhaps an application for European patent or, for that matter, a European patent pertains here to the subject matter and activities listed in the second para as such. As a result, Article 52 is understood to merely forbid the patentability of software as such. Because of the existence of here "as such" term, the European Patent Office has been only able to allow patent applications for what appear to be computer software inventions. The EPO emphasizes the importance of "technical character," as defined in Rules 27. (1)[16] and 29(1)[17] of the EPC, to determine if or not the subject matter of such an application is indeed an innovation. To be deemed technical, a computer program is required or expected to address any technical fault, and that needs to have a technical effect, and at the very least, requires technical considerations.

As an example, we could consider Viacom case[18], in which the Board of Appeal approved the patenting of a system and device for enhanced the processing of an image. The application in this case dealt with a method for editing digitally stored images. In this example, the patent was granted since the claim was stated in relation to just a technical procedure rather than the mathematical approach itself. In actuality, National courts and EPO Boards of Appeal agreed that computer-implemented innovations with a technical character can be considered patentable. In fact, in cases of Product I and II[19], the Board of Appeals determined in the

[15] European Patent Office, *Hardware and software*, https://www.epo.org/news-events/in-focus/ict/hardware-and-software.html (last visited Oct 23, 2022).
[16] Rule 27; what Content specifies and discloses
[17] Rule 29 that talks about Form and content of claims .
[18] European Patent Office, *T 0208/84 (Computer-related invention) of 15.7.1986*, https://www.epo.org/law-practice/case-law-appeals/recent/t840208ep1.html (last visited Nov 5, 2022).
[19] European Patent Office, 'T 1173/97 (Computer Program Product/IBM) of 1.7.1998' , https://www.epo.org/law-practice/case-law-appeals/recent/t971173ex1.html (last visited Nov 5, 2022), European Patent Office, *T 0935/97 (Computer program product II/IBM) of 4.2.1999*, https://www.epo.org/law-practice/case-law-appeals/recent/t970935eu1.html (last visited Nov 5, 2022).

Computer Program that a program on some kind of data carrier ought to be patentable if it contains the capability to have a technological effect when run on a computer. An invention must be evaluated as a whole, according to the Board of Appeal of the EPO in Koch & Stezel[20], which involved computer-controlled X-Ray equipment. If it employs equally both the technical as well as non-technical approaches, using non-technical means would not at all degrade the overall 'technical' aspect of education. A software-based system assigned priorities and sent signals to clients positioned at various service points in the Queueing System Case[21]. The software or the program was essentially just a part of a broader electrical system setup. It was decided that perhaps the invention could not be distinguished from the given device & that technological invention prevailed so because entire process was accomplished without the necessity for human contact, hence exempting it from the exclusionary provisions of Article 52. A technique for computing pension benefits using a computing device was the subject of the Controlling Pension Benefit Systems/PBS Partnership[22] application. The EPO denied the initial application because it violated Article 52's exclusions for business methods. The EPO Board of Appeal, on appeal, opined that: An apparatus was not specifically mentioned in Art. 52 (2) of the EPC, which does not refer to systems, procedures, & rules as being included for patenting. However, equipment that constitutes a physical body or any tangible object that is appropriate to execute or encourage an economic activity falls under the ambit of invention as under Art. 52. Methods incorporating simply economic concepts and business procedures are not patent-eligible. As a result, the Board completely disregarded the technical contribution requirement in this case and came to the conclusion that Article 52(1) of the EPC does not bar the patentability of any real apparatus incorporating software. After Pension Benefit Systems, the technical impact criterion was ignored by the EPO Boards of Appeal and instead was interpreted as the inventive step threshold to be met only for technological inventions. It is a tough job to make general conclusions regarding the specific nature of a technological character from the incidents in the EU. Consequently, the European Commission submitted a new Directive in an attempt to harmonize state legislation in the EU, however, the idea was defeated by the European Parliament in 2002. As a result, there are still ambiguities around the definition of "technical difficulty" that require clarification.

[20] 545 F.3d 943, 88 U.S.P.Q.2d 1385

[21] Queueing System/Pettersson Case, T-1002/92 - 3.4.1, 1996 E.P.O.R. 1, 3-10 (EPO Tech. Bd. App. 1994)

[22] European Patent Office, *T 0931/95 (Controlling pension benefits system/PBS PARTNERSHIP) of* 8.9.2000, https://www.epo.org/law-practice/case-law-appeals/recent/t950931ex1.html (last visited Nov 5, 2022).

ANALYSIS

Patent protection has been shown to encourage innovation, raise living standards, and increase employment. Can we afford to limit or omit patent protection for software-related ideas as the global economy becomes more digital and software increasingly serves as the foundation for innovation and commercial competition?

It goes without saying that the goal is to foster the conditions that will enable inventors and engineers to invest in the creation of new software that will help us connect and do business. The whole community should review the current situation and assess the benefits of strengthening patent protection for computer programs that incorporate software-related inventions as digitization spreads throughout all facets of our life.

I have discussed various aspects of the software patent regime and different considerations that courts take on to decide cases related to software. As discussed above, there are various factors in software that require protection against any kind of infringement. I have discussed various technicalities and tests that courts have come up with to decide on cases related to the patent. Even though there is an enormous overlap between the patentability and copyrightability of software, it is evident from the above discussions that there are way more things that require protection in software that cannot be covered by copyright protection.

CONCLUSION

Software patents are among the most contentious area of intellectual property rights. Because of the growing economic relevance of computer hardware and computer programs, software patents are troublesome. Given the increasing relevance of these patents, additional discussions on protection of software patent in India is required. Whenever we assume that software powerhouses like Microsoft own a vast quantity of patents, this topic takes on new meaning. We must examine the software protection provided because new software goliaths emerge in India on a daily basis. The most crucial issue to address is whether the software is covered by such a patent or even a copyright, as software is reportedly not patentable under the law in India. Patents also encourage open knowledge interchange and higher productivity. Through public disclosure, patents also promote open information sharing and improved legal exposure transparency. It encourages innovation and shields small firms by making it illegal for larger organizations to imitate their work. The phrase "program per se" under Sec. 3k is frequently

questioned since it is unclear. Even if the Indian Patent Act doesn't really directly prohibit them, software patents are contentious, and judicial intervention is not conceivable in this circumstance. This complicates matters further since various judges read it differently. Although this favours large corporations, it disadvantages other individuals. Furthermore, patent rules can sometimes stifle technological innovation by allowing monopolies and large firms to restrict competitors from participating in industrial research. Although CRI guidelines are partly effective, given the present software patent issue, the law ought to be harsher and more punitive.