

SOFTWARE PROTECTION

There is no legal or conclusive definition of a software patent. A suggested definition of software patent has been proposed by the Foundation for a Free Information Infrastructure (FFII) as being a patent on any performance of a computer realized by means of a computer program.

The computer software is considered as valuable property and forms a part of intellectual property. The intellectual property regime in India is in the process of evolution. The domestic laws are modified to suit the various needs of people which are changing in according to the international markets. There is no legal or conclusive definition of a software patent. A suggested definition of software patent has been proposed by the Foundation for a Free Information Infrastructure (FFII) as being a "patent on any performance of a computer realized by means of a computer program".

Protection of Computer software is one of the most contentious issues in the field of IPR. The growing economic significance of computers and Computer programmes gives software patents and copyrights this controversial status. The term CP is not defined under the patent laws in India, but the Copyright Act 1957 defines CP under Sec. 2(ffc)[1].

Software enjoys dual protection under copyright and patent law, but which law prevails other depends on the strategic advantage sought by the applicant. Copyright law protects the specific code a programmer writes, but it does not protect the idea behind that code and it does not prevent it from being recreated with similar functionality with different code by someone else. Patents give their owners the right to prevent others from using a claimed invention, even if it was independently developed and there was no copying involved. Patent law prevalently dominates the applicant's choice over copyright because of its obvious advantages, but the irony is that the patent law does not allow software protection. in toto[2]This paper

will analyse the law with regarding to software patentability in India and other countries and the problems regarding the software patentability with the help of different cases in India.

Software protection under Copyright Law Copyright was usually associated with artistic products, but today in addition to all this copyright is now an important tool in protecting computer software. The Copyright Act provides copyright protection for original works of authorship fixed in any concrete medium of expression. The Act gives the copyright owner exclusive rights over the reproduction, preparation of derivative works, distribution. It is not a necessity to take steps after the work has been created and "fixed in tangible form" for copyright to exist. But a registration of copyright in a work is necessary to proceed with an action for infringement of it.

The original literary, dramatic, musical and artistic works, cinematograph films and sound recordings are protected as copyrights' under the Copyright Act 1957. The description of literary work' includes the computer programs. Thus, the computer software programs are protected as literary work[4]under the provisions of the Copyright Act. The Copyright Act 1957 defines the computer[5]as to include any electronic or similar device having information processing capabilities'. The Act defines the computer program' to mean a set of instructions, expressed in words, codes, schemes or in any other form, including a machine-readable medium, capable of causing a computer to perform a particular task or achieve a particular result[6]It is evident from the above definitions that the computer program or software is protected as literary work' under the provisions of the Copyright Act 1957. It is evident that the term computer means and includes all types of electronic devices which are having the capability to the process of information fed into it. As such, a cell phone is a computer which is programmed to do among others the function of receiving digital audio signals, convert it into analog audio signal and also send analogue audio signals in a digital form externally by wireless technology.

Case law on copyright protection of Software: - Keeping in pace with the enhanced statutory protection to computer programme, the Courts in India have taken a proactive role in effectively enforcing the provisions of the Copyright Act. In a landmark Judgment the Delhi High Court has awarded damages to the tune of 1,795,000 for copyright infringement in the case of Microsoft Corporation v. Yogesh Papat[8] in this case Microsoft alleged that the defendant, who was in the business of selling assembled computers, was loading the software in which the plaintiff had a copyright, without a license on the hard disk of computers being sold by them. By indulging in such activity, the defendant was infringing the plaintiff copyright financial loss to the plaintiff. The Court passed judgment in favour of the Plaintiff and issued decree for injunctive relief, order for delivery up and decree of damages.

Limitations: The protection under the Copyright Act is limited as it does not protect the idea behind the work, but protects only its expression. In contrast, patent laws would protect technological ideas underlying computer programme, even though the first mentioned computer programme is written differently.

Controversy on TRIPS and software

The issue of patentability and its exclusion is a controversial issue in case of determining patentability of advance technological patents. Article 27.1 of TRIPS species that the patent protection is available for all inventions and patent protection is available for all inventions and patent rights can be enjoyed without discrimination on the basis of the fields of technology. Article 27 of TRIPS does not define the exact meaning of the term invention'. However, it mentions about patentable criteria such as novelty, inventive step and industrial use. The same section also speaks about exclusion from patentability but it does not exclude software or computer programme.[10]

Article 10 of TRIPS states that the source code and object code shall be protected as literary work under Berne Convention 1971. The

dispute of protection of software arises on the issues of copyright or patent protection. The TRIPS agreement mentions the copyright protection of object code and source code. It is difficult to protect computer software under copyright protection because of basic difference between the software and literary work.[11]The copyright protection to software is opposed because of the behavior code dichotomy and the real value of computer programme lies in the source code rather than the object code. Thus, the question regarding patent protection for pure software or for its technical application or physical manifestation remains unanswered.

Software Protection under Patent Law

Technology related patents (which are not in relation to hardware) are usually categorized as software patents or business method patents. For example, a system or process developed by a taxi company which allows any customer to choose a taxi which is closest to his location could qualify as a business method.

A Patent an exclusive right granted to a person who has invented some new and useful article. An improvement of existing article or a new process of making some article. Patent laws in India ensure that no other person can make, use, distribute or sell any commodity which uses this product or process by granting patent rights to the inventor.

The Indian Patent Act, 1970 governs all aspects of the patent in India, including what can and cannot be patented, guidelines for obtaining a patent, procedure for obtaining a patent, tenure of a registered patent, etc. Section 3(k) of the Indian Patents Act, 1970 reads that mathematical or business method or a computer programme per se or algorithms' do not fall under the category of items that can be patented in India. Therefore, the Patent Office has been rejecting the majority of patent applications for software patent in India, even though they are high on innovation.

Copyright registration is commonly used to protect software in India. Computer software and programs can be registered as a literary work as per Section 2(o) of the Copyright Act 1957. While applying for copyright registration for a software the source code must be submitted along with the application to the Copyright office. However, the copyright laws in India protect only the specific code and does not provide any protection to the idea behind that code. A software copyright in India does not restrict the creation of a different code with similar functionality and idea, which is protected by obtaining a patent for the programme.

Requirement of getting software patent

In order to obtain a patent in India, an invention must fulfill four criteria:

1. Industrial Applicability: - "capable of industrial application", in relation to an invention, means that the invention is capable of being made or used in an industry[12].
2. Inventive Step:-"inventive step" means a feature of an invention that involves technical advancement as compared to the existing knowledge or having economic significance or both and that makes the invention not obvious to a person skilled in the art.
3. Novelty:-"new invention" means any invention or technology which has not been anticipated by publication in any document or used in the country or elsewhere in the world before the date of filing of patent application with complete specification, i.e., the subject matter has not fallen in public domain or that it does not form part of the state of the art.
4. Patentability exclusion for software or computer program:- Mathematical business method computer programme per se or algorithms.

Latest Software Patent granted in India

In *Accenture Global Service GMBH v. Assistant Controller of Patents & Design and the Examiner of Patents*[17] where applicant sought for

a patent on a method to generate a data mapping document. The objection against the method's technical effect being unidentifiable, the applicant submitted that the present claims recite "technical solution to a technical problem of the need for a data document design system and design tools that addresses one of the most important technical challenges faced by database systems is data migration." After analyzing the inventions on merits, the Patent Office observed that the invention is not software per se, it is rather a system having web-services and software and thus, is not falling in the category of section 3(k) and patent was granted in May 2013.

In 2009, Facebook sought a patent on a method "for generating dynamic relationship-based content, personalized for members of the web-based social network". The objections against the grant were 'the method being nothing but an algorithm implemented through software thus falling under Section 3(k) and being non- patentable.' The applicant contended that section 3(k) was not applicable in this case because the invention "implements a technical process and has a technical effect" and further went on to explain the intricacy of the method. These amendments to the claims satisfied the Patent Office's objections and thus it granted the patent in February 2017.

Another patent was granted to Facebook on 25th April 2017 "for a method of providing access to user profile data maintained by Facebook to third-party application". Facebook submitted that "the present invention included hardware limitation and provided technical improvements and benefits like checking privacy setting associated with the user profile and based on the privacy setting the access is provided to the third-party application and the third-party application personalizes the user content data." The Patent Office concluded that this doesn't fall under the purview of Section 3(k), and duly granted it a patent.

In Feb 2005, Google sought for a patent on an invention titled, 'phrase identification in an information retrieval system'. One of the claims

disclosed it to be a basic mathematical algorithm with the logical steps thus falling under section 3(k) of the Patents Act, 1970[18]and therefore not being patentable. However, Google reasoned that its invention is not an algorithm or a computer program per se, "but provides a technical solution to a technical problem of how to automatically identify phrases in a document collection". It claimed that the technical solution i.e. the end product which is an index, stored in a memory consisting of related valid phrases, is inventive. On hearing the above submissions, the Patent Office concluded that it is "a technical advancement over the prior art" and thus granted it the patent in May 2017.

In 2009, Apple applied for a patent on a 'method for browsing data items with respect to a display screen associated with a computing device and an electronic device'. The objections against the invention were that it was merely a software program and thus falling within the scope of computer programs per se i.e., under the provision of section 3(k) of the Act. Apple submitted that the method "although the steps of the method can be performed by means of software, the method constitutes a practical application of this computer software to produce a useful result bringing an improved technical effect while presenting advantages and overcoming drawbacks of hitherto known techniques." Accepting this submission, the Kolkata Patent Office granted the patent.

National approaches to software patentability

In Europe, the European Patent Convention (EPC) (Art. 52(c) and 3) state that a computer program claimed such as excluded from patentability. But an appeal by IBM (case No. T 1173/97) before the Board of Appeals for the European Patent Office provided useful guidance. The Board stated that a narrow reading of the relevant articles meant that not all computer programs should be excluded from patentability to comply with Art. 27 of the TRIPS Agreement which deals with the patentable subject matter. The Board concluded that a computer programs as such referred only to those that were

non-technical in character. It also acknowledged that “it does not make a difference whether a computer program is claimed by itself or as a record on a carrier. In other words, as long as a computer program is technical, the medium in which it is recorded is irrelevant and is, in fact, patentable. Given the current widespread online commercial distribution of software, this is an especially important finding.

In the United States, patent protection for software-related inventions is limited to those on recordable media, not to computer programs themselves[19]. This protection falls short when it comes to the online distribution of software. Unfortunately, the Supreme Court's decision in *Alice Corp v. CLS Bank*[20] and some subsequent cases have failed to provide clear boundaries for the patent eligibility of software-related inventions.

Japan's Patent Act (Art. 2(3)(i)), on the other hand, explicitly refers to computer programs as patentable subject matter. The Act states that the claimed subject matter must be recognized as a “creation of technical ideas utilizing the law of nature to qualify as a patentable invention. In general, according to the Examination Guidelines of the JPO, to be patent-eligible, a claim for a software-related invention must demonstrate that software and hardware resource work cooperatively.

Conclusion

India's IT sector aggregate revenues of US\$ 160 billion in 2017[21]. It shows the investment and R&D in the IT sector. Software developer invests its time and money in developing a software but the Indian laws are insufficient in protecting the work of the software developer. Patent protection is a proven means of supporting innovation, improving living standards and boosting employment. As the Indian economy becomes ever more digitized, with software increasingly forming the basis of innovation and business competition India cannot afford to exclude software from patentability.

Country like China and USA, where judiciary and government have

been taken step to remove the ambiguity in the area. In India also, the government has taken step and come with the computer related invention guidelines in 2015, 2016 and 2017. Latest guidelines (2017) tried to clear the ambiguity of the software patentability in India. The position regarding the mathematical or business program remains same being a non-patentable subject matter.

Biotechnology is a branch of science that focuses on developing different techniques for applying various biological or natural organisms and processes to products, creating products, or materials for use in certain industries and the realm of medicine.

Basically, [biotechnology](#) tries to find ways to use living organisms practically in industry.

Inventions in biotechnology, whether new processes or discoveries have a right to [intellectual property protection](#). Various groups, especially religious groups have raised controversy over the patenting of biotechnological inventions because they involve living things. Many of the inventions and processes used in this field include the DNA manipulation. Certain organizations view this kind of messing with the natural order of things as unethical.

The Nature of Biotechnology Patents

Patent law has been around for almost 500 years, but patents in the field of biotechnology only began surfacing at the end of the 19th century, as scientific and industrial advancements were taking flight. Biotechnology patents have become somewhat of a hot topic over the years, gaining high profiles in some cases. Due to the delicate and complicated nature of this particular field of study, the patenting process is more involved than in other fields.

Many believe that patents are what encourage growth and innovation in a particular field, so they encourage more and more inventors to patent their discoveries. Much is learned through the patenting process, especially because it leads to the publishing of such discoveries so that other scientists can learn more. As certain groups attempt to discourage certain biotechnology patents, others argue that they are a vital part of the thriving economy and intellectual advancements.

Different countries vary on their laws regarding the patenting of biotechnology. Depending on the country in which a scientist hopes to patent their invention, they will face specific standards for that country. This is especially important for those looking to patent their invention in multiple countries. Just because a patent was granted in the US, doesn't mean every other country would also grant a patent for the same invention.

Types of Biotechnology Patents

In most every field of research, there are two basic types of patents:

- Product patents.
- Process patents.

This also applies to biotechnology. An inventor can protect a certain product they've created or a new process they've made. Because of the nature of biotechnology, there are some rules regarding what can and cannot be patented. Simply put, inventions are patentable but discoveries aren't

Discoveries in biotechnology are nature things or processes that essentially belong to nature, so they cannot be "owned" by one person through a patent. However, if you come up with a specific product or process through the use of natural, living things, it's worth looking into a patent for it. This can lead to some complicated cases when trying to patent a biotechnology invention.

Biotechnology is the process of modifying the living organisms in such a way that they become more productive for the humans. The recent trends in biotechnology techniques i.e. recombinant DNA, cell fusion, and monoclonal antibody technology have raised fundamental social and moral questions and created problems in intellectual property rights. Over the last 25 years, the sector of biotechnological inventions has experienced growth. It is an extremely dynamic area wherein there have been constant innovations. One of the most important sectors in biotechnology is DNA. Scientists have been able to use the DNA of some living organisms and cloned the same.

Article 27 of TRIPS discusses about the agreed international norms on patentability of the inventions. It states that any product or process shall be patentable if the said product or process is new, involves an inventive step and has industrial application. This criterion is same in all countries that are signatories of the TRIPS Agreement. According to Article 27.2, inventions against public order or morality or which would cause serious prejudice to the plant, animal and human health and life can be excluded from patentability provided that such exclusion is not made merely because the exploitation is prohibited by their law. According to Article 27.3, therapeutic, diagnostic and surgical methods as well as plants and animals except microorganism cannot be patented. Also, it has been agreed that the protection may be extended to the plant varieties through a sui generis system or patent etc.

To be a patentable invention in India, the requirement of novelty, inventive step and industrial application must be met. Also, it should not fall within the criteria mentioned in Section 3 and 4 of the Patents Act, 1970. In case of biotech patents, the following inventions are excluded from patentability:

1. An invention would not be patentable if it is immoral or against public order, harmful to human, animal or plant life or harmful to environment.[\[1\]](#)
2. Discovery of living things or non-living substances in nature[\[2\]](#)

3. Plants and animals in whole or any parts thereof other than micro-organisms but including seeds, varieties and species.[\[3\]](#)
4. Essentially biological processes for the production or propagation of plants and animals.[\[4\]](#)
5. Any Process for the medicinal, surgical, curative, prophylactic, diagnostic or therapeutic or other treatment of human beings or animals to render them free of disease or to increase their economic value or that of their products.[\[5\]](#)
6. New use or new property of known substance.[\[6\]](#)
7. Methods of agriculture or horticulture.[\[7\]](#)
8. Traditional knowledge.[\[8\]](#)

Issues surrounding ownership of genes and genetically modified humans, moral and identity dangers inherent in human cloning and genetic modification of human beings, suffering to animals due to genetic intervention, potential hazards to environment due to genetic manipulation, ecological balance are some of the serious issues related to granting patents on biotech inventions. Therefore, despite being a useful area to the scientists, procuring a patent in biotechnology at times is rather tricky in India.

Patenting of Genetically modified Microorganisms

Section 3(c) of the Patents Act, 1970 precludes patenting of discovery of any living thing or non-living substance occurring in nature. This means an isolated naturally occurring gene is not patentable but a genetically modified gene would be considered as patentable if it is new and inventive having industrial application. As per Section 3(j) Plants and animals in 'whole' or 'any part thereof' is not patentable. Although, microorganisms are excluded from non-patentability list, a conjoined reading with Section 3(c) of the Patents Act, 1970 implies that only modified microorganisms, which do not constitute discovery of living thing occurring in nature, are patentable subject matter under the Act. Besides the claims on Plants and animals in 'whole' or 'any part thereof' the claims relating to essentially biological processes of growing plants, germination of seeds, of development stages of plants and animals are objected under

Section 3 (j) of the Patents Act, 1970. In 2002 Dimminaco A.G., applied for an invention patenting the process for preparation of a live vaccine for Bursitis, an infectious poultry disease. The invention involved a live vaccine to combat the disease. The Patent Office refused the application on the ground that the process didn't constitute an invention under the Indian Patent Act, 1970. On appeal, the Calcutta High Court ruled that there is no statutory bar to accept a manner of manufacture to be patentable if the product contains a living organism.[\[9\]](#)

Patenting Animal Cloning

Section 3(j) precludes patenting of biological processes for production or propagation of plants and animals. Further, as per Section 3(b) of the Patents Act, 1970, the invention must not be contrary to public order, morality or causes serious prejudice to human, animal or plant life or health or to the environment. The most serious issue with animal cloning is the adverse health effects as they have been observed in sheep and the other mammals that have been cloned. These include an increase in birth size and a number of defects in important organs such as the liver, brains and heart. Besides these there has been premature aging and problems with the immune system.

Patenting Stem Cells

Section 3(j) of the Patents Act 1970 states that 'plants and animals in whole or any part thereof other than micro-organisms but including seeds, varieties and species and essentially biological processes for production or propagation of plants and animals' are not patentable. Stem cells are considered to fall under the phrase 'any part thereof' and hence are excluded from patentability. However, in vitro methods of differentiating, isolating/purifying and culturing of stem cells may qualify as patentable subject matter, provided it is novel, involves an inventive step and has industrial applicability.

In addition, Stem cells invention may also be objected under Section 3(b) of the Act, which states that an invention, the primary or intended use or commercial exploitation of which could be contrary public order or morality or which cause serious prejudice to human,

animal or plant life or health or to the environment, are not inventions.

Patenting Genetically Modified Seeds

Biotechnology has helped for the improvement of plants. Example, genetic engineering helps introduce new genes with desirable traits such as insect resistance. The Patents Act, 1970 prohibits any patent on plants, plant varieties or seeds, but it does not exclude man made gene sequences that are present in Genetically Modified Seeds. Under the Protection of Plant Variety and Farmers Right Act, 2001, the creation of a new plant variety, which may include its propagating material i.e. the seeds and includes within its ambit transgenic varieties is protected. However the Patents Act, 1970 permits biotech companies to patent their artificially engineered genes and use them to create transgenic seeds in a lab and selling the same. Seeds can't be patented in India. This is because a patent is an exclusive right granted to an inventor to prevent others from making, using, producing, selling and distributing the patented invention. A patent on seeds would prevent farmers from saving and exchanging seeds.

With respect to the expression 'essentially biological process', the Patent Office has not officially defined the said expression neither in the statute nor through judicial decisions. The biological guidelines issued by the Indian Patent Office in March 2013, does not have any reference as to what constitutes 'essentially biological processes'. There are a number of examples in relation to Section 3 (j) of the Patents Act, one such example states that a claimed method involving the step of cross-breeding for producing pure hybrid seeds, plants and crops would be an essentially biological process and thus not allowable under Section 3(j). But there is no clarification if there is substantial human intervention, will the method be patentable.

The field of biotechnology is progressing at a very high speed. Along with this rigorous progress come many ethical and moral issues with respect to the patentability of the same. Moreover, it has been considered whether the inventions fall under the scope of the Patent Act, 1970 or not. In fact the patent system stimulates the development of technology rather than control it. As per the annual report 2016-17 issued by the Controller General of Patents, Designs and Trademark,

876 patents applications in relations to biotechnology were filed out of which 355 patents were granted. Hence, among the developing countries, India has immense potential to utilize biotechnology to solve some of its most intractable problems of productivity, health and environment.