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Software Protection: International Instruments and Trends

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Abstract

The main objective of Intellectual property rights is to protect the products of the mind. In this digital age with the continuous advances in technology, software has become an indispensable part of the said evolution. Software is an algorithm designed to give machines and computers the directions they need to do work as per the right commands. Definition of software as per Encyclopaedia Britannica is a set of instructions that includes programs, procedures, and routines, given to a computer for operating. There are usually two types of software, system software and application software. A third type of software is application software which is used between computers linked in a network.

Therefore, it becomes just as crucial to protecting the rights of such software manufacturers. Software being a product of the mind becomes qualified to be protected under the intellectual property rights laws.

The laws regarding software protection have seen great changes over the past, as these are still relatively new and constantly maturing, so as to give full protection to the creators, from various acts of piracy, and to encourage creativity.

With this paper the author has aimed to study the basic intellectual property right laws, mainly copyright and patent laws, and how these are used to give the due protection to the software creators, and analyze how at the international level various instruments involving international laws, conventions, treaties, etc have treated software protection. Further, the author has also aimed to analyze the general trend in the evolution of software protection worldwide.

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1. Introduction

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1.1. What is a Software?

Definition of software as per Encyclopaedia Britannica is a set of instructions that includes programs, procedures, and routines, given to a computer for operating. There are usually two types of software, system software and application software. A third type of software is application software which is used between computers linked in a network.[82]

Software-defined as per the U.S. Copyright laws is a "set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result". As per The

[82] *Software | Definition, Types, & Facts*. (n.d.). Encyclopedia Britannica. https://www.britannica.com/technology/software

Indian Copyright law, software is protected under 'literary works' and has defined 'computer program' as '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'.[83]

1.2. What is Intellectual Property Law?

Intellectual property right is the right which is exclusively granted by the government to protect the original work of the creators as well as the inventors. In general terms, the intellectual property is the intangible creation of humans which protects the intellectual activities in the field of scientific, artistic, and literary works. Intellectual property rights can be defined as the rights over the creation of their inventions through their creative mind. They give the creator right over the use of their creations for a limited duration of time. The IPR includes copyright, trademarks, patents, designs that maintain the quality and safety of any product and services. Intellectual property rights are divided into 2 kinds: Copyright and Industrial property.[84]

Copyright is the type of intellectual property that protects creative work Such as songs, books, movies, sound-recording, sculptures and software, etc Copyright is basically the right to copy, it refers to the legal right of the Owner or creator of the intellectual property. Copyright laws Safeguards the rights of authors over their creation and protection of their creativity. The copyright provides protection to the efforts of the Writers, musicians, designers, artists, and every other individual involved in the atmosphere of creativity.

Patents are a right which is granted for an invention of a product which somehow gives technical solutions to a problem. It generally protects the inventor of the product; the patent protection is granted for a period of 20 years. The term patent protection means that such a product cannot be distributed or sold commercially without the prior consent of the patent holder. Some of the things that can be patented are products, machines, manufacture, etc.

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[83] Mellema, C. L. (n.d.). *COPYRIGHT PROTECTION FOR COMPUTER SOFTWARE: AN INTERNATIONAL VIEW*. Published by SURFACE, 1984

[84] WTO | intellectual property (TRIPS) - what are intellectual property rights? (n.d.). Www.Wto.Org. https://www.wto.org/english/tratop_e/trips_e/intel1_e.htm#:~:text=Intellectual%20property%20rights%20are%20the

Trademark consist of drawings, symbols, shape, and packaging of goods, which creates a distinction between various goods and services in the market. It protects the owner of the mark by ensuring the right to use it to identify goods or services exclusively this helps consumers to identify a product or service due to its unique identification which is indicated by its unique trademark.

Designs refer to creative activity which contain the formal appearance of a product, and design right refers to original design that is registered design according to the proprietor it is an element of intellectual property. The main objective of the design law is to protect and promote the design of industrial production.[85]

1.3. How can a Software be Protected under Intellectual Property Laws?

For the most time, software protection has been majorly granted by three fields of IPR, these are, Copyright, Patent and Trade secrets. But the reliance over these three has changed over the years.[86]

1.3.1. Under Copyright Laws

Under copyright law, computer software is protected as a literary work. As stated before, the US copyright laws have defined a computer program as a *'set of instructions'*, similar to these are the provisions under the Japanese laws as well. In most national legislations this definition has been provided. This understanding is taken from the WIPO Copyright Treaty[87], the definition is not provided in the treaty, but a general understanding was formed while framing of it. Even as per the Indian Copyright laws, computer software is treated as a literary work and is said to be a *'set of instructions'*. Sometimes, the Computer Programme Derivatives are

[85] WIPO INTELLECTUAL PROPERTY HANDBOOK. (2004). https://www.wipo.int/edocs/pubdocs/en/wipo_pub_489.pdf
[86] International IP Protection of Software - WIPO. (n.d.). Wipo.Int. Retrieved August 17, 2020, from https://www.wipo.int/edocs/mdocs/copyright/en/wipo_ip_cm_07/wipo_ip_cm_07_www_82573.doc
[87] Supra at 5

also included within the definition of a computer software, as it is the basis for a software and but is not yet a complete 'set of instructions'.

1.3.2. Under Patent Laws

In many national legislations, software has neither been protected under patent laws nor been given the status of a patent. Under Indian laws as well, softwares are mostly protected under copyright laws as literary works and need special technical applicability to get recognized to be patentable. But various judicial decisions over the years, have often recognized software to have patentable properties. For instance, in the U.S. case of *Diamond v. Diehr,*[88] it was held that mathematical formulas embodied in the software programs are patentable.

This debate revolving around software exist due to the conflicting nature of software, involving both the written expression for performing a certain technical task. With software, it can often be the case that the written expression of two different software can be very different but the result is quite similar. Because of this many software manufacturers started protecting the said result under patent laws, so that the end result which is often the commercialized product, remains protected.[89]

1.3.3. Trade Secret

Softwares can be well protected under trade secrets. Trade secrets are often processes or formulas to develop a certain product. Trade secret does not provide protection against *'infringement'* but does against *'theft'*, for as long as the owner can prove that this was not something which was commonly known and was not easily be ascertainable.

Softwares make a perfect definition of a process or a formula, which is made to eventually give a certain result or make a commercialized product. As under trade-secrets, the subject can be

[88] Diamond v. Diehr, 450 US 175 (1981)
[89] Supra at 5

protected for its lifetime, the manufacturers often have been seen to seek protection of software as a trade secret than as a copyright or a patent.[90]

1.3.4. Others

Certain Open Source Software (OSS) also exists, wherein the manufacturers have granted only certain people the right to use it for free. This is done by licensing. These are not yet allowed by all the legislations of the world.[91]

Trademarks are also sometimes used to protect the design and the logos of such software companies, or particular software. It does not protect the content of a software, rather just the identifiability of it.

2. International Instruments and Treaties

Over the years, ever since Software has become an important commodity in the commercial world, various laws and legislations have been formulated, both at the national as well as international levels. In this section let us study some of the most important international instruments existing to give software its due rights.

2.1. TRIPS

The Trade-Related Aspects of Intellectual Property Rights (**TRIPS**) was one of the first instruments to discuss the legitimacy of including Software under copyright protection. Furthermore, it had also given three different areas of software protection: Copyright, Patent,

[90] Freibrun, E. (2019). Intellectual Property Rights in Software – What They Are and How to Protect Them – Freibrun Law. Freibrunlaw.Com. https://freibrunlaw.com/intellectual-property-rights-software-protect/#:~:text=The%20term%20refers%20to%20a
[91] Supra at 5

and Trade secret. Under section 10 of the treaty, it has been explicitly provided that the member countries are to protect software. Further, the states were independent to extend this protection.

Article 27.1 of the treaty recognizes the invention aspect of the software to be patentable. As for the member states, the patent right will be guaranteed as long as it fulfills whatever other characteristics a software has to have to be patentable, as per the national legislature. Article 39 provides for software protection as undisclosed information under trade secrets.

Other than this three protection, the TRIPS does not include anything else. Hence, most software developers choose to protect the source-code under trade secret protection and copyright the object-code.

TRIPS has further allowed the practice of reverse engineering, which is very common when it comes to software. This is allowed as long as it is done with honesty, that is it is not copied. Copying, as long as a few changes are made, is allowed, as well as when used under fair use.

To encourage healthy competition between various companies, it has been provided that the final product can be extremely similar as long as the written code for it is different, i.e., as long as it has been manufactured using a different process.[92]

2.2. Berne Convention

Berne convention became enforceable from the 5th of December, 1887, and has since been an important instrument to form the basis of many software protection legislation all over the world. Under the Berne Convention, explicit areas of software protection have not been mentioned, but the requirement of the member states to give software protection under literary works, as per the TRIPS treaty, has been made mandatory.

The Berne convention has given the power to the national legislation to set up the premise of providing intellectual protection to works. It has given an inexhaustive list of examples of works, which are to be given protection. Further, a time period of 25 years was set up by this convention to give protection, from the date of manufacturing.

[92] Marshine P, M. A. (n.d.). Software Protection: International Instruments and Trends.

2.3. WIPO Copyright Treaty

This treaty was formed in 1996, wherein under WIPO (World Intellectual Property Organisation) two treaties related to copyright were formulated, the WIPO Copyright Treaty ("WCT") and the WIPO Performances and Phonograms Treaty ("WPPT"). WCT was a treaty formed under the Berne convention, and has made it explicitly clear that computer programs are to be protected as literary works as per the Berne Convention. The WCT has not contain any definition of "computer program". But, in the course of the formulation of the Treaty, it was agreed upon that the definition of "computer program" adopted as part of the WIPO Model Provisions on the Protection of Computer Programs, to be held valid.

This definition reads as follows: "computer program" means a set of instructions capable, when incorporated in a machine-readable medium, of causing a machine having information-processing capabilities to indicate, perform or achieve a particular function, task or result".

It also stated that data in the form of compilations, as long as the selection or arrangement of the contents are original, are to be protected. One very distinct right was granted under this treaty, which was the right to rent the computer programs. It was further said that the member of the nation to this treaty were to provide enough protection to the software, so as to not restrict the right to use the software only to the owners.[93]

This treaty has done an important job to bring the various different copyright legislation in harmony with each other and with the international provisions. The laws related to copyright protection for most countries vary from each other. For instance, a U.S. author with a U.S. based work will have to register their work to the U.S. Copyright Office to be able to take legal action against it. This is not necessary in most other countries. Whereas in some other countries, extra benefits may incur from registration of work. For example, in Japan, one such benefit of optional registration is to create a rebuttal presumption.[94]

[93] Supra at 5
[94] Supra at 11

2.4. Universal Copyright Convention

The Universal Copyright Convention resulted from a compromise between the European view, as under the Berne Convention and the American law, thus making it significant for the Americans.

The Universal Copyright Convention gives protection to "literary, scientific and artistic works, including writings, musical, dramatic and cinematographic works, and paintings, engravings and sculpture."

Under this Convention, similar treatment was to be granted to the works by nationals of the United States, wherever published, as to the copyright protection as of that nation accords to works of its nationals first published in its own territory.

Applying the "national treatment" requirement to computer programs, the result would be that any foreign member country national can publish a computer program in the United States, that program would be afforded the degree of protection granted by the U.S. Copyright Act.

The reverse of that situation would be if an American national published a program in a member nation, and that nation's copyright law did not grant any protection to computer programs, then the published program would automatically enter the public domain.

The UCC provides that any member country that provides for compliance with formalities (such as registration, deposit, or notice) to obtain copyright protection, must have the copies of the work bear the symbol “©”, the name of the copyright proprietor, and the year of first publication.

India being a member of the UCC, authors of software in the US will get protection in India, as per the terms and conditions laid down in the Indian Copyright law.[95]

3. International Trends

The international trends of providing protection to the software programs started around the 1960s-70s, when WIPO started to consider it. Initially, the idea of forming a sui generis law trended which would cover all three elements of computer programs: object code, source code, and documentation. However, the understanding of the protection of software programs

[95] Supra at 11

differed from nation to nation, thus the sui generis system was not followed by national legislations, and the idea was dropped. National laws that already contained provisions on the copyright protection of computer programs, in general, granted the same kind of protection as for other categories of works.

The most important two developments which occurred in order to create a bond between the national and international regimes were the Computer Programs Directive of the European Community, published in July 1991, and the TRIPS Agreement of 1994, both of which clarified that computer programs should be protected as literary works under of the Berne Convention.

These two international agreements were the basis of the international trend which was followed in many countries thereafter.[96]

3.1. The United States of America

The problem of copyright protection for software products in the United States emerged in 1908 in the case of *White-Smith Music v. Apollo Company*[97]. The amendment of 1980 gave the owner of a copyright, two kinds of rights, 1) the right to copy or adapt the program for use and 2) the right to make backup copies.

Whereas, in the current Copyright laws, a copyright holder has been given 5 exclusive rights.[98]

In the US, no patent protection is given to computer programs, but only to recorded media. This provision fails when it comes to the online distribution of software. No clear distinction between the two has been formulated as of now from the supreme court decisions.[99]

[96] Supra at 5
[97] White-Smith Music v. Apollo Company, 209 US 1 (1908)
[98] Sudha. (n.d.). Software Protection: International Instruments and Trends. Www.Legalserviceindia.Com. Retrieved August 17, 2020, from http://www.legalserviceindia.com/legal/article-3-software-protection-international-instruments-and-trends.html#:~:text=Instruments%20And%20Trends-
[99] Jedrusik, A., & Wadsworth, P. (2017). Patent protection for software-implemented inventions. Wipo.Int. https://www.wipo.int/wipo_magazine/en/2017/01/article_0002.html

3.2. India

Computer software is considered to be an extremely valued property, especially today in the age where technological advancements are happening very fast. Thus, the status of intellectual property is given to computer software that holds ground. In India, on the other hand, the regime of intellectual property is still growing and catching up to the international markets.[100]

As per the Indian legislations, software is protected under the Copyright Act, 1957, can also be patented under the Patents Act, 1970. A degree of creativity is necessary for the software to be protected and can only be protected under the Patent Act if it has a certain technical applicability. Section 2 (o) of the Copyright Act defines 'literary work' and it includes computer programs. Thus, it is explicitly protected. The same remedies will follow from the infringement of the Copyrighted Computer software which is allowed in case of any other infringement of copyrights.[101]

India's patent law has not been accommodating of computer software, as it requires the process of creating a patentable subject-matter to result in something "tangible" and "vendible." But at the same time, the demand for software protection in India is also very less. Though as seen with the trend of many other developed economies, we know that it is a much-needed protection considering the growth of the Information Technology industry in the country. Still, India has adopted most of the international instruments like the WIPO Copyright treaty, TRIPS, etc. and has its domestic laws on software protection. The laws which majorly cover software protection are the Copyrights Act, 1957, and Patents Act, 1970.

National Association of Software and Service Companies ("NASSCOM") has been spelling the need for strong intellectual property laws in India for a long time. It has been actively working on spreading awareness about the use of software, providing various anti-piracy methods, etc. It has also successfully facilitated enforcement of laws against software piracy in India and has been a great driving force behind the evolution of software protection laws in India.[102]

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[100] CHAPTER -VII SOFTWARE PROGRAMS: PROTECTION IN INDIA 7.1 INTELLECTUAL PROPERTY REGIME IN INDIA. (n.d.). Retrieved August 12, 2020, from https://shodhganga.inflibnet.ac.in/bitstream/10603/20952/13/13_chapter_7.pdf
[101] Supra at 17
[102] Jain, S. (2014). Legal Protection of Computer Software in India. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.2462269

3.3. Japan

Japan's stand on software protection has been slightly different. Being a more technologically advanced economy than India, it software protection laws are more evolved. As per the WCT, Trips, and the Berne Convention, Japan also recognizes Computer Software as a literary work and gives copyright protection.

Japan's Patent Act, on the other hand, explicitly mentions computer programs as patentable subject matter. The act provides that for a subject matter to be patentable shall be recognized as a "creation of technical ideas utilizing the law of nature". In general, according to the Examination Guidelines of the Japan Patent Office, to be patent-eligible, a claim for a software-related invention must demonstrate that software and hardware resources work cooperatively.[103]

3.4. UK

In 1977 the 'Whitford Report' presented to the parliament had put software under literary works, as it was broad enough to encompass any kind of computer programs whether the programs were directly perceivable, or only perceivable with the aid of a device. Prior to his as well, the software was given copyright protection under 'literary works'.

The U.K. laws are similar to that of India's as many of the Indian laws were derived from U.K. laws. There also, a certain degree of creativity in software is necessary to be copyrighted. This standard requires that the idea must begin with the author. The Copyright Amendment Act of 1985, confirmed that a computer program is a literary work. The amendment also gave that a software theft can result in unlimited fines and up to two years imprisonment.[104]

[103] Supra at 18
[104] Supra at 2

4. Analysis of the International Trend

Overall, it would be safe to conclude that the international trends have heavily been influenced by the international instruments. After the confirmation by WCT and TRIPS, it was accepted by most national IPR legislation, that a computer software is to be considered as a 'literary works', and shall be given the due protection under the copyright laws, as long as they fulfill any other requirements of a copyright.

Furthermore, in the case of the patentability of computer software, it is still a debate. Only a few national legislations have allowed for software to be patentable, as technological inventions along as they fulfill all the other requirements necessary as per the national legislations.

Recent trends have demonstrated that relying on Copyright alone would not provide adequate protection for Computer Software in view of the inherent features governing the law of copyright. But it has often been noticed, that giving the source-code part of the software trade secret protection and the object-code part of it, copyright protection, would allow complete protection to a software program.

Therefore, reliance on additional safeguards has become a necessity. Intellectual Property Rights in Information Technology based products have grown rapidly in importance even in Sri Lanka.[105]

5. Conclusion

There still is an evident growth that can be seen in the development of software and in general in the technical world, and we are yet to have definite legislation protecting software. The piracy rates, in the age of the internet, are also on the rise. As per a research based on 24

[105] Supra at 11

European countries, which suggested that there might be a rise in piracy rates due to weak protection of software.[106]

Within the Indian regime, the introduction of anti-circumvention and Rights Management Information laws was also in the talk, though it is not obligatory as India is not a to WCT. Though there is a need for stricter laws in India, it is more for the future, the demand for stricter laws is not much high as of now and can be managed by the judiciary, if handled properly.[107]

Thus, for future trends, the need for a proper law is very evident. As for India, despite having been seeing evolution on its IPR law, it still has a long way to go when it comes to software protection.[108]

[106] Andres, A. (2003). The Relationship between Software Protection and Piracy: Evidence from Europe. *European Journal of Law and Economics*. https://doi.org/10.1007/s10657-006-5670-5
[107] Supra at 11
[108] Miyashita, Y. (1991). Article 3 Winter 1991 International Protection of Computer Software, 11 Computer L.J. 41 (1991) Recommended Citation Yoshiyuki Miyashita, International Protection of Computer Software, 11 Computer L. The John Marshall Journal of Information Technology & Privacy Law, 11(1), 41.