THE LEGAL QUAGMIRE SURROUNDING SOFTWARE PATENTS

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ABSTRACT

With the advent of Internet of things and software industry's remarkable growth around the world, one would think the law surrounding patentability of software programmes would be sound. To the contrary, Software patenting continues to be ambiguous in respect of patentable subject matter, patent procuration and the scope of protection. The law is not concrete anywhere in the world, let alone India. Conflicting judicial precedents and varied practices across the world have only compounded the applicants' problem. This paper tries to present an overview on the law relating to Software Patenting in our country by giving a proper argument for and against the same by highlighting various precedents from across the globe and concludes with suggestions on the need to evolve a common global practice for software patenting.

INTRODUCTION

The office of the Controller General of Patents, Designs and Trademarks, India (generally referred to as Intellectual Property Office – IPO) released guidelines for Computer Related Inventions which shall replace the previous guidelines for examining CRI. It clearly lays down that while discussing software patents it is important to clarify **whether it is of a technical nature involving technical advancement as compared to the existing knowledge or having economic significance or both, and is not subject to exclusion under Section 3 of the Patents Act. It also emphasizes on the fact that while establishing patentability, the focus should be on the underlying substance of the invention and not on the particular form in which it is claimed.** Hence, along with determining the merit of invention as envisaged under Sections 2(1) (j), (ja) and (ac)**, the examiner should also determine whether or not they are patentable inventions under Section 3 of the Act. The question herein is what amounts to technical advancement in a software.**

Article27(1) of TRIPS[1] states that patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. Therefore the agreement does not exclude software from patentability. Further, Article 27 (2)[2] and (3)[3] speak about exclusion

[1]The Agreement on Trade-Related Aspects of Intellectual Property Rights, Jan. 1 1995.
Article 27 : Patentable Subject Matter
1. Subject to the provisions of paragraphs 2 and 3, patents shall be available for any inventions, whether products or processes, in all fields of technology, provided that they are new, involve an inventive step and are capable of industrial application. (5) Subject to paragraph 4 of Article 65, paragraph 8 of Article 70 and paragraph 3 of this Article, patents shall be available and patent rights enjoyable without discrimination as to the place of invention, the field of technology and whether products are imported or locally produced.
2. Members may exclude from patentability inventions, the prevention within their territory of the commercial exploitation of which is necessary to protect ordre public or morality, including to protect human, animal or plant life or health or to avoid serious prejudice to the environment, provided that such exclusion is not made merely because the exploitation is prohibited by their law.
3. Members may also exclude from patentability:
(a) diagnostic, therapeutic and surgical methods for the treatment of humans or animals;
(b) plants and animals other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement.
[2] Id
[3] Id

from patentability. In both of these paragraphs nowhere has it been mentioned that computer program or software should be excluded from patentable subject matter.[4]

THE ARGUMENT FOR A LIBERALISED SOFTWARE PATENTING REGIME

Section 3k of the Act states "a mathematical or business method or a computer program *per se* or algorithms". Although the Act has excluded computer program per se from the list of patentable inventions, the non-patentability of computer program as such does not preclude the patenting of computer-implemented inventions. Not all software innovations fall under section 3(k). Hence, a wide range of software innovations are patentable even in India. The Patents (Amendment) Ordinance[5] split the sub-section 3k into two- sub-section 3(k) and 3(ka). The amended Section 3(k) read as follows: "(k) a computer programme per se other than its technical application to industry or a combination with hardware". This would have allowed computer software in combination with hardware to have fallen within the scope of patentability. The key expressions contained in the above amendment are "technical application to industry" and "combination with hardware". The legislative intent behind these words was clear. If an invention is directed at computer software having technical application to industry or coupled to hardware then it is patentable.

Principally, technical advancement or technical contribution is the most important factor while considering the patent to software related invention .Software related invention has technical advancement or technical contribution when the program provides any solution to a technical problem or if the program has been used to achieve any technical control over a technical process or the program is used to operate any technical instrument. It follows that if a patent is sought only for the software tools i.e. a patent is sought only for *a computer program per se*, then a patent would *not* be available for the invention, as it would be hit by the provisions of Section 3 (k) elucidated above. The IPAB discussed the invention containing the steps for controlling the wind turbine based on external ambient conditions by using automatic control units like the computers. The Board mentioned that the invention cannot be treated as a

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[4]The Agreement on Trade-Related Aspects of Intellectual Property Rights
Art 27.2 and 27.3
[5]Patents (Amendment) Ordinance on December 27, 2004

computer program per se or a set of rules of procedure like algorithms and thus are not objectionable from the point of view of patentability.[6]

However, if the patent is sought for a *combination* of *software and hardware*, then it would *not* be a *computer application per se*, and hence might be patentable. As observed in *Gales' Application*[7]: Computer instructions may represent, for instance, a technical process. *In IBM Computer Program Product*[8], the Board stated from the assumption that for an invention tobe patentable under the EPC, it must have a technical character. The use of technical character as a way of determining whether an invention falls within the scope of the excluded subject matter is set out in the leading EPO decision of Vicom.[9] In deciding the issue, the Board stressed that even if the idea underlying an invention was a mathematical method it could still be patentable if the invention as a whole made a technical contribution to the known art.

The Board of Appeal in its conclusion reasoned that" technical effect is achieved by the internal functioning of a computer itself under the influence of said programme"on the said condition all programmes must be considered as inventions[10] , also a computer programme on a computer readable medium has the "potential to produce a technical effect" and hence not excluded from patentability. In another case, the Board of Appeal concluded that all programs when run in a computer are by definition technical[11] .All programs when run in a computer are by definition technical because the computer is a machine[12] .

As the Act does not specifically exclude software inventions, and as the Joint Committee acknowledges that inventions that are ancillary to or are developed using computer programs are patentable[13], patentability assessments would be well served to focus more on identifying the actual invention or contribution of the software invention and then determining if the contribution falls within the exclusions set forth in the Act rather than determining the technical effect or technical character of the software invention which is undoubtedly inherently technical in nature.[14]

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[6]Enercon India Ltd.,Daman v. Alloys Wobben Germany, W.P No.20165 of 2010;M.P Nos. 1&2 of 2010.
[7]Gale's Application [1991] R.P.C. 305 (C.A.)
[8]T 1173/97, 1999 OJ EPO 609
[9]Vicom/Computer–related invention T208/84 [1987] EPOR 74; [1987] OJEPO 14.
[10]American Telephone and Telegraph Company, T 204/93 OJ.
[11]T 0931/1995 OJ
[12]Controlling pension benefits system/PBS T-0931/1995.
[13]JOINT COMMITTEE ON PATENTS (SECOND AMENDMENT) BILL, 1999
[14]User manuals (Case C-406/10) EPC

An invention comprising functional features implemented by software is not excluded from patentability under Article 52(2) (c) [15]and (3)[16] of EPC[17]. Such technical considerations lend a technical nature to the invention in that they imply a technical problem to be solved by technical features.[18] An invention of this kind does not pertain to a computer program as such under Article 52(3), EPC.[19] In this context of the problem-and-solution approach, the technical problem means the aim and task of modifying or adapting the closest prior art to provide the technical effects that the invention provides over the closest prior art. From the above, it may be concluded that in ascertaining the patentability of an invention, the invention must be looked at a whole**.**

In order to obtain a patent, an invention must not be obvious to a person skilled in the art having regard to the prior art. But the difference between the claimed invention and the existing state of the art should be significant and essential to the invention.[20] It is essential that the invention must be of such nature that it involves a technical advancement as compared to the existing knowledge.[21] It is not enough that the claimed invention is new, i. e. that it is different from what exists in the state of the art. To be new in the patent sense, the novelty must be shown in the invention. There must be novelty in the mode of application.[22] The program is made up of hundreds, if not thousands, of smaller pieces of code.[23]The novelty in a program lies either in the manner in which these pieces are combined, or in an additional component or algorithm that is developed by the software creator. Software is a cumulative form of engineering, in that new programs rely heavily on old software, or at least on ideas obtained from old software. The novel portion of a program might just be a small part of the whole code base.[24]

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[15]The European Patent Convention, 5 October 1973Art 52(2) (c)

[16]The European Patent Convention, 5 October 1973Art 52(3)

[17]Graphic User Interface (Case C-393/09)

[18]Sohei/General Purpose Management System Case, 1995 OJ EPO 525; ECLI:EP:BA:1994:T076992.19940531.

[19]NAT/Bagging plant [1993] EPOR 517

[20]Blakey& Co. v. Lathem& Co. [1889] 6 RPC 184 (CA)

[21]Fomento v. Mentomore, 1956 RPC 87

[22]Robert L. Mitchell, Why Windows Should Think Small, COMPUTERWORLD, Aug. 25, 2003, at 37

[23]John S. Liebovitz, Inventing a Nonexclusive Patent System, 111 YALE L.J. 2251, 2284-85 (2002).

[24]Title 35 U.S.C. 101 (1994)

The patent statute itself expressly contemplates at "improvements" to other inventions are themselves a patentable category of invention[25], and even invites patent claims that declare their subservience to a previously patented invention.[26]

The Supreme Court stated that in the case, that even though the only new feature of the invention appeared to be the timing process controlled by the computer, it is patentable.[27] The court recognized that while a scientific truth, or the mathematical expression of it, is not patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.[28] In *Alice Corp. v. CLS Bank*[29] the Supreme Court set forth a two-part test for analyzing whether or not a claim is not patentable for claiming an abstract idea.

First, it is necessary to determine whether or not the claim is "directed to" an abstract idea. If a patent claim is "directed to" the right type of abstract idea, then it is necessary to determine whether or not the claim contains an "inventive concept" outside the abstract idea. It is trite law that you cannot patent a discovery, but if on the basis of that discovery you can tell people how it can be usefully employed, and then a patentable invention may result. This would be the case even though once you have made the discovery the way in which it can be usefully employed is obvious enough. [30]

Secondly, if a computer programme is not claimed by "in itself" rather, it has been claimed in such manner so as to establish industrial applicability of the invention and fulfils all other criterion of patentability, the patent should not be denied. In such a scenario, the claims in question shall have to be considered taking in to account whole of the claims. In *Arrhythmia Research Technology Inc. v. Corazonix Corp.*[31], it was concluded that there was practical application of an abstract idea (a mathematical algorithm, formula, or calculation), and hence patentable. The Court upheld in *Eibel Process Co. v. Minnesota & Ontario Paper Co.*[32], the validity of an improvement patent that made use of the law of gravity, which by itself was clearly non-patentable. Similarly The Court stated in *MacKay Co. v. Radio Corp.,*[33] that "While a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel

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[25]Pentec Inc. v. Graphic Controls Corp., 776 F.2d3 09 (Fed.Cir.1 985)
[26]Diamond v. Diehr, 450 U. S. 175 (1981).
[27]Gottschalk v. Benson, 409 US 63 (1972).
[28]958 F.2d 1053, 22 USPQ2d 1033 (Fed.Cir.1992)
[29] *Alice Corp. v. CLS Bank* ,573 U.S. 208, 134 S. Ct. 2347.
[30]Genentech Inc."s Patent (1987) RPC 553 at 556
[31]*Arrhythmia ResearchTechnology Inc. v. Corazonix Corp*, 958 F.2d 1053; 22 USPQ2d 1033.
[32]Eibel Process Co. v. Minnesota & Ontario Paper Co., 261 U.S. 45 (1923) .
[33]MacKay Co. v. Radio Corp, 306 U.S. 86 (1939).

and useful structure created with the aid of knowledge of scientific truth may be." If a route is obvious to try in response to a known problem, but the route chosen produces unexpected advantages, the result might be inventive.

Computer software or programs are instructions that are executed by a computer. These are in the form of source codes and object codes, which take a lot of skill, time and labor to develop them. Computer softwares have a market value and hence can be copied and used by unauthorized persons. These should hence be protected under a strict legal regime.

The Counter

In light of the aforesaid argument, The Guidelines for Computer Related Inventions (CRI) released by the office of the Controller General for Patents, Designs and Trademarks, can be interpreted in a different manner. It states that If, **in substance**, claims in any form such as method/process, apparatus/system/device, computer program product/ computer readable medium **belong to the said excluded categories, they would not be patentable.[34]** Even when the issue is related to hardware/software relation, the expression of the **functionality as a method is to be judged on its substance.** It is well-established that, in patentability cases, the **focus should be on the underlying substance of the invention, not the particular form** in which it is claimed. The Patents Act clearly **excludes computer programmes per se and the exclusion should not be allowed to be avoided merely by camouflaging the substance of the claim by its wording.[35]**

Section 3 of the Act lists down subject matter that cannot be patented, and Section 3(k) specifically states that "computer program *per se*" is not a patentable subject matter. These are very similar to the exclusions listed in Article 52[36] of the European Patent Convention (EPC), which governs patent law in Europe. And where the EPC uses the phrase "as such"[37]when it comes to computer programs, the India exclusions contain the equivalent phrase "computer program per se" The court in *re Lowry[38]* held that claims that recite a particular data structure are Non-patentable subject matter. In *Warmerdan,* re, the court affirmed the rejection of a claim

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[34]The Guidelines for Computer Related Inventions(CRI), 2017
[35]The Guidelines for Computer Related Inventions(CRI),2017.
[36]The European Patent Convention, 5 October 1973Art 52.
[37]The European Patent Convention, 5 October 1973Art 52(3).

[38]In re Edwards Lowry, 32 F.3d 1579; 32 USPQ2d 1031.

for a "method for generating a data structure which represents the shape of a physical object in a position".

By rejecting the 2004 Ordinance wording, Parliament has clearly shown that "technical application to industry" and "combination with hardware" does not make a computer programme patentable subject matter. One may also refer to the recently released Manual of Patent Office Practice and Procedure (2011) which clarifies ambiguities in respect of patentability. Even the manual does not provide for patentability of computer software in combination with hardware. The text in the Manual is reproduced below.

f. If the claimed subject matter in a patent application is only a computer programme, it is considered as a computer programme per se and hence not patentable. Claims directed at computer programme products 'are computer programmes per se stored in a computer readable medium and as such are not allowable. Even if the claims, inter alia, contain a subject matter which is not a computer programme, it is examined whether such subject matter is sufficiently disclosed in the specification and forms an essential part of the invention[39].

A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right[40].

Despite the absence of any formal requirement to show the existence of an invention as a precondition for patentability, number of recent decisions in the UK and the EPO has suggested that for an invention to be patentable it is necessary to show that the application discloses an invention[41]. In the UK, the decision of *Genetech v. Wellcome* where the Court of Appeal said that it was an essential requirement which "must be satisfied before a patent can properly be granted …that the applicant has made an **invention**"[42].

The new guidelines[43], by interpreting Section 3(k) in a manner that allows for granting of patents in the area of software, could result in programmers and start-ups having to write code

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[39]Manual of Patent Office Practice and Procedure (2011)

[40]Le Roy v. Tatham, 55 U.S. 156 (1852).

[41]EPO Guidelines C-IV, 1.1,2.2; EPC r. 27 and 29.

[42]Genentech, Inc. v. Wellcome Foundation Ltd., 798 F. Supp. 213 (D. Del. 1992).

[43]Guidelines for examination of Computer Related Invention(CRIs) 2015

in perpetual fear of infringing on some patent or the other. It is well-established that, in patentability cases, the focus should be on the underlying substance of the invention, not the particular form in which it is claimed. In reviewing earlier cases applying the rule that a scientific principle cannot be patented, the Court placed particular emphasis on the English case of *Neilson et al. v. Harford*, which involved the circulation of heated air in a furnace system to increase its efficiency. The English Court rejected the argument that the patent merely covered the principle that furnace temperature could be increased by injecting hot air, instead of cold into the furnace[44]. This reflects the long-held view that patent protection should not be available for purely abstract or intellectual creations.

Algorithms are not patentable subject matter, as they are mere expressions of abstract ideas, and not inventions in themselves. Computer programs, similarly, are abstract ideas. They only stop being abstract ideas when embodied in a machine or a process in which it is the machine/process that is the essential claim and not the software. That machine or process being patented would not grant protection to the software itself, but to the whole machine or process. Thus the abstract part of that machine/process (i.e., the computer program) could be used in any other machine/process, as it is not the subject matter of the patent. Importantly, just because software is required to operate some machine would then not mean that the machine itself is not patentable, just that the software cannot be patented in guise of patenting a machine. Therefore if the claims in any form such as method/process, apparatus/system/device, computer program product/ computer readable medium fall under the said excluded categories, they would not be patentable as it falls under the excluded category.

Under the Patent law, the considerations for any innovation to be considered for patent protection status are i) novelty, ii) inventive step.

An invention is not considered "new" if the claimed invention is publicly known or publicly used in India before the priority date[45].It is hence noted that the only novel feature of the invention was a computer program, and that the program itself was not patentable subject matter. The Court also stated the invention could not be patented "not because it contains a mathematical algorithm as one component, but because once that algorithm is assumed to be

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[44]Neilson et al. v. Harford(1841) 151 ER 1266; Web. Pat. Cases 295.

[45]Patents Act, No. 39 of 1970, **Sec.64(1)(e) of the Act**

within the prior art, the application, considered as a whole, contains no patentable invention[46].In Gottschalk v. Benson[47], it was held that the discovery of a novel and useful mathematical formula may not be patented. The court, in *Funk Bros. Seed Co. v. Kalo Co*. expresses a similar approach: "He who discovers a hitherto unknown phenomenon of nature has no claim to a monopoly of it which the law recognizes. If there is to be invention from such a discovery, it must come from the application of the law of nature to a new and useful end."[48]

The Supreme Court in *Bishwanath Prasad's case*[49]observed that prior public knowledge of the alleged invention would disqualify the grant of a patent.

In *Dann v. Johnston*[50], the Court held a patent on "machine system for automatic record booking keeping of bank checks and deposits" invalid for obviousness. The Court took a broader view of obviousness in the computer industry, focusing on whether the analogous systems to the patentees had been implemented in computers before .The clear implication of the opinion is that if a reasonably skilled programmer could produce a program analogous to the patented one, and if there was motivation in the prior art to do, the patented program is obvious.

Relying on its *Mayo v. Prometheus*[51] and *Bilski v. Kappos*[52] decisions, the Supreme Court unanimously decided that the claims in this case were unpatentable under Section 101[53]. Section 101 of the U.S. Patent Act defines the subject matter eligible for patent protection. It provides that "Whoever invents or discovers any new and useful process, machine,

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[46]Parker v. Flook, 1978 U.S. LEXIS 122; 198 U.S.P.Q. (BNA) 193.

[47]Gottschalk v. Benson,175 U.S.P.Q. (BNA) 673.

[48]Funk Bros. Seed Co. v. Kalo Co., 76 U.S.P.Q. (BNA) 280.

[49]Biswanath Prasad RadheyShyam v. Hindustan Metal Industries, AIR 1982 SC 1444.

[50]Dann v. Johnston, 425 U.S. 219 (1976).

[51]Mayo v. Prometheus, 132 S.Ct. 1289 (2012).

[52]Bilski v. Kappos 561 U.S. 593(2010).

[53]Patent Laws, 35 U.S.C. § 101

manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title."[54]

In *Bishwanth Prasad's* case[55], the apex court reiterated the above test and suggested three alternative conceptions of the same:

a. Whether the alleged invention lies so much out of the track of what was known before as not natural to suggest itself to a person thinking on the subject, it must not be the obvious or natural suggestion of what was previously known;

b. Was it for practical purposes obvious to a skilled worker in the field concerned, in the state of knowledge existing at the date of the patent, to find in literature then available to him; that he would or should make the invention the subject of the claim concerned.

In a recent order the India Patent Office stated, "...to control a new computer to cause it to perform desired operation, without special adaptation or modification of its hardware components, then no matter whether claimed as computing device or a method implemented in a type checking system is not patentable u/s 3(k)"[56]

In *re Bilski* decision[57]after rejecting the *State Street Bank* test, the majority set forth a single test for determining the patentability of processes. This test holds that a process is patentable if "(1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing." The machine-or-transformation test is "a useful and important clue" and "an investigatory tool" for analyzing whether processes subject matter eligible under Section 101. In effect, the machine-or-transformation test is now the default test for determining whether processes pre-empt an abstract idea at the U.S. Patent Office.

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[54]Patent Laws, 35 U.S.C. § 101

[55]User manuals (Case C-406/10) EPC

[56]Order dated Nov 23rd, 2012 in the matter of 6067/DELNP/2005 by Microsoft Corp.

[57]In re Bilski, 409 U.S. 63 (1972).

CONCLUSION

The arguments above reveal that under US Law, any new and useful process, machine, manufacture or composition of matter, or any new and useful improvement thereof is eligible for patenting. Unlike the EPO, there is no "technical effect" or "technical contribution" requirement for patent eligibility. The approach of the judiciary in these jurisdictions does not just vary, but is at times contradictory. In light of these, the office of the Controller General for Patents, Designs and Trademarks, released the Guidelines for Computer Related Inventions in 2017. The guidelines are in line with the EPO regulations. Nevertheless, in this age of globalisation, there is a need to harmonise the law relating to software patents as this would be in the interest of the booming industry and the society too. The World Intellectual Property Organisation, along with WTO must bring about this reconciliation through TRIPS.