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UNRAVELING THE COMPLEXITY OF SOFTWARE FUNCTIONALITY- C. Amirdhavarshini & Aradhana S Nair¹**Abstract**

Within the field of global patent law, software patenting is a fascinating narrative with a complex web of legal nuances and divergent perspectives. It looks at the various legal regimes influencing software innovation from a comparative viewpoint, including those of the US, the EU, and India. A thorough exploration of this area reveals essential details, such as the impact of past practices, such as the use of patents in the United States on modern software patenting tactics, the subtle differences between EU and Indian patentability standards, especially about technicality, and the delicate balancing act between promoting innovation and safeguarding market interests as mirrored in Indian statutes and rulings of courts. This research aims to equip policymakers and legal professionals with the information and resources they need to handle new legal issues in the ever-changing field of software development.

Keywords: Software, patent, computer programs, PCT, TRIPS.

Introduction

In the ever-changing world of technological innovation, intellectual property protection has become a top priority for many countries. The complex balance between promoting innovation and defending the rights of inventors and companies is reflected in the development of patent laws and international agreements. This historical tour transports us back to when industrialised nations functioned under separate patent laws and local offices, which changed as globalisation took hold.

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The Paris Convention of 1883 was an attempt to unify diverse national patent regimes and is considered a seminal event in the field of intellectual property². Based on reciprocal national treatment, it prioritised comity over patent law uniformity and set the stage for future international collaboration. The 1970 Patent Cooperation Treaty (PCT) introduced an important step forward, which introduced the idea of international one-stop patents³. These agreements, which the World Intellectual Property Organisation oversees, were designed to expedite the worldwide patent application procedure.

Coherent approaches to intellectual property became increasingly crucial as globalisation transformed the economic environment, spanning national borders. In 1995, the World Trade Organisation created the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) in response to this requirement. To harmonise the disparate patent laws around the globe, this historic accord established standardised minimum requirements based on those of developed countries. TRIPS, a component of the General Agreement on Tariffs and Trade (GATT), highlighted the international community's commitment to removing trade obstacles while addressing the complexities of intellectual property.

Software has become crucial in the rapidly developing field of technology, propelling economic expansion and revolutionising several industries. Due to its intangible character and the particular difficulties they presented, software inventions have to be protected. The significance of software intellectual property protection has increased significantly in the twenty-first century, as demonstrated by the rapid expansion of India's software services sector, which reached a peak of \$108.4 billion in 2017–18⁴. The swift progress of technology highlighted the need for strong intellectual property regulations specifically designed to handle the subtleties of software innovations. Intellectual property has recently gained notable momentum in India, primarily due to the increasing consciousness among the urban populace regarding the financial advantages of safeguarding intellectual property rights.

² Galvez-Behar, G., 'The 1883 Paris Convention and the Impossible Unification of Industrial Property' (2021) Patent Cultures. <<https://doi.org/10.1017/9781108654333.003>. > accessed 05 January 2024.

³ Patel, N., 'A-Z of the Patent Cooperation Treaty (PCT)' (2011) SSRN, <<https://doi.org/10.2139/SSRN.1922351>.> accessed 30 January 2024.

⁴ Pranjeeta Singh, 'Patent Protection in Software Related Invention', (2021) INDIAN Journal of Legal Research <<https://www.ijlrr.com/post/patent-protection-in-software-related-invention>> accessed 20 January 2024.

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India's patent law plays a pivotal role in this context, consistent with its core values of promoting scientific inquiry, innovative technology, and economic advancement. Nations now need to strike a careful balance between fostering innovation and maintaining fair competition because of the dynamic nature of software innovation and its revolutionary power across multiple industries. The process of software patenting in India has particular difficulties and factors in addition to mirroring worldwide trends⁵. The significance of substantial intellectual property protection increases as devices' technical functionality progressively moves from hardware to software.

Software Patenting

In the world of technology, "software" is a dynamic, multidimensional phrase that lacks a clear-cut, widely recognised definition. Computer software bridges computer users and computers, allowing machines to be operated with user instructions⁶. The two main categories into which these programmes can be divided are "application programmes" and "operating system programmes." The former is intended for specific activities carried out by the computer, while the latter controls the computer's internal operations to make application programmes more accessible. A licence agreement rather than a physical property transfer occurs when software is sold. Purchasers are issued a licence with specific rights that outline the permitted uses of the programme and limitations.

In general, a patent gives the possessor ownership rights over the innovation. In return for disclosing the idea to the public, this ownership includes the only right to manufacture, use, sell, and import the patented innovation for a set amount of time. The fact that there is no widely accepted meaning for the phrase "software patent" adds to the complexities of software patenting. It is observed that a software patent is generally referred to as a "patent on any performance of a computer realised using a computer programme." Another viewpoint is offered by Richard Stallman, a supporter of free software and co-developer of the GNU-Linux operating system, who claims that software patents include concepts utilised in software

⁵ Diallo, B., 'Historical perspectives on IP protection for software in selected countries worldwide, 25 pp. 19-25 (2003) World Patent Information, <[https://doi.org/10.1016/S0172-2190\(02\)00083-2](https://doi.org/10.1016/S0172-2190(02)00083-2)> accessed 20 January 2024

⁶ Nasution, N., 'PERANGKAT LUNAK KOMPUTER' (2020) OSF <<https://doi.org/10.31219/osf.io/h359z>> accessed 11 January 2024.

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development⁷. Software patents are an ongoing subject of discussion because of the inherently patentable nature of software concepts and their possible effects on competition and innovation.

A British patent application titled "A Computer Arranged for the Automatic Solution of Linear Programming Problems" was filed on September 21, 1962, marking the beginning of the history of software patents⁸. This innovative idea was centred on effective memory management for the simplex algorithm, which was solely accomplished by software. A turning point in the history of intellectual property was reached when the patent, which was awarded on August 17, 1966, is regarded as one of the first software patents.

The argument over software patenting has become more nuanced due to the legal identification of software as an item. The Supreme Court recognised software as "goods" in the *Tata Consultancy Services v. State of Andhra Pradesh*⁹ case, regardless of whether it was protected by intellectual property. Software taxes were imposed due to this acknowledgement, underscoring the importance of legal clarity and protection for intellectual property. Software IP protection is considered essential, particularly in the face of intense competition that makes software prone to quick obsolescence. The legal environment around software patents is crucial for influencing innovation, reshaping the software industry, and defending the rights of companies and inventors.

A significant obstacle in the complex web of software and patent law is the absence of a generally recognised standard for software patents. The ever-changing nature of technology highlights the intricacy of the problem, the intangibility of software, and the diversity of worldwide viewpoints. To successfully navigate the uncharted territory of intellectual property in the digital age, it is imperative to promote a sophisticated understanding of software, patents, and the ramifications of patenting software, especially as the legal landscape evolves.

Copyrighting Software

⁷Stallma, R., 'The Free Software Movement and the GNU/Linux Operating System.' pp. 426-426 (2006) IEEE Xplore <<https://doi.org/10.1109/ICSM.2006.68>> accessed 30 January 2024.

⁸ UJJWAL KUMAR BOSE, Patenting of Software, pp. 13 (2007) Academia <https://www.academia.edu/17388171/Patenting_of_Software> accessed 11 January 2024.

⁹ Tata Consultancy Services vs. State of Andhra Pradesh, (2005) 1 SCC 308.

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In India, copyright law is a legal structure intended to protect creative expressions, serving as the primary means of preserving software works. This investigation explores the complexities of copyrighting software in India, looking at pertinent legal laws, the value of uniqueness, and the global growth of software copyright protection. The Copyright Act of 1957 is the cornerstone of copyright protection in India. The Act's definition of "computer programme" places it in the category of literary works in Section 2 (ff). Computer programs are recognised explicitly as literary creations under Section 2(o) of the Copyright Act. It is crucial to emphasise that the Act includes source and object codes under the general heading of computer programs, making no distinction between the two.

Originality is a necessary condition for a work to qualify for copyright protection. By design, the Copyright Act safeguards ideas' expression rather than the ideas themselves. This means that the unique code and its artistic arrangement are protected against unauthorised copying in the context of software. A third party violates copyright if they make significant copies of another person's writing. Software protection in India is accomplished by submitting a copyright application that contains the source and object codes in a machine-readable manner. The Copyright Rules of 2013 stress in Rule 70(5) how crucial it is to include both the source and object code when registering a computer programme. Copyright protection is based on this condition, which guarantees a thorough comprehension of the creative aspects incorporated in the software¹⁰.

A third party's minor edits to a work that doesn't meet the necessary creative standards could be considered copyright infringement. When evaluating whether changes made to a software work amount to copyright infringement, the absence of a "flavour of the minimum requirement of creativity" becomes crucial.

The U.S. Approach

Different countries have taken different approaches to safeguarding intellectual property related to software. During the 1970s, copyright protection became the most popular way to protect software developments in the United States. According to its 1979 report, the National

¹⁰ Maria, C., 'Ch.5 Copyright and Related Rights.'(2020) Oxford Public International Law<<https://doi.org/10.1093/law/9780198707219.003.0005>.> accessed on 30 January 2024.

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Commission on New Technological Uses of Copyrighted Works (CONTU) suggested copyright as the best computer software protection type. After Congress took this stance, the term "computer program" was added to the Copyright Act in 1980.

Initially, the federal judiciary took a firm stance when granting copyright to software, giving inventors strong protection. Important decisions like *Apple Computer, Inc. v. Franklin Computer Corp*¹¹. reinforced copyright protection by rejecting the excuses offered by rivals for copying. Later rulings expanded the scope of copyright protection to include non-literal software components like organisation, sequencing, and structure. Nevertheless, several decisions in the 1990s, such as *Lotus Development v. Borland International Inc.*¹², limited the extent to which intellectual property connected to software was protected by copyright.

Copyright vs. Patent

Although copyright protection is an excellent way to protect software expression, it's essential to understand the subtle differences between copyright and patent protection. Copyright mainly guards the unique way ideas are expressed, emphasising software's literal and non-literal aspects. However, because patent protection aims to protect the fundamental concepts and functioning of software creation, it is frequently seen as a more rigorous and challenging option.

There is a high bar for acquiring patent protection, requiring proof of utility, novelty, and non-obviousness. For software innovators looking to get patent protection, this strict requirement, combined with the rapidly changing nature of technology, presents difficulties. For legislators and legal experts, striking a balance between encouraging innovation and avoiding intellectual monopolies remains challenging.

Need for protection

Open-source software, collaborative development techniques, and the growing complexity of software inventions introduce novel considerations for intellectual property protection. For legal systems worldwide, finding a balance in this dynamic environment between promoting innovation and protecting creators' rights is a constant issue. The terrain becomes even more

¹¹ *Apple Computer, Inc. vs. Franklin Computer Corp.*, 714 F.2d 1240 (3d Cir. 1983).

¹² *Lotus Development vs. Borland International Inc.*, 516 U.S. 233 (1996).

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complex when artificial intelligence, machine learning, and other cutting-edge technologies are incorporated into software development. Concerns about ownership, originality, and creative contribution in algorithmic works bring up complex legal and ethical issues. To guarantee that intellectual property laws progress in step with technological breakthroughs, policymakers and legal professionals need to be up to date on these innovations.

A complicated web of legal laws, international viewpoints, and growing trends weaves the voyage of copyrighting software in India. The Copyright Act gives authors a framework for protecting their software creations because of its broad approach to computer programmes. Even with all the obstacles, copyright protection is still a reasonable and easily implemented way to protect intellectual expression in the fast-paced world of software creation. The legal structures need to change to support innovation and offer strong protection for creators as technology advances at an unstoppable pace. In the current digital world, when code is the fabric of progress, software protection becomes legally required and a vital driving force behind further technical advancement.

Multilateral Treaties and Software Patenting

Multilateral treaties are essential for addressing issues, standardising practices among countries, and forming software patent frameworks. This investigation explores the nuances of software patents under three major multilateral agreements: the Patent Cooperation Treaty, the European Patent Convention, and the TRIPs Agreement. A thorough analysis of the subtle differences between each treaty offers valuable insights into the worldwide software patent landscape.

TRIPs Agreement

A historic agreement, the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs), is run by the World Trade Organisation (WTO). The TRIPs Agreement was enacted in 1995 to create a global framework for protecting intellectual property rights, including patents. Although TRIPs aim to harmonise intellectual property laws, there has been continuous discussion and disagreement about the clauses about software patents.

All technological inventions, including those about software, must be granted patent protection by TRIPs member nations. Nonetheless, TRIPs' ambiguous wording allows for different

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interpretations, which results in different strategies between member countries. The agreement gives nations latitude in deciding what constitutes an innovative step and industrial applicability for patents. Due to this flexibility, different countries have different policies regarding software patents; some have more lax guidelines, while others have more stringent ones¹³.

A significant factor in the worldwide acceptance of software as patentable subject matter is the TRIPs Agreement. However, the absence of clear criteria has made it difficult to achieve uniformity, which reflects the continuous battle to strike a balance between the need for innovation and worries about possible monopolies and barriers to competition. The debate around the patentability of software and computer-implemented innovations revolves around Article 27 of the TRIPs Agreement. According to this article, inventions in any technology sector are eligible for patent protection if they satisfy specific requirements, including novelty, inventive step, and industrial applicability¹⁴.

There are disagreements regarding the classification of software and computer-implemented innovations as technological domains due to the wording of Article 27. The provision's broad reach covers innovations across all technological domains, allowing for interpretation and variations in national strategies. There are questions because the TRIPs Agreement does not explicitly mention software, and there is room for interpretation as to how the agreement relates to software patentability. Even though the TRIPs Agreement is fundamental, there aren't many software patent dispute resolution processes. This lack of clear guidelines exacerbates the ambiguity surrounding software patentability under TRIPs.

European Patent Convention

A regional agreement that oversees the patent system in Europe is the European Patent Convention (EPC). Created in 1973, the European Patent Convention offers a uniform structure for patent protection among its participating nations. The EPC must carefully define patentability standards for software patents while negotiating the complex world of computer programs and algorithms. Specific subject matter, such as computer programmes," artistic compositions, and

¹³ Diallo, B., 'Historical perspectives on IP protection for software in selected countries worldwide' 25, pp. 19-25 (2003) World Patent Information <[https://doi.org/10.1016/S0172-2190\(02\)00083-2](https://doi.org/10.1016/S0172-2190(02)00083-2)> accessed 11 January 2024.

¹⁴ Fusco, S., 'TRIPs Non-Discrimination Principle: Are Alice and Bilski Really the End of NPEs?' (2015) IRPN: Innovation & International Intellectual Property Law & Policy.

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mathematical processes, are expressly excluded from patentability under Article 52(2) of the EPC. "As such" has been the focus of discussions and legal interpretations. The EPC recognises that computer programs in their abstract form are excluded, but it permits the patenting of technical innovations that constitute a creative and innovative technical contribution¹⁵.

Even when an invention involves software, patents have been awarded by the European Patent Office (EPO), which carries out the European Patent Convention, for innovations that contain a technological effect or address a technical issue. Under the EPC, evaluating whether an invention relating to software is mainly patentable depends on the "technical effect" standard. This sophisticated strategy aims to achieve a compromise between promoting creativity and prohibiting the patenting of purely conceptual ideas. The landscape of software patentability in the European environment is still being shaped by the development of case law and EPO recommendations. Maintaining consistency and clarity remains a significant difficulty as technology develops, calling for a flexible and dynamic approach to patent examination.

Patent Cooperation Treaty

Among international treaties about patent law, the Patent Cooperation Treaty (PCT) is notable for streamlining and simplifying the worldwide process of submitting patent applications. A single worldwide application under the PCT can be filed by inventors and accepted by several member nations. The worldwide protection of inventions, including software inventions, is facilitated by this centralised process. A worldwide search and preliminary examination will be carried out by International Searching Authorities (ISA) and International Preliminary Examining Authorities (IPEA), respectively, by the PCT. The PCT is significant because it gives innovators a standardised process for requesting worldwide protection, even if it does not directly address the patentability requirements for software.

The PCT is a valuable tool that inventors can use to negotiate different country patent rules and practices regarding software patenting. A worldwide strategy to acquire patent protection for software-related inventions is made more effective and unified by using international search and examination procedures.

¹⁵ Freeman, A., 'Patentable Subject Matter: The View from Europe' 3 pp. 59-80 (2011) International Free and Open Source Software Law Review <<https://doi.org/10.5033/IFOSSLR.V3I1.58>, > accessed 11 January 2024.

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USTPO Handling Software Patenting

In U.S. patent law, the continuation patent idea has a long history that dates back to at least 1863. In *Godfrey v. Eames*¹⁶, the US Supreme Court construed the Patent Act of 1836 to permit continuation petitions. Over time, important decisions like *General Talking Pictures Corporation v. Western Electric Company*¹⁷ and *Crown Cork & Seal Company v. Gutmann Company*¹⁸ supported the validity of ongoing applications. The 1952 Patent Act explicitly included the continuation of practice, securing its position in American patent law. The 1952 Patent Act explicitly included the continuation of practice, securing its position in American patent law. Under certain circumstances, such as the disclosure of the same invention, filing by the same inventor, simultaneous co-pendency, adherence to disclosure requirements, and a specific reference in the later application to the earlier one, the procedure permits an applicant to adopt the filing date of a "parent" application.

There are three continuation patents: division, continuation-in-part, and continuation. "Benefit of earlier filing date in the United States" authorises continuation and continuation-in-part, while "Divisional applications" authorises divisions individually. The continuing patent in software innovation introduces strategic benefits and problems. The unlimited continuation of an application permits a postponement of the ultimate determination of whether to grant or refuse a patent. However, there are issues with this strategic application, particularly in sectors where time-to-market is crucial.

The 1995 congressionally envisioned trade-off regarding the length of patent protection is less consequential for software developers due to software goods' short product life cycle. In contrast to sectors like pharmaceuticals with longer product life cycles, software developers might not find the incentives to maximise patent duration as vital.

Furthermore, modifications to U.S. patent law made in 1995 with the Uruguay Round Agreements Act (URAA) and 1999 with the American Inventors' Protection Act (AIPA) aimed to lessen the incentives for seeking submarine patents, which are typified by the filing of many

¹⁶ Godfrey vs. Eames, 68 US 317 (1863).

¹⁷ General Talking Pictures Corporation vs. Western Electric Company, 304 U.S. 175 (1938).

¹⁸ Crown Cork & Seal Co. vs. Ferdinand Gutmann Co., 304 U.S. 159 (1938).

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continuations to conceal applications while they are being reviewed¹⁹. The legislative amendments aimed to provide applicants with a disincentive by reducing the length of the patent term for each day that they delayed "continuation."

The deliberate use of continuations continues despite these legislative initiatives, particularly in instances such as the "synchronous memory device" patent held by Rambus, Inc. Rambus purposefully used continuations to postpone the patent's issuance for more than nine years, giving them more clout when requesting royalties from significant DRAM producers. The interaction between industry norms, ongoing practise, and this case highlights the possibility of hold-up tactics.

Open-Source Programmes and Continuation Strategies

The relationship between continuation patents and software innovation has become more complex due to the advent of open-source software. Because it frequently depends on being the first to market and reaching a critical mass, open-source software is exposed to the uncertainty that continuation patents bring. Patent applicants with a strategic bent can watch how open-source code is adopted, build organisations, and deploy resources alongside it. Applicants can amend application claims over several years using continuation practise, which enables the patent to be issued once organisations are "locked in." This could pose a risk to businesses that rely on open-source software for crucial tasks, such as software companies and non-software companies²⁰.

There are still loopholes even though filing continuations have lessened in benefits due to the publication requirement for patent applications after eighteen months. By declaring that they have no plans to submit a patent application in a foreign country with an eighteen-month publishing requirement, applicants might choose not to be subject to the publication requirement. Furthermore, the continuation approach may modify any specific claims disclosed in public disclosure while maintaining confidentiality.

¹⁹ Seoane-Vazquez, E., Rodriguez-Monguio, R., Szeinbach, S., Beyer, A., & Visaria, J., 'Analysis of the impact of the Uruguay Round Agreements Act on pharmaceutical patents.' 64 1 pp. 171-81 (2009) Food and drug law journal.

²⁰ Haig, A., Katz, R., & Sahgal, V., 'Mortality and complications of the locked-in syndrome.' 68 1, pp. 24-7 (1987) Archives of physical medicine and rehabilitation.

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EU Handling Software Patenting

European patents are awarded for new, inventive innovations that are new and have the potential for industrial use (§ 52 of the EPC). This is similar to the United States, where the *StateStreet Bank & Trust Company v. Signature Financial Group*²¹ case from the Supreme Court minimised the classification of innovations under § 101. The EU emphasises the three main requirements for patentability: inventive steps, industrial applicability, and novelty. E.P.C. Section 57 defines industrial applicability as the ability to apply the invention in any industry, including agriculture. This condition is similar to the U.S. usefulness requirement. But there's a big difference when it comes to software since for an innovation to be considered patentable, it needs to be technically sound.

The list of inventions that are not considered technical and are consequently not eligible for patent protection is found in E.P.C. § 52(2). This covers findings, hypotheses from science, mathematical techniques, works of art, plans, regulations, and strategies for carrying out mental tasks, engaging in commerce, and creating computer programmes. The explicit exclusion of "programmes for computers" is a significant obstacle to software patentability. The European Union's position regarding software patentability is consistent with its rejection of computer-related inventions that are thought to automate mental tasks. The requirement that inventions be technical in nature adds an extra level of scrutiny, which reflects the EU's cautious stance towards software patents.

A more nuanced view is presented in § 52, clause 3, which states that if the European patent application or patent itself pertains to such subject matter or activities as such, then the exclusions under clause two do not entirely exclude patentability. This "as such" condition is consistent with the *State Street* decision, which articulates a U.S. concept. In actuality, the European Patent Office (EPO) has concluded that if an invention is aimed at a technological procedure, it may still be patentable even if the fundamental concept is in prohibited matter. This

²¹ *State Street Bank & Trust Company v. Signature Financial Group*, 149 F.3d 1368 (Fed. Cir. 1998).

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emphasises the evaluation of the innovation as a whole, mirroring the ruling made by the United States in *Diamond v. Diehr*²².

Clarifying the EU's stance on software patenting is made more accessible by looking at particular situations. The Examining Division of the EPO rejected *Vicom Systems*²³' application for a method and apparatus for enhanced digital picture processing. The division determined that the method claims did not include a technological feature or did not relate to a mathematical approach. However, the Technical Board of Appeal overturned this ruling, stating that digital image processing is a practical endeavour and maintaining the patentability of a claim about a technical process, even if it is based on a mathematical technique.

Similarly, the EU has agreed with US rulings by highlighting the significance of considering an innovation holistically. The US position in *Alappat*²⁴, which holds that computer programs are patentable when they restrict a general-purpose computer to a particular use, is consistent with the need for an invention to employ technical means to be eligible for patent protection. The Board decided in *In re Sohei*²⁵, a case that brought to mind State Street, that an otherwise patentable computer programme retains its patentability even if specific characteristics fall under excluded subject matter. This is consistent with the American belief that adding functionality might improve software creations' patentability.

There are commonalities between the EU and US legal bases for patentability. However, there are issues and objections, especially with the technicality needed and the omission of several topics, such as business methods. The EU's stress on technicality for patentability creates complications, and the "as such" condition casts doubt on the extent of protection afforded to software ideas. Critics contend that European innovators may be discouraged by the seeming clarity of European statute provisions, which could lead to the presumption that computer programs are not patentable. Ironically, U.S. and Japanese companies have frequently received the bulk of software patents issued in Europe; some speculate that this pattern may be due to cultural differences in how patent law is approached.

²² *Diamond v. Diehr*, 450 US 175 (1981).

²³ T 0208/84 (Computer-related invention) 15-07-1986.

²⁴ *In re Alappat*, 33 F.3d 1526, 1545 (Fed. Cir. 1994) (en banc).

²⁵ *In re Sohei*, EPO OJ 525 (1995).

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Europe's lack of a best mode criterion presents difficulties for inventors hoping to expand their patent rights internationally. It is crucial to comply with the differing requirements of various jurisdictions because the absence of the best mode from the European patent application could compromise the patentability of the invention in the United States. The Ideal Mode Dilemma calls into doubt the worldwide harmonisation of patent laws. Best-mode disclosures become crucial when inventors work through the complexities of software patenting, particularly in an environment where seeking worldwide protection is the goal.

India Handling Software Patenting

The Indian Patents Act of 1970 provides the basis for software patentability in India. The requirements for patentability are outlined in this statute, focusing on industrial applicability, inventive steps, and originality. Nonetheless, computer programs "per se" are expressly excluded from patentability under Section 3(k) of the Act. Confusion over the term "per se" has it is still unclear what body of case law exists in India regarding the patentability of computer programmes. The Intellectual Property Appellate Board (IPAB) has rendered decisions that have attempted to clarify specific legal issues. Notable examples include *Yahoo! Inc. v. Controller of Patents and Designs* and *Accenture Global Service GmbH v. Assistant Controller of Patents and Designs*.

In *Yahoo! Inc. v. Controller of Patents and Designs*,²⁶ the court ruled that the patentability of innovation about computers established a precedent for similar issues involving software patents in India in the future. The court ruled that while a computer program without technical use is not patentable, computer programs might be. The second case was *Accenture Global Service GmbH v. Assistant Controller of Patents and Designs*²⁶, which concerned the patentability of a supply chain management computer program. The invention did not entail any technical development or effect; hence, the court decided it was not patentable. By determining that a computer program "per se" is not patentable but that one with an apparent technological use may be eligible for patent protection, the *Yahoo! Inc.* decision established a precedent. Conversely, the *Accenture*

²⁶ *Accenture Global Service GmbH v. Assistant Controller of Patents and Designs*, OA/22/2009/PT/DEL.
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Global Service case highlighted that patentability requires a proven technical innovation or effect, which resulted in discussions and legal ambiguities.

The patentability of a software application used to manage and analyse financial transaction data was at issue in the case of *Ferid Allani v. Union of India*²⁷. The invention did not entail any technical development or effect; hence, the court decided it was not patentable. The patentability of a method for producing steel ingots was at issue in the case of *Biswanath Prasad Radhey Shyam v. Hindustan Metal Industries*²⁸. The court decided that if a procedure uses a computer program with a technological impact, it might be patentable. In *Koninklijke Philips Electronics N.V.'s case*²⁹, the patentability of an image-processing computer program was questioned. The invention did not entail any technical development or effect; hence, the court decided it was not patentable.

In the case of *Tata Consultancy Services Ltd. v. Assistant Controller of Patents and Designs*³⁰, Tata Consultancy Services Ltd. was permitted to patent a technique for enhancing computer system performance. The court deemed the invention patentable because it went beyond simple computer programming and had a technical impact. In the matter of *Microsoft Corporation v. Assistant Controller of Patents and Designs*³¹, a patent for a software program's user interface generation technique was awarded to Microsoft Corporation. The court deemed the invention patentable because it went beyond simple computer programming and had a technical impact.

These instances indicate that software patents are issued in India. Still, the grounds for the patentability of software programs are not well-defined and have been the subject of much dispute and controversy. The courts have sought to clarify various areas of the law, but a precise and uniform methodology for establishing the patentability of software programs is still absent.

Conclusion and Recommendations

²⁷ Ferid Allani v. Union of India, WP(C) 7 of 2014.

²⁸ Biswanath Prasad Radhey Shyam v. Hindustan Metal Industries, AIR 1982 SC 1444.

²⁹ KONINKLIJKE PHILIPS ELECTRONICS N.V. vs. RAJESH BANSAL, SOLE PROPRIETOR, MANGALAM TEHCNOLOGY, CS COMM--24/2016.

³⁰ Tata Consultancy Services Ltd. vs. Assistant Controller of Patents and Designs, (2021) 02 IPAB CK 0014.

³¹ Microsoft Corporation vs. Assistant Controller of Patents and Designs, Sr. No. 350/2014/PT/DEL and Order No. 86 of 2015.

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In conclusion, the debate over software patentability in India highlights the need for a careful balance between encouraging innovation and defending inventors' rights. The complex discussion around software patentability in India highlights the need for a careful balance between protecting the rights of inventors and promoting innovation. When software patents are closely examined, the potential advantages of exclusive rights and remuneration for creators become evident. Nonetheless, legitimate worries are raised over the possible stifling of original concepts and innovations, which would impede advancement.

Examining copyright protection as a workable substitute presents an interesting viewpoint. Copyright is an easy and affordable solution since it is immediately granted upon creating a literary or creative work. This is especially true for software since software is classified as a scholarly work under the Indian Copyright Act of 1957. As software-related ideas tend to be cumulative and iterative, the benefits of copyright protection become apparent. The argument favouring copyright over patents is further supported by the global acknowledgement of copyright protection, demonstrated by instruments like the Berne Convention of 1971 and the Universal Copyright Protection Convention of 1971. Since software does not yet have a global patent protection mechanism, copyright protection offers Indian SMEs a practical solution that is globally enforceable.

In light of the inherent flexibility of a copyright regime, it becomes imperative to adopt defences such as fair use and fair dealing. These defences enable native developers to work with protected programmes already in place, encouraging the creation of better software versions and compatibility between various operating systems. The paper acknowledges the need for additional support and recommends drawing on the solid copyright protection case law of the United States. Enhancing the protection of creative expressions by fortifying copyright laws can guarantee that Indian software SMEs are adequately protected and compensated in the event of infringement.

In light of these factors, in the Indian context, software copyrights should be preferred over patents. The complex aspects of duration, scope, protection level, and enforcement protocols come together to bolster the claim that copyright protection offers a more favourable environment for the changing software innovation scene. Software patents are thought to place a

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more significant financial burden on Indian software SMEs, so reforms to the current copyright laws are being advocated for instead of a more stringent patent protection barrier. Ultimately, the aim is for a progressive legal framework that considers emerging technologies, keeps pace with global trends, and supports strong protection for the innovative ideas that fuel India's software sector.



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