INTELLECTUAL PROPERTY AND OPEN-SOURCE SOFTWARE: BALANCING PROTECTION, INNOVATION AND COLLABORATION IN INDIA

Priyanshu Raj[*]

Abstract: Intellectual Property Rights (IPR) are among the most essential issues in the protection of creative works such as software in India. Nevertheless, the advent of open-source software (OSS) has turned the spotlight on a new era that is oriented towards unmasking, cooperation and community development and therefore the traditional ideas of ownership are sometimes put to a question. This paper proposes a study which examines the connection between IPR and open-source software, with a particular emphasis on the Indian context. It elaborates on the current legal framework, conducts a rigorous analysis of citation, ruling and offers a balanced middle course that grants protection while fostering innovation. Through evaluating both the merits and difficulties of the two models, this paper underlines how a combined solution could enhance the software developers, users and the whole digital economy in India.

Keywords: *Intellectual property rights, Innovation, Legal framework, Open-source software*.

[*] Undergraduate Student, Christ (Deemed to be University), Bengaluru, India

I. INTRODUCTION

The Indian software industry is showing a very high growth rate and it is actually causing the nation's rapid development in the research sector. While these provide the means to safeguard creator's rights and encourage innovation, the open-source software movement calls for total freedom, modification and distribution of software. This dichotomy raises several questions such as: Indian law's approach to strike a balance between promoting invention through intellectual property and encouraging sharing through open source? In what way do the existing legal frameworks and judicial interpretations contribute? How can creators, developers and end-users benefit from a hybrid model in India? This paper seeks to address these questions by expressing the legal scenario, pointing out suitable case laws and recommending a compromise that favours both security and open access.

Intellectual Property Rights are the legal tools for the safeguarding of intellectual creations of the human mind such as inventions, creative works and designs, which grant exclusive rights to the inventors. As software is a fundamental part of modern business, IP rights become vital to safeguard the work of developers and companies in communication and daily life. Software copyright, patents, trade secrets and trademarks are various ways to protect it, each has specific limits and complications. Thus, IPR in the context of software is mainly comprehended with copyrights, patents and trade secrets.

Sections 13 and 14 of the India Copyright Act, 1957 defines software as a literary work. Copyright grants the author an exclusive right to clone, sell and amend the software which thus protects the particular form of expression of ideas and not the ideas themselves. Software begins as an idea or concept in the mind of a creator. For instance, a programmer might conceive of an algorithm to solve a particular problem or a unique approach to designing a user interface. These initial concepts and ideas are intangible and cannot be copyrighted, expressions written in a programming language or as object code qualifies for copyright protection.[1] Copyright protects the specific arrangement of code, the structure and its expression as written by the author, provided it meets originality requirements. The time limit for this kind of protection is 60 years from the date of publication.

The Patents Act, 1970 gives software copyrights, but with certain limitations. Under section 3(k), "a mathematical or business method or a computer program per se" are not patentable.

[1] D. S. Chisum et al., 'LaST FRONTIER CONFERENCE REPORT ON COPYRIGHT PROTECTION OF COMPUTER SOFTWARE' (1989) 30(1) Jurimetrics 15–33

Nevertheless, software can be patented and if it is coupled with a hardware component, then it is considered novel. The case that came out of *Ericsson v. Intex Technologies,*[2] highlighted the conditions under which a software-related invention can be granted a patent, stressing the importance of a technical contribution emphasizing that for software-related inventions to be patentable in India, they must involve the aspect of novelty beyond standard software functions i.e., the invention must be new and not disclosed or available to the public before the patent application is filed. If an invention lacks novelty, it cannot be patented. Ericsson's patents were upheld as they integrated hardware and software, contributing to mobile communication technology.

All software firms are free to control their rights by means of trade secrets. A trade secret can be any information in India that is confidential and not available in the public domain. Indian law protects the trade secret by a contract and not by law. Employers usually put confidentiality clauses in the employment contracts for the employees to not disclose or use the sensitive information without permission. India currently lacks a dedicated Trade Secrets Protection Law, despite discussions and proposals for introducing a Trade Secrets Bill. In the absence of specific legislation, trade secrets are protected indirectly through contractual agreements such as Non-Disclosure Agreements and common law principles related to breach of agreements. However, these mechanisms are often inadequate for industries that heavily rely on confidential information, particularly the software industry. The software sector depends on protecting proprietary assets like source code, algorithms and internal processes which are often more effectively safeguarded as trade secrets rather than patents due to their evolving nature and the need for confidentiality. A well-defined trade secret law would offer several advantages, including safeguarding critical software components without requiring public disclosure, providing long-term and cost-effective protection and enabling immediate security without lengthy registration procedures.

The absence of such a law exposes Indian software companies to a high risk of misappropriation, with limited legal remedies against theft or misuse of proprietary information by employees, competitors or cybercriminals. This legal gap discourages innovation, as companies may hesitate to invest in developing unique software solutions without assured protection. Furthermore, the lack of robust trade secret protection makes India less attractive to foreign investors and multinational technology companies that prioritize strong intellectual

[2] *Ericsson v Intex Technologies*, [2015] SCC OnLine Del 8227

property safeguards. This situation also undermines the global competitiveness of Indian software firms, as their innovations are more vulnerable to exploitation, India's failure to implement similar protections places its software industry at a disadvantage in the global market. Establishing a dedicated trade secrets law is essential to fostering innovation, enhancing investor confidence and securing the competitive edge of India's rapidly growing software industry.

Every form of IP protection has some advantages and disadvantages regarding the development of software. Copyrights are quite simple to issue, but they are restrictive for the code's expression; patents are strong in terms of protection but the issue lies in the challenge of getting them for a software; trade secrets are private but they are exposed to possible independent invention; trademarks safeguard the branding instead of the software itself. The real problem is to decide the proper form of IP protection that fits a particular software and the goals of the developer or company. A reasoned recognition of these fields is the only way that software designers can protect their artworks while leaving innovation and collaboration not discouraged in the tech sector, as the tech ecosystem has to be nationwide blossoming.

India has a positive view of the IP protected software, which is the result of various international treaties, especially the TRIPS Agreement (Trade-Related Aspects of Intellectual Property Rights). This agreement requires member countries to guarantee a minimum standard of IP protection.[3] The narrow interpretation of the law is in line with the global practices, but it also creates confusion for the inventors. The case of *Microsoft Corporation v. Rajendra Pawar & Anr.*[4] is one of the cases that have brought to the fore the issue of patent law complexities in software innovations and showed how competent the Indian intellectual property law is, Microsoft had a disagreement with Pawar because it believed he had illegally used and disseminated its software, breaking laws. The lawsuit primarily concerned copyright concerns, but it also addressed patent registration in India. According to Section 3(k) of the Indian Patents Act, 1970 computer programs do not qualify as software for patent protection. As a result, there are few legal options for protecting such new software. The court ruled in favour of Microsoft, confirming that the software constitutes a literary work under the Copyright Act of 1957.

[3] 'WTO | Intellectual Property - Overview of TRIPS Agreement' <https://www.wto.org/english/tratop_e/trips_e/intel2_e.htm#geographical> accessed 9 October 2024.
[4] *Microsoft Corporation v Rajendra Pawar & Anr.*, [2008] SCC OnLine Bom 127

II. OPEN-SOURCE SOFTWARE: CONCEPT AND LEGAL FRAMEWORK

Open-source software (OSS) is a distinctive feature of its accessibility. OSS licenses have allowed users to access, modify and share the source code.[5] This implies that developers can cooperate across boundaries and use each other's work to expand. This model is in stark contrast to proprietary software, where the source code is usually hidden and is not accessible to the public. OSS encourages the development of a cooperative environment in which the community's total knowledge is used. It cuts down the costs of development, increases the clarity of processes and causes the speed of bug fixes and improvements to be faster. In India, OSS has played a significant role in the digital inclusion process by supplying low-cost software alternatives to government and educational institutions.

However, OSS has its own set of legal struggles, mainly related to the execution of licences and the possibility of non-compliance with the licences. The enforceability of open-source licenses under Indian law is an evolving area. Indian courts have not extensively dealt with OSS disputes, leaving much of the legal interpretation to international precedents. It can be inferred from the case of *Jacobsen v. Katzer*[6] (United States), where the court had upheld the enforceability of the Artistic License, recognising that violating an open-source license can result in copyright infringement.

III. CHALLENGES WITH LICENSE COMPLIANCE

Open-source projects typically encounter hurdles in the guarantee that the license terms are adhered to, especially in the case where a company mixes proprietary products with open-source parts without meeting the obligation of the license. For example, GPL-licensed software needs to be derivative works that are open-source too, however, many companies do not disclose their modifications, which can lead to potential legal disputes[7].

The judiciary on open-source software remains limited, but existing IP cases provide some guidance on how the courts might interpret the open-source issues. In the case of *Eastern Book Company v. D.B. Modak*[8], the court distinguished between the expression of an idea and the idea itself, held that a principle applied to software licensing where the code is protected but

[5] 'What Is Open Source?' <https://www.redhat.com/en/topics/open-source/what-is-open-source> accessed 9 October 2024.
[6] *Jacobsen v Katzer*, 535 F.3d 1373 (Fed. Cir. 2008).
[7] 'Understanding the Different Types of Open-Source Licenses' <https://www.extentia.com/post/understanding-the-types-of-open-source-licenses> accessed 9 October 2024.
[8] *Eastern Book Company v D.B. Modak*, [2008] 1 SCC 1.

the functionalities derived from it may not be. As India's software industry grows, the judiciary may turn to international judgments for direction. The recognition of open-source licenses as enforceable contracts in jurisdictions like the United States and the European Union could serve as persuasive authority helping to shape India's approach with respect to the OSS disputes.[9]

IV. PHILOSOPHICAL JUSTIFICATIONS FOR GRANTING IP PROTECTION TO OPEN-SOURCE SOFTWARE

The Good Enough Principle in Labour Theory

John Locke's Labour Theory for one is advanced and it states that a person can own the fruits of his labour. In the realm of IP, we are recognizing the rights of those people who as a result of the effort they have employed have been able to come up with innovations. However, the Good Enough Principle emphasizes the necessity of leaving certain elements of these creations in the public domain. By doing so, society benefits from the knowledge or tools provided by the innovation, while the creator still receives acknowledgment and rewards.

In open-source software, this principle applies as to when developers release their code under permissive licenses allowing others to use, modify and distribute it. For instance, the Linux operating system exemplifies the Good Enough Principle by enabling widespread access while fostering innovation through collaborative improvements. This approach ensures that the labour invested in creating software does not isolate the benefits to a limited group but extends to the broader public.

Utilitarian Theory: Maximizing Social Net Worth

The Utilitarian Theory, which holds the principle of "the greatest good for the greatest number" makes another striking claim. It assumes that IP laws should do their utmost to balance between exclusivity, incentivize creators work and public access, ensuring widespread benefit. By offering creators time-bound protection, IP law fosters innovation while eventually transferring the benefits to the public domain, aligning with the utilitarian goal of maximizing social net worth. As the concept of patent expiration aligns with utilitarian principles. While exclusivity allows inventors to recoup investments and profit, the eventual expiration ensures public access, enabling further innovations and societal benefits. In the context of open-source

[9] 'Blog, ACIPR - Alliance Center for Intellectual Property Rights | Alliance University' <https://www.alliance.edu.in/committees/acipr/blog/2023-07-15-open-source-software-and-the-rights-involved-in-it.php> accessed 9 October 2024.

software, the release of source code under community-driven licenses ensures that both the creator and society benefit sustainably.

Incentive Theory: Driving Innovation Through Rewards

The Incentive Theory focuses on motivating creators by offering legal protections and financial rewards. It posits that without proper incentives, individuals may lack the motivation to invest time and resources in creating new products or ideas. In software development, proprietary licensing often follows this model, ensuring creators can monetize their work. However, open-source platforms introduce innovative incentive structures such as community recognition, sponsorships and donations that motivate developers even without strict exclusivity. This hybrid model demonstrates that financial incentives and community driven motivations can coexist to drive innovation.

Personality Theory: A Limitation

The Personality Theory views intellectual creations as extensions of an individual's personality, arguing for strong and enduring rights over those creations. While this perspective justifies granting robust protections to creators, it can conflict with the collaborative and shared nature of open-source software. Personal rights might discourage creators from releasing their work for public use or hinder others from building upon it. In the context of open-source development, where collective contributions are essential the rigid individualism of the Personality Theory limits the fluid exchange of ideas and innovation.

One of the prominent contradictions for the open-source community is whether or not the risk of code misappropriation is erosive or constructive. Businesses have a free hand to incorporate the open-source software, change its features and subsequently release it as a proprietary software product with no contributions to the community whatsoever.[10] The latter situation in which companies practice such a thing, can be viewed as the open-source development community being undermined by their non-respect towards the collaborative spirit of the open-source. Thus, they discourage developers from contributing to open-source projects. Overcoming these hurdles requires a "two-way street" approach proposed where basic principles of open access and rights of creators will be respected.

[10] 'The Risks and Rewards of Using Open Source Software: | Volpe Koenig' <https://www.vklaw.com/ImagineThatIPLawBlog/the-risks-and-rewards-of-using-open-source-software> accessed 9 October 2024.

Balancing IP Protection and Open-Source Software

The struggle between proprietary rights and open-source models is a major problem in the digital era and it is not easy to deal with. Although proprietary models depend upon the exclusivity of IPR to guarantee profitability and software distribution control, open-source models highlight the free sharing of information, collaboration and accessibility.[11] These differing approaches create a complex landscape that must be navigated with care, especially in India where both models play crucial roles in the software industry.

Companies that provide proprietary software invest a lot of money in creating and protecting their products with copyright and patents that allow them to earn back the capital they've invested, whereas open-source pragmatists claim that free distribution of the software material promotes intellectual creativity, allows cost cuts and thus speeds up the growth of technology.[12] This difference in perspectives is often a source of a dispute concerning licensing, code integration and the use of open-source components in proprietary software.

IP law is a mechanism that makes the interests of creators and society equal by protecting creations, but requiring the creators to share their knowledge with the public. This equality is especially vital when we talk about open-source software, as such manner of creation allows development of innovative ideas based on principles like open source and accessibility. To navigate this complex dynamic, theoretical underpinnings such as the Labour Theory and Utilitarian Theory offer insightful frameworks for addressing the tension between exclusivity and public benefit.

The Role of Hybrid Licensing Models

Licensing hybrids, which are a quite recent mix of free software and proprietary-use licenses for their utility in IP's protection and compliance of open-source principles, are proposed as a workable approach. The models that maintain such a midpoint stance enable the companies to release some components of the software under the open-source licenses while the proprietary rights on the rest are kept.[13] Dual licensing strategy in which the same software is published under both an open-source license and a commercial one. For instance, dual licensing is a

[11] Legal Foundations, 'Protecting Intellectual Property in the Age of Open Source Software - Legal Foundations' (15 February 2024) <https://legalfoundations.org.uk/blog/protecting-intellectual-property-in-the-age-of-open-source-software/> accessed 9 October 2024.
[12] 'OSS and Software Patents: Conflict or Synergy?' <https://www.rentschpartner.ch/en/blog/blog-posts/oss-and-software-patents-conflict-or-synergy> accessed 9 October 2024.
[13] Ananth Padmanabhan, 'Free and Open Source Software and the Twin Tragedies' (2016) 12 Indian Journal of Law and Technology <https://repository.nls.ac.in/ijlt/vol12/iss2/3> accessed 9 October 2024.

popular database management system[14] that allows it to offer an open-source version under the General Public License while providing the commercial version for companies that prefer to keep their modifications proprietary.[15] Thus, it enables the developers to take advantage from the community contributions and on the other hand, it allows them to earn revenue through commercial licensing.

Red Hat which is involved in providing enterprise level open-source solutions in a bleeding-edge manner has innovatively availed the discussed hybrid model[16]. Indeed, Red Hat has developed a sustainable business model that adheres to the open-source principles by providing open-source software with paid support and customization services. Thus, this shows that open-source can generate revenue without losing its focus on transparency and collaboration, which consequently paves the way for the Indian software industry to follow this model.

V. PROPOSED LEGISLATIVE REFORMS

Legislative reforms on the balanced interplay of IPR and open-source software can be the answer. These reforms will be directed towards the clarification of the legal status of open-source licences, solving compliance issues and promoting the use of open-source solutions in public and private sectors. The Indian law must set out a clear definition of open-source licenses so they can be identified as legally enforceable contracts. This will guarantee that the legal channels can be used to resolve the complaints of licence terms such as not issuing the derivative works under the same licence.[17] Amendments made to the Copyright Act, 1957 besides the inclusion of open-source licences, would increase the enforceability of the copyrights and provide a clear framework for the resolving of the disputes.

The Indian government can offer major support in the promotion of open-source software by providing tax deductions to companies, grants and subsidies for those who spend on open-source projects. Also, the government's agencies along with public institutions should make it a priority to procure solutions based on open-source in their procurement policies, thereby, creating a culture of openness and collaboration. The Digital India initiative, which is a focus

[14] 'Z/OS Basic Skills' (28 June 2023) <https://www.ibm.com/docs/en/zos-basic-skills?topic=zos-what-is-database-management-system> accessed 8 December 2024.
[15] 'Dual Licensing Explained: Top 3 Software Licensing Models | Black Duck Blog' <https://www.blackduck.com/blog/software-licensing-decisions-consider-dual-licensing.html> accessed 9 October 2024.
[16] *Red Hat Inc v The SCO Group*, No. 03-772, Plaintiff's Complaint, Count II, 74-77.
[17] David McGowan, *Intellectual Property Challenges in the Next Century: Legal Implications of Open-Source Software*, 2001 U. Ill. L. Rev. 241.

on the use of technology in closing gaps in the delivery of public services, can be a platform for such initiatives.[18] A more subtle interpretation of section 3(k) of the Patents Act, 1970 can assist in meeting the demand of the open-source community with the software patentability issue. Instead of a general exclusion of software patents, the emphasis could be on the granting of patents for software innovations that are considered to be a significantly contributing technical solution. This way, the software innovations will be kept safe from theft of patent rights with patent exclusivity being abused.

VI. BENEFITS OF A BALANCED APPROACH FOR AUTHORS AND DEVELOPERS

A balanced stance towards both IP protection and open-source principles can boost innovation by joining the advantages of both models. Proprietary protections are a safety net and the companies are the ones who can only result from their research and development work. Along with that, open-source models provide the developers with more freedom, teamwork and the sharing of ideas which ultimately helps them to make quality software solutions.[19]

Achieving harmony between rewarding inventors and benefiting the public is central to both Labour and Utilitarian theories. Excessive exclusivity may hinder collaboration and innovation, while insufficient protection may discourage creators from investing time and resources in new projects.

In India, this balance can be observed in initiatives like the National Open Digital Ecosystem (NODE), which promotes open standards and public access while rewarding contributors. Similarly, the open-source movement in India's software industry underscores how intellectual property laws can be tailored to foster innovation while ensuring accessibility.

Indian software companies can definitely benefit from the collaboration between the proprietary and open-source communities as they will be able to reach a wider talent pool and create more flexible and resilient software solutions.[20] This point is particularly important regarding the debate over difficult topics like cybersecurity and artificial intelligence, as getting together the developer's know-how can significantly enhance the outcome. Small and Medium

[18] Annamaria Conti and others, 'Incentivizing Innovation in Open Source: Evidence from the GitHub Sponsors Program.'
[19] *Why You Need an Open-Source Software Strategy*, BOSTON CONSULTING GROUP (Oct. 14, 2021), https://www.bcg.com/publications/2021.
[20] Maher, E., *Open-source Software: The Success of an Alternative Intellectual Property Incentive Paradigm*, 10 Fordham Intell. Prop. Media & Ent. L.J. 619 (2000).

Enterprises (SMEs) are the ones that usually do not have the funds to buy the expensive proprietary software and they can use the open-source solutions adoption so they can benefit from the open-source solutions adoption. By decreasing costs, OSS allows SMEs to be on par with the larger companies in the market and thus, the inclusion of such players in the digital economy will be further enhanced.[21] Although, it is the transparent IP protections that allow SMEs to be free to create their own software without the worry of infringement.

Enhancing Access to Technology

A large number of people living in India are at risk of falling into the digital divide trap and actually, for bridging the digital divide in India affordable high-quality software is vital. Balanced solutions that entail the combination of open-source applications and contributing public services, education and small entrepreneurship can open up the technology space for all.

The National Knowledge Network (NKN) is an example of how open-source solutions can be integrated into India's educational infrastructure. The use of open-source software from the backbone has allowed the NKN to provide cost-effective connectivity to educational and research institutions throughout India.[22] Open-source software is the core element of digital literacy development as it allows people to know how software works and to change it to their liking. By integrating open-source software in schools and colleges across the country, India can groom a new breed of developers who are equally skilled in the principles of proprietary and open-source software development.

VII. CONCLUSION: TOWARD A SYNERGISTIC FUTURE

The relationship between intellectual property rights and open-source software is filled with conflict, but it also presents opportunities. As India walks its way up the ladder to being a leader in the global software sector, it is important to have a balance between these two paradigms which will be the key for sustainable growth. A hybrid approach that dually accepts the importance of IP protection and open collaboration can be the way to ensure that the process of innovation is encouraged and at the same time the results of technological advancements are equally distributed. The interplay of the Good Enough Principle from Labour Theory and the

[21] 'Empowering SMEs: Unleashing the Power of Open Source BI Tools for Data-Driven Success' <https://www.technaureus.com/blog-detail/open-source-bi-tools-for-sme> accessed 10 October 2024.
[22] SV Raghavan, 'E-Science Infrastructure: National Knowledge Network (NKN) Initiative' (2014) 2 CSI Transactions on ICT 207.

maximization of social net worth under Utilitarian Theory underscores the need for balanced intellectual property frameworks.

Through targeted legislative reforms aiming at open-source models adoption and collaboration with both proprietary and open-source communities, India can create an environment in which both creators and users benefit. This balanced approach has the potential to accelerate India's digital transformation, drive economic growth and establish a robust ecosystem for software development that serves the interests of all stakeholders.

With technology continuing to evolve, this balance ensures that creators are incentivized while the public reaps the benefits of innovation. Ultimately, fostering an environment where rewards and accessibility coexist sustains a virtuous cycle of creation and collaboration, aligning with the broader goals of societal progress and innovation.