

CHALLENGES OF INTELLECTUAL PROPERTY RIGHTS IN THE DIGITAL ERA IN INDIA

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ABSTRACT

India's intellectual property legislation the Copyright Act 1957, the Trade Marks Act 1999, the Patents Act 1970, and the Information Technology Act 2000 was designed for a world of physical goods and straightforward commercial transactions. Each of these statutes now faces structural challenges in the digital age. Online piracy costs domestic industries substantial revenue annually. The safe-harbour provision in Section 79 of the IT Act imposes a court-order requirement before platforms are obliged to remove infringing content, creating an enforcement lag that prejudices rights-holders. Section 3(k) of the Patents Act inadequately protects software innovations. The rapid emergence of generative artificial intelligence raises fundamental questions — about the identity of the legal 'author' and the lawfulness of ingesting copyrighted works as training data — that existing legislation does not resolve.

This paper examines these challenges in light of Supreme Court decisions and Delhi High Court jurisprudence, in particular the dynamic injunction doctrine developed in *UTV Software Communications Ltd v. 1337X.to*. It draws comparative lessons from the European Union's Digital Single Market Directive 2019 and the United States' Digital Millennium Copyright Act 1998. The paper concludes with five targeted legislative recommendations to equip India's intellectual property framework for the demands of the digital economy.

1. INTRODUCTION

Intellectual property law has always sought a balance between two competing imperatives: protecting the exclusive rights of creators over their work and preserving broad public access to knowledge and culture. That equilibrium is significantly harder to maintain in a digital environment. Online piracy costs India's film industry approximately Rs. 18,000 crores per year.¹ Over 900 million Indians are now connected to the internet,² and generative artificial intelligence can produce professional-quality creative works in seconds, frequently using copyrighted material that was never licensed for that purpose. A court order may block a piracy website today; by the following morning it may have re-emerged under a new domain name.

¹FICCI-EY, Back to the Grind: Indian Media and Entertainment Sector Annual Report 2023 (EY 2023) 45, estimating annual losses to the film industry at approximately Rs. 18,000 crore.

²MUSO Research, Global Piracy Report 2023 (MUSO 2023), placing India among the top ten countries globally for online piracy visits.

The Copyright Act 1957, the Patents Act 1970, and the Trade Marks Act 1999 constitute India's primary intellectual property statutes. They were enacted at a time when physical goods dominated commerce and have been amended only incrementally since. The law struggles to keep pace with the speed and scale of digital infringement. This paper identifies the principal challenges confronting India's intellectual property framework in the digital era and proposes concrete legislative responses.

2. IPR AND THE DIGITAL ECONOMY: A BRIEF FRAMEWORK

Intellectual property rights exist because knowledge and creative expression share the characteristics of public goods — they are non-rivalrous and non-excludable by nature. Without legal intervention, markets systematically under-produce innovation: creators cannot capture the full social value of their output and therefore invest less than is socially optimal. Copyright, patent, and trade mark law respond to this market failure by granting creators a period of exclusivity within which to recoup their investment. Digitisation disrupts this logic in three fundamental ways.

First, it collapses the marginal cost of reproduction to near-zero.³ The economic friction that once made large-scale piracy impractical simply does not exist online. Second, the internet is structurally borderless while intellectual property rights are structurally territorial —⁴ a server in a foreign jurisdiction can serve infringing content to Indian users in real time, and existing private international law furnishes no clean enforcement answer. Third, AI's emergence as an autonomous creative and inventive actor challenges the anthropocentric premise that only human beings can be 'authors' or 'inventors' in the legally meaningful sense.⁵

India is both a TRIPS signatory and a WIPO member, but has signed without yet ratifying the WIPO Internet Treaties — the WIPO Copyright Treaty 1996 and the WIPO Performances and Phonograms Treaty 1996 — which were specifically designed to address the digital environment.⁶ That ratification gap is symptomatic of the broader legislative hesitancy this paper addresses.

3. COPYRIGHT: PIRACY, SAFE HARBOURS, AND DYNAMIC INJUNCTIONS

3.1 The Scale of India's Piracy Problem

The Copyright Act 1957 grants authors, composers, filmmakers, and software developers exclusive rights to reproduce, distribute, communicate to the public, and adapt their works.⁷ India

³Yochai Benkler, *The Wealth of Networks: How Social Production Transforms Markets and Freedom* (Yale University Press 2006) 43–47.

⁴Paul Torremans (ed), *Intellectual Property and Private International Law* (2nd edn, Edward Elgar 2015) ch 2.

⁵Ryan Abbott, *The Reasonable Robot: Artificial Intelligence and the Law* (Cambridge University Press 2020) 1–5; Andres Guadamuz, 'Do Androids Dream of Electric Copyright?' [2017] 35 EIPR 101.

⁶India ratified the TRIPS Agreement on 1 January 1995 but has not yet ratified the WIPO Copyright Treaty 1996 or the WIPO Performances and Phonograms Treaty 1996.

⁷Copyright Act 1957 (India), s 14 (nature of copyright in original works).

consistently ranks among the top ten countries globally for online piracy visits.⁸ The methods of infringement have evolved continuously: from peer-to-peer BitTorrent networks, to cyberlocker-based file-sharing, to streaming sites, to stream-ripping applications, and latterly to IPTV services offering unauthorised access to live sporting events at a fraction of legitimate subscription prices. Each technological evolution demands a corresponding legal response, and Indian law has not consistently kept pace.

3.2 Section 79 and the Safe-Harbour Problem

Section 79 of the IT Act 2000 exempts internet intermediaries from liability for user-uploaded infringing content, provided they remove it upon receiving 'actual knowledge' of the infringement.⁹ The Supreme Court in *Shreya Singhal v. Union of India* interpreted 'actual knowledge' to require a court order or governmental notification — a private rights-holder's complaint to a platform does not suffice.¹⁰ The practical consequence is that a rights-holder whose work is being pirated must first obtain a court order before the platform is obliged to act, while the infringing content continues to circulate.

The European Union recognised this structural deficiency in Article 17 of the DSM Directive 2019, which requires major platforms to make 'best efforts' to obtain licences from rights-holders and to implement upload filters that proactively prevent infringing uploads.¹¹ India has adopted no comparable obligation. The consequence is a platform ecosystem in which the incentive to prevent infringement proactively is minimal, and the burden of enforcement falls almost entirely on creators who frequently lack the resources to sustain it.

3.3 The Dynamic Injunction: A Creative but Uncodified Innovation

The Delhi High Court's development of the 'dynamic injunction' in *UTV Software Communications Ltd v. 1337X.to* is the most significant Indian judicial response to digital piracy.¹² A conventional blocking order requires a fresh court application every time a piracy site migrates to a new URL — a migration that, in practice, occurs within days of any block being imposed. A dynamic injunction permits the plaintiff to add new infringing URLs to the existing order on a simple application, without relitigating the merits. This mechanism is operationally far more effective.

The limitation is that the doctrine rests entirely on judicial creativity and therefore lacks statutory foundation. Application is consequently inconsistent across High Courts. Parliament should codify the dynamic injunction in both the Copyright Act and the Trade Marks Act, with clear rules governing scope, duration, and extension to mirror and proxy sites. That single legislative step would substantially strengthen copyright enforcement throughout India.

⁸MUSO Research, *Global Piracy Report 2023* (MUSO 2023).

⁹Information Technology Act 2000 (India), s 79, as substituted by the Information Technology (Amendment) Act 2008, s 37.

¹⁰*Shreya Singhal v. Union of India* (2015) 5 SCC 1 (Supreme Court of India) [117]–[119].

¹¹Directive 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright in the Digital Single Market [2019] OJ L 130/92 (DSM Directive), art 17.

¹²*UTV Software Communications Ltd v. 1337X.to CS(COMM) 724/2017* (Delhi High Court).

4. TRADE MARKS ONLINE: CYBERSQUATTING AND KEYWORD ADVERTISING

The Trade Marks Act 1999 protects distinctive signs that identify the commercial origin of goods and services.¹³ In the digital environment, domain names have become among the most commercially significant trade identifiers. Cybersquatters exploit this by registering domains that incorporate well-known marks, then demanding payment for transfer or using those domains to divert traffic to competing or fraudulent sites.

Disputes over '.in' country-code domains are handled under the INDRP, which mirrors ICANN's UDRP. A complainant must establish that the domain is confusingly similar to their mark, that the registrant has no legitimate interest in it, and that it was registered and used in bad faith.¹⁴ The INDRP may order transfer or cancellation of the domain but cannot award damages or injunctive relief against related infringing conduct — for that, the mark owner must seek judicial relief. The Supreme Court in *Satyam Infoway Ltd v. Sifynet Solutions Pvt Ltd* confirmed that domain names are protectable as trade identifiers under the law of passing off,¹⁵ but the absence of a dedicated statutory regime leaves gaps that determined infringers can exploit.

Two specifically digital forms of infringement deserve legislative attention. First, keyword advertising — purchasing a competitor's trade mark as a search-engine keyword so that one's advertisement appears in response to searches for that competitor's brand. The Delhi High Court in *DRS Logistics v. Google India* held that this could constitute infringement under Section 29 of the Trade Marks Act in certain circumstances,¹⁶ but the law remains unsettled pending a definitive Supreme Court ruling. Second, brand impersonation on social media — fake profiles mimicking well-known marks — causes tangible commercial harm but is addressed only through the 72-hour takedown obligation in the IT Rules 2021,¹⁷ which platforms apply inconsistently. Both issues require either legislative clarification or a binding Supreme Court ruling.

5. PATENTS AND THE SOFTWARE QUESTION

Section 3(k) of the Patents Act 1970 excludes from patentability 'a mathematical or business method or a computer programme per se or algorithms.'¹⁸ The word 'per se' carries an enormous interpretive burden. The Indian Patent Office's CRI Guidelines 2017 attempt to distinguish an unpatentable 'computer programme per se' from a patentable 'computer-implemented invention

¹³Trade Marks Act 1999 (India), ss 2(1)(zb) and 29.

¹⁴National Internet Exchange of India (NIXI), .IN Domain Name Dispute Resolution Policy (INDRP, 2005, as amended 2010); ICANN, Uniform Domain Name Dispute Resolution Policy (UDRP, 1999), para 4(a).

¹⁵*Satyam Infoway Ltd v. Sifynet Solutions Pvt Ltd* (2004) 6 SCC 145 (Supreme Court of India).

¹⁶*DRS Logistics Pvt Ltd v. Google India Pvt Ltd* CS(OS) No. 7/2012 (Delhi High Court).

¹⁷Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules 2021, rule 3(1)(b).

¹⁸Patents Act 1970 (India), s 3(k), as amended by the Patents (Amendment) Act 2005.

with a technical effect',¹⁹ but 'technical effect' is undefined in the Act, and examining officers apply the distinction inconsistently. Indian technology companies regularly find it impossible to patent innovations at home that would be readily patentable in the United States, Europe, or Japan, effectively relegating Indian software innovations to the global public domain.

Section 3(d), upheld by the Supreme Court in *Novartis AG v. Union of India*, prevents patent grants for new forms of known substances without demonstrated enhanced efficacy — a vital safeguard against pharmaceutical evergreening.²⁰ The emerging challenge lies at the intersection of AI and drug discovery: AI systems are now identifying novel molecular structures and drug candidates at extraordinary speed. Whether AI-discovered compounds can be patented, who holds any such patent, and how Section 3(d) applies to AI-generated chemical modifications are questions the existing Act was not designed to resolve. They will require legislative attention as AI-driven drug discovery accelerates.

6. GENERATIVE AI: AUTHORSHIP AND TRAINING-DATA INFRINGEMENT

6.1 Who or What is an Author?

Of all the challenges the digital era poses to intellectual property law, the question of AI-generated works most fundamentally unsettles the existing framework. The Copyright Act 1957 simply assumes that works are created by human beings.²¹ Section 2(d) defines 'author' for each category of work in terms that presuppose a human creator, and Section 17 vests copyright in that author as first owner. Generative AI systems — including large language models and image-generation tools — can now produce novels, musical compositions, and visual artworks of professional quality from a single text prompt. If a human types a one-line instruction and an AI system autonomously produces a 500-page novel, who, if anyone, holds copyright in the output?

Four approaches have been proposed in the literature:²² vesting rights in the AI developer; vesting rights in the user who provided the prompt; vesting rights in whoever commissioned the output; or treating the work as unprotected and placing it immediately in the public domain. Indian law provides no authoritative answer. The most workable solution is to adopt the approach taken in the United Kingdom: Section 9(3) of the UK Copyright, Designs and Patents Act 1988 vests copyright in computer-generated works in 'the person by whom the arrangements necessary for the creation of the work are undertaken.'²³ Parliament should introduce an equivalent provision, while specifying a shorter term of protection than that applicable to ordinary copyright.

6.2 AI as Infringer: The Training-Data Problem

¹⁹Ministry of Commerce and Industry (DIPP), 'Revised Guidelines for Examination of Computer Related Inventions (CRIs)' (2017).

²⁰*Novartis AG v. Union of India* (2013) 6 SCC 1 (Supreme Court of India).

²¹Copyright Act 1957 (India), ss 2(d) and 17. Neither provision references artificial intelligence or automated creative systems.

²²Priya Urs, 'AI and Copyright: The Indian Position' (2023) 18 *Indian Journal of Intellectual Property Law* 1, 5–8.

²³UK Copyright, Designs and Patents Act 1988, s 9(3).

Generative AI models are trained on vast datasets of text, images, and audio scraped from the internet — the great majority of it copyrighted material never licensed for use as training data. Major copyright suits have already been filed in United States courts by artists, novelists, and news publishers against AI developers.²⁴ The central legal question is whether ingesting copyrighted works into a training dataset constitutes infringement of the reproduction right.

In India, the answer turns on Section 52(1)(a) of the Copyright Act, which permits fair dealing for 'research or private study.'²⁵ This is considerably narrower than the American four-factor fair use doctrine under 17 USC Section 107. It is difficult to see how training a commercial AI system on millions of copyrighted works — with the express purpose of generating outputs that compete with those original works — qualifies as 'research or private study' within the meaning of the Indian provision. AI developers whose training operations engage Indian copyright may therefore be infringing on a massive scale, yet Indian rights-holders currently have no clear statutory mechanism to pursue them. Parliament should introduce a text-and-data-mining ('TDM') exception modelled on Article 4 of the EU DSM Directive, permitting TDM for non-commercial research purposes while allowing commercial rights-holders to opt out.

7. TRADE SECRETS, JURISDICTION, AND COMPARATIVE LESSONS

7.1 Trade Secrets: A Legislative Gap

India lacks a standalone statute governing the protection of trade secrets. Businesses must instead assemble protection from disparate sources: the law of confidentiality under the Indian Contract Act 1872, the equitable action for breach of confidence, and the limited provisions of the IT Act addressing data protection.²⁶ Commercially sensitive information — source code, customer lists, pricing models, clinical trial data — is accordingly protected in an uncoordinated and uncertain manner. The Digital Personal Data Protection Act 2023 addresses personal data but does not extend to proprietary business information in the trade-secret sense. India requires a standalone Trade Secrets Protection Act modelled on EU Directive 2016/943 and the US Defend Trade Secrets Act 2016,²⁷ providing a statutory definition of misappropriation, robust civil remedies including injunctive relief and disgorgement of profits, and specific provisions addressing digitally-facilitated misappropriation such as cyber-intrusion and insider exfiltration.

7.2 Cross-Border Enforcement and Comparative Lessons

Intellectual property rights are territorial; the internet is not. When an infringing website is hosted abroad, operated by a foreign national, and accessed by Indian users, obtaining and enforcing a remedy is genuinely difficult. Indian courts have interpreted 'cause of action arising in India' expansively — targeting Indian consumers through an accessible website is sufficient to ground

²⁴Getty Images (US) Inc v. Stability AI Ltd, No. 1:23-cv-135 (D Del, filed 3 February 2023); Andersen v. Stability AI Ltd, No. 3:23-cv-00201 (ND Cal, filed 13 January 2023).

²⁵Copyright Act 1957 (India), s 52(1)(a).

²⁶Information Technology (Amendment) Act 2008 (India), s 43A; Digital Personal Data Protection Act 2023 (India), s 8.

²⁷Directive 2016/943 of the European Parliament and of the Council on trade secrets [2016] OJ L 157/1; Defend Trade Secrets Act 2016 (US), 18 USC ss 1836–1839.

jurisdiction — but enforcing a judgment against foreign defendants is an altogether separate challenge. ISP-level DNS blocking, as ordered by the Madras High Court in *Eros International Media Ltd v. Bharat Sanchar Nigam Ltd*, can be circumvented with a VPN within minutes, and infringing sites typically migrate to new URLs within days of a block being imposed.

Comparatively, the EU DSM Directive's Article 17 — placing proactive obligations on platforms rather than reactive duties on rights-holders — represents a structurally superior approach to safe-harbour design that India should study carefully. The EU AI Act 2024's requirement that AI model developers publish training-data summaries is a transparency innovation India could adopt without requiring a definitive ruling on whether AI training constitutes copyright infringement. The US Copyright Office's 2020 study of DMCA Section 512 concluded that the safe-harbour provision had drifted too far in favour of platforms — a cautionary finding directly relevant to India's Section 79 of the IT Act.

8. RECOMMENDATIONS AND CONCLUSION

8.1 Recommendations

The following five reforms are targeted, legally achievable, and directly responsive to the problems identified in this paper.

First, copyright legislation: the Copyright Act 1957 should be amended to introduce an AI authorship provision modelled on Section 9(3) of the UK CDPA 1988, vesting copyright in computer-generated works in the person who makes the necessary arrangements for their creation, with a commensurately shorter term of protection. Simultaneously, a text-and-data-mining exception should be enacted, permitting TDM for non-commercial research purposes, with a commercial opt-out for rights-holders, modelled on Article 4 of the EU DSM Directive.

Second, codification of the dynamic injunction: the dynamic injunction doctrine developed by the Delhi High Court should be given statutory footing in both the Copyright Act and the Trade Marks Act, with clear rules governing scope, duration, and extension to mirror and proxy sites. Codification would ensure consistent application across all High Courts and remove the uncertainty that presently disadvantages rights-holders outside Delhi.

Third, a standalone Trade Secrets Protection Act: Parliament should enact legislation providing a statutory definition of misappropriation, robust civil and criminal remedies, and specific provisions for digitally-facilitated theft of trade secrets, including cyber-intrusion, insider leakage, and social engineering.

Fourth, ratification of the WIPO Internet Treaties: India should ratify the WIPO Copyright Treaty 1996 and the WIPO Performances and Phonograms Treaty 1996 without further delay. This would signal international commitment and provide a framework for addressing technological protection measures and digital rights management information in domestic law.

Fifth, clarification of the patent regime for software: Parliament should amend Section 3(k) of the Patents Act, or direct the Indian Patent Office to issue binding guidelines, to define 'technical effect'

with sufficient precision to allow consistent examination of computer-implemented inventions. The current uncertainty is damaging India's standing as a technology-innovation jurisdiction.

8.2 Conclusion

Intellectual property law serves a dual function: rewarding creators with the control and recognition they are owed, while preserving the public's access to knowledge and culture. The digital revolution has rendered both functions harder to discharge. India's existing intellectual property framework is not without merit — the Copyright Act offers meaningful protection, the Novartis decision on pharmaceutical patents commands international respect, and the Delhi High Court's dynamic injunction jurisprudence is genuinely innovative. However, these achievements cannot substitute for the legislative modernisation that India's digital economy now requires.

What is needed is not a root-and-branch reconceptualisation of Indian intellectual property law but a targeted modernisation of existing statutes: an AI authorship provision, a TDM exception, codification of the dynamic injunction, a trade secrets statute, and ratification of the WIPO Internet Treaties. None of these reforms would compromise India's sovereign policy positions on pharmaceutical patents or compulsory licensing. All of them are feasible within the current institutional framework, provided the political will and the necessary institutional investment are forthcoming.

If the law does not evolve, the costs will be concrete: foregone royalties to creators, legal uncertainty for technology companies, and a gradual erosion of trust in the intellectual property system as a whole. The time for incremental hesitancy has passed. India has the legislative capability to lead in this domain — and it should do so.

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