

**DIGITAL PIRACY IN THE ERA OF ARTIFICIAL INTELLIGENCE
AND CHALLENGES TO COPYRIGHT GOVERNANCE IN INDIA:
AN ANALYTICAL STUDY OF THE ENTERTAINMENT SECTOR**

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ABSTRACT

The rapid expansion of digital platforms has fundamentally reshaped the entertainment industry in India, accompanied by a significant rise in digital piracy. The emergence of Artificial Intelligence (AI)-enabled technologies has further intensified this issue by enabling swift and automated duplication, modification, and large-scale dissemination of protected content. This development poses serious challenges to traditional copyright enforcement mechanisms, which were not designed to operate within an AI-driven digital ecosystem. Despite the presence of a comprehensive copyright framework in India, digital piracy continues to persist, raising concerns about the effectiveness of existing copyright governance. The rise of AI-driven piracy, combined with the role of online intermediaries and the cross-border flow of digital content, exposes critical gaps in enforcement strategies and regulatory frameworks. This study adopts a doctrinal research methodology, analysing relevant provisions of the Copyright Act, 1957 and the Information Technology Act, 2000, along with applicable case laws and regulatory mechanisms governing digital intermediaries and online platforms. It argues that digital piracy in the AI era is not merely a technological concern but reflects deeper governance challenges within India's copyright regime. AI-driven automation amplifies the scale, speed, and anonymity of infringement, while enforcement mechanisms and intermediary liability frameworks remain largely reactive. Consequently, the current legal framework struggles to balance

technological innovation, platform accountability, and the protection of creative rights. The paper concludes that there is an urgent need to re-evaluate copyright governance in India, emphasising stronger intermediary accountability, clearer regulatory obligations, and adaptive legal strategies to effectively combat digital piracy while accommodating ongoing technological advancements in the entertainment sector.

This paper argues that Indian copyright law, designed for human-scale infringement, is structurally incapable of addressing AI-enabled digital piracy, necessitating a shift towards platform-centric liability and regulatory oversight.

Keywords: *AI-enabled digital piracy; copyright governance in India; intermediary liability; platform-centric liability; copyright enforcement; digital entertainment sector; online platform regulation; cross-border digital infringement; regulatory accountability; adaptive legal strategies; Copyright Act, 1957; Information Technology Act, 2000.*

I. INTRODUCTION

A. The Rise of AI-enabled Digital Piracy as a Systemic Threat

The pace of technological innovation has significantly outstripped the issue-identification capacity and legislative responsiveness of the Indian Parliament.¹ Among the most pressing challenges emerging from this regulatory lag is the rise of AI-enabled digital piracy, which represents not merely a continuation of conventional copyright infringement but an evolved, systemic threat amplified by artificial intelligence tools.

In contrast to earlier forms of piracy, which were constrained by human effort and limitations in physical and digital distribution, contemporary artificial intelligence technologies have substantially reduced barriers to entry while vastly expanding the scale of infringement. AI-assisted content replication, deepfake dubbing, real-time subtitle generation, and algorithmically driven redistribution networks now facilitate the reproduction, localisation, and dissemination of infringing content with unprecedented speed and volume. As a result, digital piracy is no longer adequately understood as an isolated act of infringement; rather, it has evolved into a structural distortion of lawful markets.

The entertainment sector is particularly vulnerable to this shift, especially in economic terms. Revenue streams dependent on licensing, theatrical releases, streaming subscriptions, and territorial exclusivity are systematically undermined when AI tools enable near-instantaneous global circulation of pirated content, for emerging markets such as India, where monetisation already operates on thin margins, AI-driven piracy threatens the sustainability of creative industries by eroding incentives for investment, reducing employment opportunities, and destabilising legitimate distribution ecosystems.²

Crucially, existing copyright enforcement mechanisms, which are designed for human-scale infringement, are ill-equipped to address algorithmic piracy that operates across jurisdictions, platforms, and anonymised networks. The resulting enforcement asymmetry allows infringing actors to innovate faster than regulatory frameworks can adapt, thereby widening the gap between technological capability and legal control.

¹ Rohit Singh, *India Not Planning Separate AI Law; Digital India Act Remains Stalled*, MediaNama (Dec. 17, 2025), <https://www.medianama.com/2025/12/223-india-ai-law-digital-india-act-stalled/>. [<https://perma.cc/GX8J-HE6T>]

² John McLellan, *AI Piracy Is a Threat to Our Creative Industries*, THE TIMES (Feb. 24, 2025 at 14:45 GMT).

In this context, AI-enabled digital piracy must be understood not merely as a copyright violation but as a systemic economic and governance challenge, necessitating a re-examination of legislative strategy, enforcement architecture, and international cooperation in the digital age.

B. Why traditional copyright enforcement is failing

India's copyright framework was enacted in a vastly different historical and economic context. The Copyright Act, 1957, is a post-colonial statute drafted for a creative ecosystem centred on human authorship, identifiable infringers, and physical modes of distribution. Its underlying assumptions reflected a pre-digital economy, where creation and infringement were linear, traceable, and territorially confined.³

The emergence of artificial intelligence has disrupted these foundational assumptions. AI-enabled systems can now generate, replicate, modify, and distribute content at scale, often without clear attribution or direct human involvement. As a result, traditional enforcement tools—such as establishing authorship, originality, and liability—have become increasingly difficult to apply in practice.⁴

This structural mismatch has weakened the effectiveness of existing copyright enforcement mechanisms. Incremental judicial interpretation alone is insufficient to address algorithmic creation and AI-driven piracy. There is therefore a pressing need for targeted amendments to the Copyright Act and the development of AI-specific legislative frameworks suited to Indian market realities, aimed at balancing creators' rights with broader societal interests.

II. CONCEPTUAL FRAMEWORK: DIGITAL PIRACY AND COPYRIGHT

A. Copyright protection in the digital environment

The shift from physical copies to digital storage and online transmission has fundamentally changed copyright enforcement. Unlike tangible works, digital content can be copied,

³ The Copyright Act, 1957 (India).

⁴ Al-Busaidi et al., *supra* note 2, at 100640.

modified, and shared instantly at almost no cost.⁵ Traditional copyright law was designed for a system where infringement occurred through identifiable physical reproduction. In the digital environment, however, copying happens rapidly and across borders, making detection and control significantly more difficult.

The internet has intensified this problem by enabling global access to copyrighted works such as books, films, music, software, and images. These works circulate through decentralised networks, often anonymously. As a result, tracing the source of infringement and establishing liability becomes complex. The issue is not merely unauthorised copying, but the scale, speed, and anonymity with which digital piracy operates.

A common misconception is that material available online is free for public use. In reality, availability does not mean absence of copyright. Unless a work has entered the public domain, been licensed, or falls within statutory exceptions, it remains protected. The digital environment, therefore, creates a tension between easy access and continued legal protection.

In India, the Copyright Act, 1957, does not clearly address intermediary liability in digital contexts. Instead, Section 79 of the Information Technology Act, 2000 grants safe harbour protection to intermediaries, provided they comply with due diligence requirements. While this provision aims to balance technological growth with legal accountability, it also limits the effectiveness of copyright enforcement in cases of large-scale digital piracy.

Thus, the challenge posed by digital technologies is not only technical but doctrinal. The foundations of copyright law, identifiable authors, physical copies, and centralised distribution are increasingly strained in the digital era.

B. Evolution of digital piracy in India

Digital piracy in India has evolved from physical VCD/DVD copying in the 1990s and peer-to-peer torrent sharing (2000s-2010s) to sophisticated, real-time illegal streaming, Telegram sharing, and IPTV, driven by high-speed internet and smartphone adoption.

⁵ World Intellectual Property Organization, *Understanding Copyright and Related Rights 8–10* (2d ed. 2016); Organisation for Economic Co-operation and Development, *OECD Digital Economy Outlook 2015* 60–65 (2015).

Piracy rates in India reached 62% during the pandemic, causing massive financial losses, with social media and apps replacing torrents as primary distribution channels.⁶

The trajectory of digital piracy in India reflects a clear technological progression, closely aligned with changes in media consumption patterns and internet penetration. In the physical era (1980s–1990s), piracy was primarily facilitated through analogue technologies such as VCRs and later VCD/DVD formats, enabling the unauthorised reproduction and circulation of cinematographic works from theatres to private viewing spaces. This phase was largely localised and dependent on physical distribution networks. The subsequent torrent and peer-to-peer (P2P) era (2000s–2010s) marked a significant shift toward digital decentralisation, wherein platforms such as The Pirate Bay enabled large-scale dissemination of copyrighted content, including films, music, and software, through file-sharing protocols that minimised reliance on central servers.

With the advent of affordable high-speed internet, particularly following the market disruption caused by Reliance Jio, India entered the streaming and social media era (2015–present). During this phase, piracy transitioned from download-based models to instantaneous streaming, with illegal websites, IPTV services, and encrypted platforms such as Telegram channels—often colloquially described as the “new Palika Bazaar”—emerging as dominant vectors. Concurrently, there has been a notable **shift toward mobile applications**, wherein unregulated and fraudulent apps provide direct access to pirated OTT content and even recently released theatrical films. Empirical observations indicate that torrent-based piracy has significantly declined, accounting for only a marginal proportion (approximately 6%) of total piracy consumption.

The economic and regulatory implications of this evolution are substantial. Industry estimates suggest that digital piracy has resulted in losses of approximately USD 2.8 billion to the Indian media and entertainment sector, with consequential impacts on employment and revenue generation. In response, the government introduced legislative reforms, most notably through the Cinematograph (Amendment) Act, 2019, aimed at strengthening anti-piracy enforcement. Additionally, Indian courts have increasingly adopted the mechanism of dynamic injunctions, enabling real-time blocking of mirror and proxy websites to curb recurring infringements. Despite these measures, enforcement

⁶ Gunjan Chawla & Nidhi Hriday Buch, *Impact of Online Digital Piracy on the Indian Film Industry: An Empirical Investigation*, J. INTELL. PROP. RTS., January, 2023, at 21, 23.

challenges persist due to the transnational, encrypted, and rapidly adaptive nature of modern piracy networks. Furthermore, emerging trends indicate that approximately 10% of pirated content is now disseminated via social media platforms, particularly in the context of live sports streaming.

Overall, the evolution of digital piracy in India demonstrates a transition **from** physically distributed and decentralised file-sharing systems to highly centralised, encrypted, and instantaneous streaming ecosystems, thereby complicating traditional enforcement mechanisms and necessitating more adaptive, technology-driven regulatory responses.

C. Limits of author-centric enforcement

Indian copyright law is structurally premised upon identifiable human authorship and traceable acts of infringement. The Copyright Act, 1957, defines an “author” in relation to different categories of works under Section 2(d), and vests first ownership in such author under Section 17.⁷ The statutory framework, therefore, assumes that creative expression originates from a natural person whose intellectual effort can be legally recognised and protected. This author-centric orientation extends to the threshold requirement of originality under section 13, which protects only those works that embody a degree of skill, labour, and judgment attributable to a human creator.⁸

The Supreme Court’s decision in *Eastern Book Company v. D.B. Modak* clarified that Indian copyright law adopts a “modicum of creativity” standard, requiring the exercise of skill and judgment beyond mere mechanical labour.⁹ This formulation, while modernised, remains fundamentally anchored in human intellectual contribution. Artificial intelligence systems, however, complicate this doctrinal foundation. Where AI tools autonomously generate derivative content, perform automated scraping, or remix existing works without direct human intervention, the nexus between authorship and creative control becomes attenuated. The law’s insistence on human agency struggles to accommodate algorithmic production that operates without conventional intentionality.

⁷ The Copyright Act, 1957, §§ 2(d), (India).

⁸ *Id.* at § 13.

⁹ *Eastern Book Co. v. D.B. Modak*, (2008) 1 SCC 1.

The enforcement model under section 51 of the Copyright Act further reflects this author-centric architecture. Infringement is framed as an act committed by a person who reproduces, distributes, or communicates a work to the public.¹⁰ Liability presupposes identifiable agency and demonstrable causal participation. AI-enabled piracy, by contrast, often functions through distributed bot networks, automated content extraction, and algorithmic dissemination across multiple jurisdictions. In such contexts, locating a singular infringer or establishing direct intention becomes increasingly difficult.

The rise of intermediary-based enforcement mechanisms illustrates an attempt to adapt to digital realities. Section 79 of the Information Technology Act, 2000, grants conditional safe-harbour protection to intermediaries, provided they comply with due diligence and remove unlawful content upon actual knowledge.¹¹ In *Shreya Singhal v. Union of India*, the Supreme Court interpreted “actual knowledge” to require either a court order or a government notification before liability may attach.¹² While this interpretation protects free expression, it reinforces a reactive notice-and-takedown model that is ill-suited to algorithmic piracy operating at scale.

Judicial innovations such as “dynamic injunctions,” recognised in *UTV Software Communication Ltd. v. 1337X.to*,¹³ attempt to block mirror websites in real time. Yet these measures remain remedial rather than preventive, addressing symptoms rather than structural causation. They do not confront the core difficulty: the displacement of identifiable human infringers by automated systems and decentralised technological infrastructures.

Comparative scholarship has long recognised the strain that computer-generated works place on traditional authorship doctrines.¹⁴ The challenge posed by AI-enabled piracy, therefore, lies not merely in enforcement logistics but in the conceptual architecture of

¹⁰ The Copyright Act, 1957, § 51 (India).

¹¹ The Information Technology Act, 2000, § 79, (India).

¹² *Shreya Singhal v. Union of India*, (2015) 5 SCC 1.

¹³ *UTV Software Communication Ltd. & Ors. v. 1337X.to & Ors.*, 2019 SCC OnLine Del 8002 (High Court of Delhi).

¹⁴ Pamela Samuelson, *Allocating Ownership Rights in Computer-Generated Works*, 47 U. PITT. L. REV. 1185 (1986).

copyright itself. An enforcement regime centred on identifiable human agency is increasingly inadequate in an environment where algorithmic processes replicate, transform, and distribute content at speed and scale beyond human control. The limits of author-centric enforcement thus reveal a deeper governance gap—one that necessitates reconsideration of liability models in the age of artificial intelligence.

III. JUDICIAL AND LEGISLATIVE RESPONSE IN INDIA

A. Key Judicial Approaches to Online Piracy

Indian courts have responded to the proliferation of online piracy through a combination of injunctive innovation and intermediary-based enforcement. The judiciary’s primary strategy has been to adapt traditional copyright remedies to digital environments rather than reconceptualising liability structures.¹⁵

One of the most significant doctrinal developments has been the recognition of “dynamic injunctions.” In *UTV Software Communication Ltd. v. 1337X.to*, the Delhi High Court acknowledged that rogue websites repeatedly evade blocking orders by creating mirror or redirect sites.¹⁶ The Court, therefore, permitted plaintiffs to seek extension of blocking orders against newly emerging domains without initiating fresh litigation. This innovation reflects judicial awareness of the fluid architecture of digital piracy.

However, dynamic injunctions remain fundamentally reactive. They address specific infringing domains after harm has occurred and rely heavily on court-supervised enforcement. They do not impose systemic obligations on platforms or technological intermediaries to prevent recurrence.

Courts have also engaged with intermediary liability under Section 79 of the Information Technology Act, 2000. In *MySpace Inc. v. Super Cassettes Industries Ltd.*, the Delhi High Court examined the scope of safe harbour protection and emphasised that intermediaries must exercise due diligence and remove infringing content upon acquiring knowledge.¹⁷ Subsequently, in *Shreya Singhal v. Union of India*, the Supreme Court clarified that “actual knowledge” under Section 79 requires a court order or government notification, thereby narrowing intermediary exposure to liability.¹⁸

¹⁵ *UTV Software Commc’ns Ltd.*, 2019 SCC OnLine Del 8002.

¹⁶ *UTV Software Commc’ns Ltd.*, 2019 SCC OnLine Del 8002, 45.

¹⁷ *MySpace Inc. v. Super Cassettes Indus. Ltd.*, 2016 SCC OnLine Del 6382 (High Ct. Del.).

¹⁸ *Shreya Singhal*, (2015) 5 SCC 1 at 117.

While these decisions protect free speech and technological innovation, they reinforce a notice-and-takedown model that presumes identifiable content and traceable infringement. In an AI-driven ecosystem where automated systems replicate and redistribute content instantaneously, this reactive framework struggles to contain infringement at scale.

B. Inconsistencies and Enforcement Gaps

Despite judicial activism, enforcement outcomes remain uneven. Indian courts have adopted varying standards in assessing intermediary responsibility, often oscillating between strict oversight and deference to platform neutrality. The absence of uniform criteria for determining “knowledge,” “control,” and “due diligence” has generated doctrinal ambiguity.

The reliance on blocking orders illustrates another structural weakness. Website blocking is territorially limited and technologically circumventable through VPNs, mirror domains, and encrypted networks. Each successive injunction treats piracy as a discrete event rather than a systemic infrastructure problem. Consequently, enforcement becomes episodic rather than preventative.

Moreover, the infringement framework under Section 51 of the Copyright Act continues to assume direct or authorisable human conduct.¹⁹ AI-enabled scraping tools, automated content cloning, and algorithmic redistribution networks complicate attribution. Where infringing acts are executed autonomously or through distributed networks, proving intention, authorisation, or direct participation becomes legally complex.

Enforcement asymmetry therefore persists: infringing actors exploit automation and decentralisation, while regulatory institutions rely on litigation-intensive, domain-specific remedies. This imbalance undermines deterrence and increases enforcement costs for rights holders.

C. Absence of AI-Specific Regulatory Vision

A significant gap in India’s copyright governance is the absence of a coherent AI-specific regulatory framework. Neither the Copyright Act, 1957, nor the Information Technology

¹⁹ The Copyright Act, 1957, § 51 (India).

Act, 2000, expressly addresses AI-generated infringement, automated content extraction, or algorithmic dissemination.

Recent legislative reforms, including amendments to the Cinematograph Act, aim to strengthen anti-camcording provisions and penalties for unauthorised recording in theatres.²⁰ However, such reforms remain oriented toward traditional forms of infringement and do not confront AI-enabled piracy operating through data scraping, machine translation, synthetic dubbing (use of AI voice technology to replace or generate dialogue in a different language or voice without traditional human dubbing artists recording every line) or automated content aggregation.

Similarly, the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 impose due diligence obligations on intermediaries, including takedown requirements and grievance redressal mechanisms.²¹ Yet these rules do not impose proactive monitoring duties specific to AI-driven replication, nor do they address algorithmic amplification of infringing material.

The absence of an AI-responsive regulatory architecture reflects a broader legislative hesitation. While policy discussions on artificial intelligence governance have intensified in India, copyright reform has not kept pace with technological acceleration. The current framework, therefore, remains reactive, platform-dependent, and case-specific ill-equipped to manage infringement systems powered by machine automation.

In sum, judicial innovation has mitigated certain operational challenges of online piracy, but it has not resolved the structural mismatch between author-centric copyright doctrine and algorithmic infringement ecosystems. The legislative response, similarly, remains fragmented and incremental. This convergence of judicial pragmatism and legislative inertia underscores the need for a reimagined governance model capable of addressing AI-enabled piracy at scale.

IV. AI-enabled Digital Piracy and the Structural Limits of Copyright Enforcement

A. Automation and Scale of Infringement

²⁰ The Cinematograph (Amendment) Bill 2019 (India).

²¹ Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021, G.S.R. 139(E) (India).

Artificial intelligence has fundamentally altered the operational architecture of digital piracy. Unlike earlier forms of infringement that required human effort and coordination, AI-enabled tools facilitate automated scraping, duplication, re-encoding, and redistribution of copyrighted content at scale. Algorithmic systems can extract audiovisual material, generate subtitles or dub versions, and disseminate infringing copies across multiple platforms within minutes of release. This automation significantly lowers entry barriers, reduces dependence on skilled infringers, and transforms piracy from discrete individual acts into systemic, technology-driven processes. The cross-border nature of digital networks further amplifies this scale, allowing infringing content to circulate globally with minimal friction.

B. Erosion of Legal Accountability

The expansion of AI-driven systems destabilises traditional principles of legal accountability. Copyright enforcement relies upon identifiable human agency and demonstrable intent. However, automated systems complicate the attribution of mens rea, particularly where infringement is executed through bots, algorithmic aggregation, or machine-generated replication. Authorship and originality standards anchored in human skill and judgment are blurred when AI modifies or reconstructs protected works. Additionally, traceability becomes technologically evasive in distributed digital ecosystems, making it increasingly difficult to distinguish between primary infringers and intermediaries. As agency becomes diffused across technological infrastructures, conventional liability models struggle to maintain doctrinal coherence.

C. Limits of Reactive Enforcement Models

Indian enforcement strategies largely remain reactive. The notice-and-takedown framework under intermediary regulation presupposes identifiable infringing content and responsive removal. In an AI-driven environment characterised by real-time replication, this model proves inadequate. Judicial reliance on blocking orders and dynamic injunctions addresses specific infringing domains but does not prevent automated re-emergence through mirror sites, encrypted platforms, or algorithmic redistribution. Safe harbour protections further reinforce platform neutrality, limiting proactive monitoring obligations. Consequently, litigation-centric remedies operate at a slower pace than automated infringement systems, resulting in persistent enforcement asymmetry.

D. Governance Gap in the Age of AI

The current statutory framework does not meaningfully engage with AI-enabled infringement. The absence of AI-specific copyright provisions reflects a broader regulatory lag in responding to technological acceleration. Human-centric doctrinal assumptions premised on identifiable authors and traceable acts are increasingly misaligned with algorithmic systems capable of autonomous replication and distribution. This structural gap underscores the need for a shift toward platform-centric and preventive governance models that integrate AI accountability mechanisms within copyright enforcement architecture.

V. CONCLUSION

Indian copyright law remains anchored in an author-centric and human-scale enforcement framework. The rise of AI-enabled piracy exposes structural weaknesses in attribution, liability, and deterrence, and highlights the limits of reactive judicial remedies. As automated systems accelerate infringement beyond traditional enforcement capacities, incremental adaptation is no longer sufficient.

To respond effectively, there is a need to move towards a more proactive and technology-aware system of copyright governance supported by clear reforms. First, the legislature should impose specific statutory obligations on digital intermediaries and AI platforms to actively prevent the misuse of copyrighted content. This should include mandatory deployment of advanced content recognition technologies capable of detecting copyrighted material at the stage of upload, as well as during dissemination. Platforms should also be required to maintain detailed audit logs of AI-generated outputs and user activity, enabling traceability in cases where infringing content is created or circulated through automated systems. In addition, periodic compliance audits and transparency reports should be mandated to ensure that platforms are not passively facilitating large-scale infringement.

Second, the law should establish a robust framework for attribution and traceability of AI-generated and AI-assisted content. This may include compulsory digital watermarking, embedded metadata standards, or unique content identifiers that remain attached to works even after modification. Such a system would make it significantly harder to circulate infringing content anonymously and would assist rights holders and enforcement authorities in identifying the source and chain of distribution of pirated material.

Third, India should introduce a specialised liability regime for AI systems that distinguishes between passive intermediaries and actively generative technologies. Where AI tools are designed or deployed in a manner that enables or encourages infringement, developers and deployers should be subject to a higher standard of responsibility, including potential contributory liability. This could be coupled with clear safe harbour conditions that are conditional upon demonstrable efforts to prevent misuse, thereby incentivising responsible innovation while discouraging negligent or exploitative deployment of AI systems.

Finally, enforcement mechanisms must be strengthened to match the speed and scale of AI-driven infringement. This can be achieved by formally recognising dynamic injunctions in statutory law and by establishing fast-track digital enforcement procedures, including dedicated tribunals or specialised benches for technology-related copyright disputes. Real-time blocking measures and coordinated action with internet service providers can further ensure that infringing content is taken down swiftly before it proliferates widely.

These reforms would help shift copyright enforcement from a reactive approach to a more preventive and technologically aligned system, ensuring that creative incentives are protected while effectively addressing the challenges posed by AI-driven piracy.