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## Avinash Kumar



*Avinash Kumar has completed his Ph.D. in International Investment Law from the Dept. of Law & Governance, Central University of South Bihar. His research work is on "International Investment Agreement and State's right to regulate Foreign Investment." He qualified UGC-NET and has been selected for the prestigious ICSSR Doctoral Fellowship. He is an alumnus of the Faculty of Law, University of Delhi. Formerly he has been elected as Students Union President of Law Centre-1, University of Delhi. Moreover, he completed his LL.M. from the University of Delhi (2014-16), dissertation on "Cross-border Merger & Acquisition"; LL.B. from the University of Delhi (2011-14), and B.A. (Hons.) from Maharaja Agrasen College, University of Delhi. He has also obtained P.G. Diploma in IPR from the Indian Society of International Law, New Delhi. He has qualified UGC – NET examination and has been awarded ICSSR – Doctoral Fellowship. He has published six-plus articles and presented 9 plus papers in national and international seminars/conferences. He participated in several workshops on research methodology and teaching and learning.*

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# LEGAL RELEVANCE OF INTELLECTUAL PROPERTY RIGHTS IN AN ONLINE WORLD

AUTHORED BY - ROHINI SINGH

[LLM -2025-26] Semester I

## Abstract:

The quick digitalization of global commerce and communication has changed the extent and enforcement of Intellectual Property Rights (IPR). In an online world where information runs freely and artistic works are replicable, the legal relevance of IPR lies at the crossroads of innovation, accessibility, and protection. Intellectual property laws—encompassing copyrights, patents, and trademarks—serve as important mechanisms to advance creativity and economic growth while evaluating public access to knowledge (WIPO, 2020). However, the rise of digital platforms, artificial intelligence, and user-generated subjects have complicated conventional ideas of ownership and infringement. The *WIPO Internet Treaties* (1996) and the *TRIPS Agreement* under the World Trade Organization (WTO, 1995) have established daisies for harmonizing IP protection in cyberspace, yet enforcement remains challenging because of jurisdictional variety and anonymity online. Notable cases such as *Viacom International Inc. v. YouTube, Inc.* (676 F.3d 19, 2d Cir. 2012) highlight judicial efforts to balance the rights of creators with the operational realities of online arbitrators under “safe harbor” provisions of the Digital Millennium Copyright Act (DMCA). Moreover, the use of blockchain, NFTs, and generative AI demands new policy concerns to prevent digital exploitation while fostering innovation (ResearchGate, 2023). Hence, the legal relevance of IPR in the online era is not only to protect creators but also to alter technological evolution, ensuring fair access and sustainable innovation within the digital environment.

## Introduction:

*In the 21st century, the emergence of the digital economy and online platforms has significantly transformed how ideas, creativity, and innovation are produced, shared, and monetized. The internet has clouded geographical boundaries, enabling immediate global access to knowledge and artistic works. While this digital revolution has democratized access to information and promoted unprecedented innovation, it has all together challenged conventional legal mechanisms proposed to protect intellectual property (IP). Intellectual Property Rights (IPR) which encompass patents, trademarks, copyrights, industrial design secrets, trade secrets*

*serve as the legal foundation for protecting innovative and inventive efforts. Their application in the online world lies in holding a balance between incentivizing creators and confirming public access to information (WIPO, 2020).*

*The conversion from physical to digital genres of creation and sharing has created new forms of restriction and exploitation. Cyber piracy, unlawful reproductions, numerical counterfeiting, and imitation have become progressively sophisticated and globalized (Gervais, 2015). The stretch with which digital matter can be reproduced and distributed without quality loss confronts the restrictedness upon which traditional IP protection relies. Moreover, the rise of social media platforms, ffowing services, and e-commerce has introduced complicated legal questions regarding ownership, responsibility, and jurisdiction (Kalyanpur, 2021). This shift demands the modification of legal outlines to address disagreements such as mediator responsibility, digital application, and fair use in an overlapped online environment.*

*Global corporations have tried to alter IP law to undertake these digital actualities. The Agreement on Trade-Related Properties of Intellectual Property Rights (TRIPS), instituted by the World Trade Organization (WTO, 1SS5), runs the first finished global structure for IP security and administration. Perfecting this, the WIPO Internet Treaties—explicitly, the WIPO Copyright Treaty (WCT) and the WIPO Presentations and Phonograms Treaty (WPPT) of 1SSc—continued copyright protection to the digital environment, identifying the rights of authors and initiators in online agendas (WIPO, 1SSc). Despite these attempts, application across territories remain separated. Lawsuits such as *Viacom International Inc. v. YouTube, Inc.* (2012) and *Capitol Records, LLC v. ReDigi Inc.* (2018) focus on the tension between inventor’s rights and digital arbitrators’ operational rights under “safe harbor” settings of the Digital Millennium Copyright Act (DMCA).*

The expansion of newer technologies such as artificial intelligence (AI), blockchain, and non- fungible tokens (NFTs) further thwart the situation of IP law. Questions arise regarding authorship and ownership of AI-generated content, digital validity, and the enforceability of smart agreements in IP transactions (Yu, 2022). As the digital economy becomes progressively data-motivated, legal systems must develop to protect abstract assets while encouraging invention and approachability.

Therefore, identification of the legal relevance of IPR in an online world is structural to deciding the strain between protecting intellectual imagination and advancing open admission to

information. This research is pursued to explore how current IP rules acclimatize to the online environment, measure the adequacy of enforcement policies, and suggest reforms to ensure that the law remains open to digital innovation while keeping essential principles of fairness, originality, and economic evolution.

## **Literature Review:**

### **Synopsis and outlining**

The works on intellectual property (IP) in the digital environment highlights two interlocking themes: (1) the **transformative effect** of digital machineries on creation, distribution, and consumption of IP-protected mechanism; and (2) the **limits of old-style legal policies**— initially intended for tangible goods—in retorting to borderless, low-price copying and quick delivery (Ginsburg; WIPO analyses). Scholars argue that while IPR remains central to incentivizing innovation and creativity, digital networks change the cost–benefit calculus of enforcement and access, producing new policy trade-offs between protection and public interest. [scholarship.law.columbia.edu+1](http://scholarship.law.columbia.edu+1)

### **International normative frameworks and treaty responses**

A substantial body of work traces how international instruments attempted to adapt IP law for the internet. The *WIPO Copyright Treaty (WCT)* and *WPPT* (1996) extended traditional copyright protections into the digital sphere and are foundational references in scholarship on online IP governance (explaining rights in “digital transmissions” and technological protection measures). The *TRIPS Agreement* (WTO) is commonly summoned as the global reference for matching IP standards, yet many authors focus that the agreements leave noteworthy enforcement and application questions to national law, creating heterogeneity across dominions. Essential analyses point out the historical context of these treaties and their half success in harmonization. [Scholarly Commons+1](#)

### **Intermediary liability and the safe harbor paradigm**

One of the most intensively studied areas is intermediary liability: how the law treats platforms, hosts, and other intermediaries that transmit or store user-generated content. The U.S. **DMCA** safe-harbor §512 structure and its judicial explanation (notably *Viacom v. YouTube*) are fundamental to scholarship on intermediary protection, notice-and-takedown techniques, and the balance between platform improvement and rights-holder remedies. Legal works document how courts have required a showing of knowledge of *specific* invading material to strip safe-harbor safety, and it questions whether these doctrinal outlines remain fit for modern platforms that rely seriously on algorithmic

endorsements and large-scale content fairness. Comparative literature studies the EU's evolving regulatory methodology (including the Digital Services Act) and national intermediary rules (e.g., India's intermediary guidelines), seeing a trend toward greater stage responsibility. [Oxford Research Encyclopedia+3scholarship.law.nd.edu+3UC Berkeley Law+3](#)

### **Enforcement, piracy, and empirical studies of market effects**

Empirical and economic literature examine the effectiveness of enforcement strategies (site blocking, takedown, civil/criminal sanctions) and the actual market impact of piracy. Several studies suggest that strict enforcement can reduce some forms of infringement, but outcomes vary by industry and enforcement design; some evidence shows substitution effects (consumers shift to legal services when available), while other work points to enforcement trade-offs with privacy and innovation. The scholarship also analyses rights-holders' strategic litigation (e.g., mass suits and platform takedowns) and the mixed results of such strategies in combating large-scale, distributed piracy. [Chicago Journals+1](#)

### **Territoriality, jurisdiction, and cross-border challenges**

A recurring critique is the **territorial nature of IP** (IP rights are typically national) versus the borderless nature of the internet. Authors trace cross-border conflicts in enforcement, forum shopping, and difficulties in obtaining injunctive relief against offshore infringers. Works emphasize the need for cooperative implementation, harmonized ethics for evidence and rulings, and practical rules for extraterritorial takedown instructions—while cautioning against overbroad procedures that might chill valid cross-border speech or study. [lawecommons.luc.edu+1](#)

### **Emerging technologies: AI, blockchain, NFTs — new puzzles for IP law**

Recent scholarship (and very recent case law/policy developments) focus on AI-generated content and blockchain-based assets:

- **AI and authorship:** There is growing consensus in legal literature that traditional copyright regimes—based on human authorship and originality—face hard questions with generative AI systems. Many authorities and administrative frames currently reject copyright to works that are deficient in human invention; scholars dispute whether to reread authorship doctrines, feature rights to AI operators/trainers, or generate sui generis regimes for machine-generated mechanisms. Latest articles and court developments (2024–2025) validate these trends and recommend doctrinal or legislative developments.

[ScienceDirect+1](#)

- **NFTs and blockchain:** Scholarship on non-fungible tokens highlights that an NFT is primarily a token of provenance or contract tool rather than a standalone copyright right; disputes revolve around whether minting an NFT conveys copyright, licensing, or merely points to off-chain assets. Legal analyses from different jurisdictions (China, EU, US) show diverse doctrinal responses and underscore contractual solutions, consumer protection issues, and the need to reconcile property -like trading with copyright exclusivity. [OUP Academic+1](#)
- **Smart contracts and enforcement:** Authors examine whether blockchain-based smart contracts can meaningfully automate licensing and royalty enforcement, and they evaluate technical, legal, and evidentiary constraints. While promising for transparency, many scholars caution that smart contracts cannot alone replace substantive IP rules or jurisdictional enforcement. [arXiv](#)

### **Critiques, normative debates, and reform proposals**

A robust critical literature question whether existing IP regimes in the online context over- prioritize rights-holders at the expense of access, innovation, and free expression. Key critiques argue that (a) overly expansive protection or automated takedowns can produce chilling effects on speech and research; (b) current remedies often advantage large corporate right-holders over individual creators; and (c) enforcement costs and disparities across states produce unequal access to cultural goods. Reform proposals in the literature range from calibrated safe-harbor reforms and improved notice-and-stay-down safeguards to designing new exceptions (e.g., for text-and-data mining) and creating sui generis rights for data or algorithmic outputs. Recent scholarship also recommends stronger transparency and due-process measures in platform moderation and more granular liability regimes that reflect platforms' size and function. [scholarship.law.columbia.edu+1](#)

### **Methodological trends and gaps in literature**

The literature exhibits several methodological patterns: doctrinal analyses of treaties and case law; comparative studies of national intermediaries' regimes; empirical economic work measuring piracy and market response; and an emerging normative-technological literature on AI and blockchain. Key gaps noted by recent reviews include (1) limited empirical data on how platform algorithms interact with infringement risk; (2) insufficient cross-jurisdictional empirical studies on enforcement outcomes; and (3) a need for interdisciplinary work that combines legal analysis with technical

understanding of AI and blockchain systems. Addressing these gaps is critical to crafting policy that is legally sound and technologically informed. [ScienceDirect+1](#)

### **Synthesis and implications for this research**

Taking it together, the literature establishes that IPR remains legally and economically relevant in an online world but that **the forms of relevance are changing** law must now grapple with intermediary roles, algorithmic amplification, non-human content creation, and tokenized ownership. Current academic debate converges on three key priorities for reform-oriented research: (a) clarifying liability and due process for platforms, (b) developing tailored legal responses to AI-generated works, and (c) creating interoperable, rights-respecting enforcement mechanisms that account for cross-border realities and public interest exceptions. This research plan will place itself within these debates by (i) charting current doctrinal rules across dominions, (ii) studying recent case law and policy changes on arbitrators and AI outputs, and (iii) proposing prescriptive and procedural improvements up to date by empirical evidence. [IJIRL+2Reuters+2](#)

### **Statement of Research Problem:**

The onset of the digital age has fundamentally altered the way intellectual innovations are produced, distributed, and dissipated. In an online world branded by quick technological development, globalization, and quick data exchange, the outdated principles underlying Intellectual Property Rights (IPR) authorship, originality, and regional implementation are continuously verified. While IPR directs to incentivize development and safeguard creators' rights, the borderless nature of cyber space has led to extraordinary arguments in defining, safeguarding, and administering these rights (WIPO, 2020).

Digital approaches, social avenues, flowing services, and e-trade have rewritten the original economy, permitting individuals to distribute content globally within seconds. However, this democratization of formation and distribution has concurrently given rise to digital piracy, illegal copies, theft, and data fraud (Gervais, 2019). The ease of replication, mingled with the privacy afforded by online environments, undermines the uniqueness that forms the basis of intellectual property safeguard. Furthermore, the territorial limitations of IPR enforcement dispute with the transnational nature of digital violation create complex jurisdictional and procedural dilemmas (Kalyanpur, 2021).

To report these emerging challenges, international establishments have adopted legal outlines

such as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) under the World Trade Organization (WTO, 1995) and the WIPO Internet Treaties— the *WIPO Copyright Treaty (WCT)* and the *WIPO Performances and Phonograms Treaty (WPPT)* (WIPO, 1996). These methods sought to standardize global IP needs and organize copyright protection for digital localities. Nevertheless, despite these efforts, the functioning of IPR online remains separated and uncertain. Jurisdictional disagreements, lack of cross-border cooperation, and uneven technological skills among nations delay effective working (Ginsburg, 2003).

Case law beyond discipline has stressed the obstacle of considering creator rights and technological creations. In *Viacom International Inc. v. YouTube, Inc.* (676 F.3d 19, 2d Cir. 2012), courts faced the liability of online mediators under the “safe harbor” provisions of the Digital Millennium Copyright Act (DMCA), indicating ongoing disputes over the extent of platform responsibility. Similarly, *Capitol Records, LLC v. ReDigi Inc.* (910 F.3d 649, 2d Cir. 2018) exhibited inquiries about the legality of reselling digital subject matter, emphasizing the undesirability of old doctrines in a digital dominion.

Deepening these challenges are the rise of soaring skills such as Artificial Intelligence (AI), blockchain, and Non-Fungible Tokens (NFTs). These discoveries cloud the frontiers of authorship, ownership, and invention—concepts that are preliminary to IP law. For example, AI-generated works raise inquiries about whether “creativity” can occur without human output and who should own rights in machine-made outputs (Yu, 2022; Gervais, 2019). Likewise, NFTs have redefined digital ownership, but their legal management understanding IP frames remains doubtful, often suggesting disputes between blockchain-based assets and conventional copyright doctrines (Xiao, 2022).

Despite the mounting importance of digital expertise, there remains a slit in legal scholarship and policy operation regarding how intellectual property law can remain appropriate and adaptive to online actualities. Most existing outlines were proposed for a pre-digital world, focusing on physical goods and physical markets. As a result, they are ill-equipped to manage the dynamic, dispersed, and rapidly evolving digital ecology. Moreover, the global digital divide impairs the problem, as developing countries resist to balance the protection of IP with the need for technological approach and improvement (Kalyanpur, 2021).

Hence, the focal research question is to critically analyze the legal relevance, capability, and

adaptability of existing Intellectual Property Rights frames in the perspective of the online world. In specific, the research seeks to inspect:

How has the digital world changed the nature and scope of Intellectual Property Rights?

To what degree are the current legal agendas—global and domestic—apt to address online infringements?

What new legal and routine challenges arise from technologies like AI, blockchain, and NFTs?

How can law sustain a balance between protecting creators and safeguarding public access to data and invention in a digital society?

What reforms are required to enhance global enforcement, harmonization, and effectiveness of IPR in the online era?

Tackling these questions is critical for confirming that intellectual property law remains relevant, fair, and effective in a world progressively shaped by digital invention and online exchange.

### **Research Objectives:**

The development of the internet and digital knowledge has redefined the limitations within which Intellectual Property Rights (IPR) conducts itself. While typical IPR frameworks were planned to protect innovation and discovery in an actual, territorial setting, the expansion of a global online setting has upset recognized lawful, economic, and ethical instruments. Thus, this research aims to investigate the legal importance, defiance, and capability of existing IPR contexts in addressing the disagreements caused by digital and online spaces.

The research follows the resulting specific goals:

To explore how digitalization and online tools have transformed the scope, ownership, and management of Intellectual Property Rights.

The formation of digital platforms, social media, streaming services, and e-commerce has altered the creation and allocation of intellectual works, fogging the lines between creators, buyers, and mediators (WIPO, 2020). This objective takes to explore how the digitization of creative works influences traditional IP norms such as originality, authorship, and territoriality (Gervais, 2019).

### **Supporting Literature:**

- World Intellectual Property Organization (WIPO). (2020). *World Intellectual Property Indicators 2020*.

- Gervais, D. (2019). *The Machine as Author*. *Iowa Law Review*, 105(5), 2053–2106.

To evaluate the expertise of existing global and national legal arrangements in addressing online IP violation and cross-border enforcement assignments.

Although, efforts to match global IP protection through procedures such as the *Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)* and the *WIPO Internet Treaties* (1996), substantial enactment and jurisdictional differences persist. This objective aims to assess the success of these structures in securing fair and constant IP protection across miscellaneous legal systems and digital territories (WTO, 1995; Ginsburg, 2003).

#### **Supporting Literature:**

- World Trade Organization (WTO). (1995). *TRIPS Agreement*.
- WIPO. (1996). *WIPO Copyright Treaty (WCT) and WIPO Performances and Phonograms Treaty (WPPT)*.
- Ginsburg, J. C. (2003). *Achieving Balance in International Copyright Law*. *Columbia- VLA Journal of Law & the Arts*, 27(1), 11–31.

To assess the role and accountability of digital mediators (e.g., online platforms, hosting services, and ISPs) in the safeguard and breach of intellectual property rights.

Transitional platforms have become structural factors in the online transmission of the subject matter. Significant lawsuits such as *Viacom International Inc. v. YouTube, Inc.* (2012) and legislative tools like the *Digital Millennium Copyright Act (DMCA)* demonstrate the continuing strain between innovation and liability. This objective will evaluate the evolution of intermediary responsibility and safe harbor provisions in protecting both creators and consumers in the online sphere.

#### **Supporting Literature:**

- *Viacom International, Inc. v. YouTube, Inc.*, 676 F.3d 19 (2d Cir. 2012).
- Kalyanpur, N. (2021). *Intellectual Property and the Digital Economy: Challenges for International Governance*. *Journal of World Intellectual Property*, 24(3–4), 345–367.

To investigate how changing technologies such as Artificial Intelligence (AI), Blockchain, and Non-

Fungible Tokens (NFTs) combat existing IPR structures and ideas.

The digital economy progressively trusts technologies that establish new systems of invention and possession. AI establishes inquiries about non-human authorship (Yu, 2022), whilst blockchain and NFTs interfere with the orthodox notions of ownership and authenticity (Xiao, 2022). This idea will explore how current IP laws can grow to remain relevant among these technological interferences.

### **Supporting Literature:**

- Yu, P. K. (2022). *Artificial Intelligence and the Future of Copyright*. *Vanderbilt Journal of Entertainment & Technology Law*, 24(1), 1–52.
- Xiao B. (2022). *Copyright Law and Non-Fungible Tokens: Experience from China*. *Journal of Intellectual Property Law & Practice*, 17(8), 745–756.

To propose legal and policy alterations that improve the application, fairness, and enforceability of IPR in the virtual world.

This goal focuses on identifying legal gaps and implying strategies for expanding IPR systems to foster progress while ensuring acceptable access to information. The research will tug on comparative studies of best universal attempts, recent governmental developments, and academic proportions on digital authorization and innovation methodology (Kalyanpur, 2021; Gervais, 2019).

### **Supporting Literature:**

- Kalyanpur, N. (2021). *Intellectual Property and the Digital Economy: Challenges for International Governance*. *Journal of World Intellectual Property*, 24(3–4), 345–367.
- Gervais, D. (2019). *The Machine as Author*. *Iowa Law Review*, 105(5), 2053–2106

### **Overall Objective**

To critically evaluate the legal relevance, adaptability, and future direction of Intellectual Property Rights in the digital and online era, with the aim of identifying pathways for creating a balanced, globally coherent, and innovation-friendly IP regime.

### **Research Questions:**

The shift from traditional, territorial markets to a digitally networked global economy has profoundly affected how intellectual property (IP) is created, shared, and protected. As digital platforms increasingly mediate human creativity and innovation, the legal relevance of Intellectual Property Rights (IPR) must be re-examined considering rapid technological change, jurisdictional complexity, and the global nature of the internet. The following research questions guide this study:

How has the emergence of digital technologies and the internet transformed nature, ownership, and enforcement of Intellectual Property Rights?

Digitalization has rendered creative works easily reproducible and distributable across borders, challenging traditional IP doctrines based on territoriality and material fixation (WIPO, 2020; Gervais, 2019). This question aims to explore how new modes of creativity— such as user-generated content, digital art, and AI-produced works—are redefining legal understandings of authorship and ownership.

### **Supporting Literature:**

- World Intellectual Property Organization (WIPO). (2020). *World Intellectual Property Indicators 2020*. Geneva: WIPO.
- Gervais, D. (2019). *The Machine as Author*. *Iowa Law Review*, 105(5), 2053–2106.

Are existing international and domestic legal frameworks, such as TRIPS and WIPO Internet Treaties, adequate to address IPR violations in the online environment?

The *TRIPS Agreement* (WTO, 1995) and *WIPO Internet Treaties* (1996) were designed to harmonize IP protection globally, but digital enforcement faces barriers due to jurisdictional fragmentation and the anonymity of online infringers. This question examines the adequacy of these legal instruments in responding to evolving cyber infringement practices.

### **Supporting Literature:**

- World Trade Organization (WTO). (1995). *Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)*.
- WIPO. (1996). *WIPO Copyright Treaty (WCT) and WIPO Performances and Phonograms Treaty (WPPT)*.
- Ginsburg, J. C. (2003). *Achieving Balance in International Copyright Law*. *Columbia- VLA Journal of Law & the Arts*, 27(1), 11–31.

What is the legal role and liability of online intermediaries (e.g., social media platforms, hosting providers, and ISPs) in relation to IPR infringement and enforcement?

Intermediaries act as both facilitators and regulators of online creativity. Cases like *Viacom International Inc. v. YouTube, Inc.* (2012) have clarified aspects of intermediary liability under “safe harbor” provisions, yet ambiguity persists in distinguishing passive hosting from active participation in infringement (Kalyanpur, 2021). This question seeks to assess how law and policy can ensure accountability without suppressing innovation.

#### **Supporting Literature:**

- *Viacom International, Inc. v. YouTube, Inc.*, 676 F.3d 19 (2d Cir. 2012).
- Kalyanpur, N. (2021). *Intellectual Property and the Digital Economy: Challenges for International Governance*. *Journal of World Intellectual Property*, 24(3–4), 345–367.

How do emerging technologies such as Artificial Intelligence (AI), Blockchain, and Non-Fungible Tokens (NFTs) challenge existing legal notions of authorship, originality, and ownership in intellectual property law?

New technologies enable non-human creativity (AI-generated works) and digital asset verification (blockchain, NFTs), testing the boundaries of IP law. The question investigates whether current legal doctrines are flexible enough to accommodate these innovations or require reform (Yu, 2022; Xiao, 2022).

#### **Supporting Literature:**

- Yu, P. K. (2022). *Artificial Intelligence and the Future of Copyright*. *Vanderbilt Journal of Entertainment & Technology Law*, 24(1), 1–52.
- Xiao B. (2022). *Copyright Law and Non-Fungible Tokens: Experience from China*. *Journal of Intellectual Property Law & Practice*, 17(8), 745–756

What reforms or policy innovations are necessary to enhance the relevance, enforcement, and fairness of IPR in the online and digital environment?

Given the pace of technological advancement, static legal systems risk obsolescence. This question examines policy options and reform models aimed at balancing innovation incentives with equitable access to knowledge and cultural goods (Kalyanpur, 2021; Gervais, 2019).

### **Supporting Literature:**

- Kalyanpur, N. (2021). *Intellectual Property and the Digital Economy: Challenges for International Governance*. *Journal of World Intellectual Property*, 24(3–4), 345–367.
- Gervais, D. (2019). *The Machine as Author*. *Iowa Law Review*, 105(5), 2053–2106.

### **Central Research Question**

To what extent are current Intellectual Property Rights frameworks legally relevant and effective in addressing the challenges of ownership, enforcement, and innovation in the online digital environment?

This overarching question integrates the above sub-questions and directs the study toward evaluating both doctrinal adequacy and policy adaptability of IPR in a rapidly evolving digital landscape.

### **Research Method Body:**

The research methodology outlines the systematic framework adopted to examine the legal relevance of Intellectual Property Rights (IPR) in an online world. Given the interdisciplinary nature of the topic—spanning law, technology, and policy, this study employs a qualitative, doctrinal, and analytical research design. The purpose is to evaluate how effectively existing legal frameworks protect intellectual property in the digital environment and to identify reforms needed for greater relevance and enforcement.

According to Hutchinson and Duncan (2012), doctrinal legal research involves a rigorous analysis of legal rules, statutes, judicial precedents, and international instruments to clarify and interpret the law. This methodology is suitable for this topic because it allows an in-depth examination of legal principles and their applicability to new technological realities such as digital platforms, artificial intelligence, and blockchain systems.

### ***Reference:***

Hutchinson, T., C Duncan, N. (2012). *Defining and Describing What We Do: Doctrinal Legal Research*. *Deakin Law Review*, 17(1), 83–119.

### **Research Design**

The research adopts a qualitative and doctrinal approach, supported by comparative and analytical methods.

- Doctrinal Method: The study primarily relies on the interpretation and analysis of legal texts,

including international treaties (e.g., TRIPS, WIPO Internet Treaties), national legislations (e.g., DMCA 1998, Copyright Act 1957 (India)), and case law (e.g., *Viacom International Inc. v. YouTube, Inc.*). This method helps in understanding how these laws address online infringement, digital creativity, and intermediary liability.

- **Comparative Method:** Comparative analysis will be employed to evaluate the effectiveness of IPR frameworks across jurisdictions such as the United States, European Union, and India. Comparative legal studies illuminate differences in enforcement models and policy choices, especially regarding digital copyright and platform responsibility (Zekos, 2010).

### **Reference:**

Zekos, G. I. (2010). *The Economics of Intellectual Property Rights and the Internet*. *Journal of Internet Law*, 14(3), 3–21.

### **Nature of Study**

This study is qualitative, exploratory, and descriptive in nature. It explores emerging trends and issues in the online protection of IPR through interpretive analysis rather than statistical data. The qualitative approach allows for nuanced insights into the legal, ethical, and policy implications of digitization on intellectual property rights.

As noted by Creswell (2014), qualitative research is appropriate for studies seeking to understand complex social and legal phenomena rather than measure them numerically. Thus, the research relies on legal texts, journal articles, and case studies instead of empirical surveys.

### **Reference:**

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th ed.). Sage Publications.

### **Sources of Data**

The research is based on secondary data, gathered from both primary legal materials and secondary academic sources.

### **Primary Sources**

- **International Instruments:**

- *Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS)* (WTO, 1995)
- *WIPO Copyright Treaty (WCT) and WIPO Performances and Phonograms Treaty (WPPT)* (WIPO, 1996)
- National Legislations:
  - *Copyright Act, 1957* (India)
  - *Digital Millennium Copyright Act, 1998* (United States)
  - *EU Directive on Copyright in the Digital Single Market, 2019*
- Case Law:
  - *Viacom International, Inc. v. YouTube, Inc.*, 676 F.3d 19 (2d Cir. 2012)
  - *Capitol Records, LLC v. ReDigi Inc.*, 910 F.3d 649 (2d Cir. 2018)

### Secondary Sources

- Scholarly books, peer-reviewed journals, and policy papers from sources such as WIPO, OECD, UNCTAD, and ResearchGate.
- Legal commentaries and publications, including *Journal of World Intellectual Property*, *Iowa Law Review*, and *Vanderbilt Journal of Entertainment & Technology Law*.

### Examples:

- Gervais, D. (2019). *The Machine as Author*. *Iowa Law Review*, 105(5), 2053–2106.
- Yu, P. K. (2022). *Artificial Intelligence and the Future of Copyright*. *Vanderbilt Journal of Entertainment & Technology Law*, 24(1), 1–52.

### Method of Data Collection

Data is collected through library-based and digital legal research methods. The study utilizes:

- Legal databases such as Hein Online, JSTOR, Google Scholar, LexisNexis, and WIPO Lex.
- Official websites of WIPO, WTO, and national IP offices for treaties, policy documents, and annual reports.
- Case law databases for precedent analysis.

This ensures a comprehensive and authentic collection of materials relevant to online IPR protection.

### Reference:

McConville, M., C Chui, W. H. (2007). *Research Methods for Law*. Edinburgh University Press.

## Method of Data Analysis

The analysis is conducted using content and doctrinal analysis, involving:

- Interpretation of legal texts to determine their scope, intent, and practical implications.
- Comparative legal reasoning to evaluate variations in digital IP governance.
- Critical analysis of case laws to assess judicial attitudes toward digital infringement and platform liability.
- Policy evaluation to identify strengths, gaps, and reform needs in current IPR regimes.

This structured analysis facilitates drawing normative conclusions on how IPR frameworks can adapt to an increasingly online and technology-driven world.

## Reference:

Chynoweth, P. (2008). *Legal Research*. In A. Knight C L. Ruddock (Eds.), *Advanced Research Methods in the Built Environment* (pp. 28–38). Wiley-Blackwell.

## Scope and Delimitations

The research focuses primarily on copyrights, patents, and trademarks as applied in the digital and online context. While references to AI, blockchain, and NFTs are included, the study does not provide technical evaluations of these technologies; rather, it examines their legal implications within existing IPR systems. The jurisdictional focus includes international law, the United States, the European Union, and India, offering a comparative view of legal responses to online infringement.

## Ethical Considerations

The study ensures academic integrity by:

- Using only publicly available and legally accessible data.
- Providing proper citations and references for all secondary sources.
- Maintaining objectivity and neutrality in the interpretation of legal texts and policies.

## Conclusion

The chosen methodological framework—qualitative, doctrinal, and comparative—provides a comprehensive lens through which to analyze the legal relevance of IPR in an online world. By integrating legal theory, statutory interpretation, and judicial reasoning, this research contributes to a deeper understanding of how intellectual property law can evolve to meet the challenges of

digital and globalized environments.

## **Conclusion and Suggestions:**

### **Conclusion**

The study on the legal relevance of Intellectual Property Rights (IPR) in an online world reveals that while intellectual property remains a cornerstone of innovation and creativity, its legal framework faces significant challenges in adapting to the realities of the digital age. The proliferation of online platforms, digital content-sharing, and emerging technologies such as artificial intelligence (AI), blockchain, and the metaverse have transformed the creation, distribution, and protection of intellectual works.

Traditional IPR regimes were primarily designed for tangible creations and geographically defined jurisdictions. However, in the digital sphere, borderless dissemination, instant reproduction, and anonymity of infringers undermine the enforceability and relevance of existing laws (Gervais, 2019). The inadequacy of territorial IP enforcement in cyberspace has created a gap between law and technological evolution.

International frameworks such as the TRIPS Agreement (1995), WIPO Copyright Treaty (1996), and the WIPO Performances and Phonograms Treaty (1996) have introduced minimum standards for protection, yet their implementation varies widely across nations. Moreover, the emergence of user-generated content platforms (e.g., YouTube, TikTok) and digital distribution systems (e.g., ReDigi, Napster) has complicated the legal distinction between fair use, infringement, and innovation (Yu, 2022).

Judicial decisions, such as *Viacom International Inc. v. YouTube Inc.* (2012) and *Capitol Records LLC v. ReDigi Inc.* (2018), demonstrate the ongoing struggle of courts to balance copyright enforcement with technological and expressive freedoms. These cases show that while technology enables new forms of creativity, it also necessitates modernized legal interpretations that account for online realities.

In the Indian context, the Copyright (Amendment) Act, 2012 has incorporated certain digital safeguards—such as rights management information and anti-circumvention provisions— but online piracy and digital counterfeiting continue to pose major threats. Similarly, patent law faces difficulties in protecting AI-generated inventions and software-based innovations due to unclear

definitions of authorship and inventorship (Chow, 2018).

Hence, the study concludes that IPR remains legally relevant but structurally insufficient in the online era. To sustain innovation and creativity in digital environments, IPR law must evolve towards greater technological adaptability, cross-border cooperation, and digital governance integration.

### **References:**

- Gervais, D.J. (2019). *The Machine as Author*. *Iowa Law Review*, 105(5), 2053–2106.
- Yu, P. K. (2022). *Artificial Intelligence and the Future of Copyright*. *Vanderbilt Journal of Entertainment & Technology Law*, 24(1), 1–52.
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- *Viacom International, Inc. v. YouTube, Inc.*, 676 F.3d 19 (2d Cir. 2012).
- *Capitol Records, LLC v. ReDigi Inc.*, 910 F.3d 649 (2d Cir. 2018).

### **Suggestions:**

Based on the research findings and doctrinal investigation, the following proposals are recommended to strengthen the legal framework and ensure that IPR remains effective and reasonable in the online world:

#### **Management of International IP Laws**

There is an urgent need for greater management between national and international IPR systems. Although TRIPS and WIPO treaties provide broad frameworks, their implementation remains incompatible. (WIPO, 2020).

#### **Modernization of Copyright Law for the Digital Age**

Copyright frameworks must progress to address the realities of digital content allocation. Legislators should clarify doctrines such as fair use and transformative use in the context of social media, streaming, and AI-produced content. (Kesan C Hayes, 2017).

#### **Delivering AI-Generated and Machine-Created Works**

Traditional notions of authorship and inventorship are ineffective for AI systems capable of producing original works. Governments and IP offices must define the status of AI as a

probable creator or, alternatively, assign ownership to human inventors or users. Legal recognition of AI-generated works, while controversial, is critical to sustaining innovation incentives (Gervais, 2019; Abbott, 2020).

**Reference:**

Abbott, R. (2020). *The Reasonable Robot: Artificial Intelligence and the Law*. Cambridge University Press.

### **Improving Digital Application Mechanisms**

Enforcement remains one of the weakest qualities of IPR in the online world. Governments and international corporations should:

- Develop real-time digital examining systems to track IP violation.
- Impose platform accountability for hosting violating content.
- Further public-private partnerships between internet service providers (ISPs), creators, and enforcement agencies (OECD, 2021).

**Reference:**

OECD. (2021). *Illicit Trade in Digital Content: Policy Considerations and Enforcement Practices*. Paris: OECD Publishing.

### **Developing Public Knowledge and Digital Literacy**

Public understanding of intellectual property rights is often restricted, leading to unintended violations. Governments and institutions should launch digital IPR awareness operations and integrate IP education into academic programs to raise respect for digital creativity and innovation (WIPO, 2022).

**Reference:**

WIPO. (2022). *Building Respect for Intellectual Property: Education, Awareness, and Capacity Building*. Geneva: WIPO.

### **Encompassing Technology into IP Governance**

Emerging technologies like blockchain, smart contracts, and digital watermarking can notably enhance the protection of IP assets online. Legislators should integrate these technologies into

legal structures to authenticate ownership, prevent duplication, and enable transparent licensing (Tapscott C Tapscott, 2016).

**Reference:**

Tapscott, D., C Tapscott, A. (2016). *Blockchain Revolution: How the Technology Behind Bitcoin Is Changing Money, Business, and the World*. Penguin.

**Concluding Statements**

The digital era exhibits a contradiction for IPR: it both democratizes creativity and expands vulnerability to violation. Legal systems must thus strike a balance between innovation and law, ensuring that digital creativity is both inspired and protected.

To remain significant, intellectual property law must move outside its stationary, territorial roots and adopt a vibrant, technology-responsive frame, grounded in international collaboration, ethical use of technology, and user recognition. Only through such alterations can IPR continue to realize its fundamental purpose — promoting creativity, invention, and reasonable access in a globalized, virtual world.

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  18. Sag, M. (2018). *Internet Safe Harbors and the Transformation of Copyright*.
  19. Viacom International, Inc. v. YouTube, Inc., 676 F.3d 19 (2d Cir. 2012). <https://law.justia.com/cases/federal/appellate-courts/ca2/10-3270/10-3270-2012-04-05.html>
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