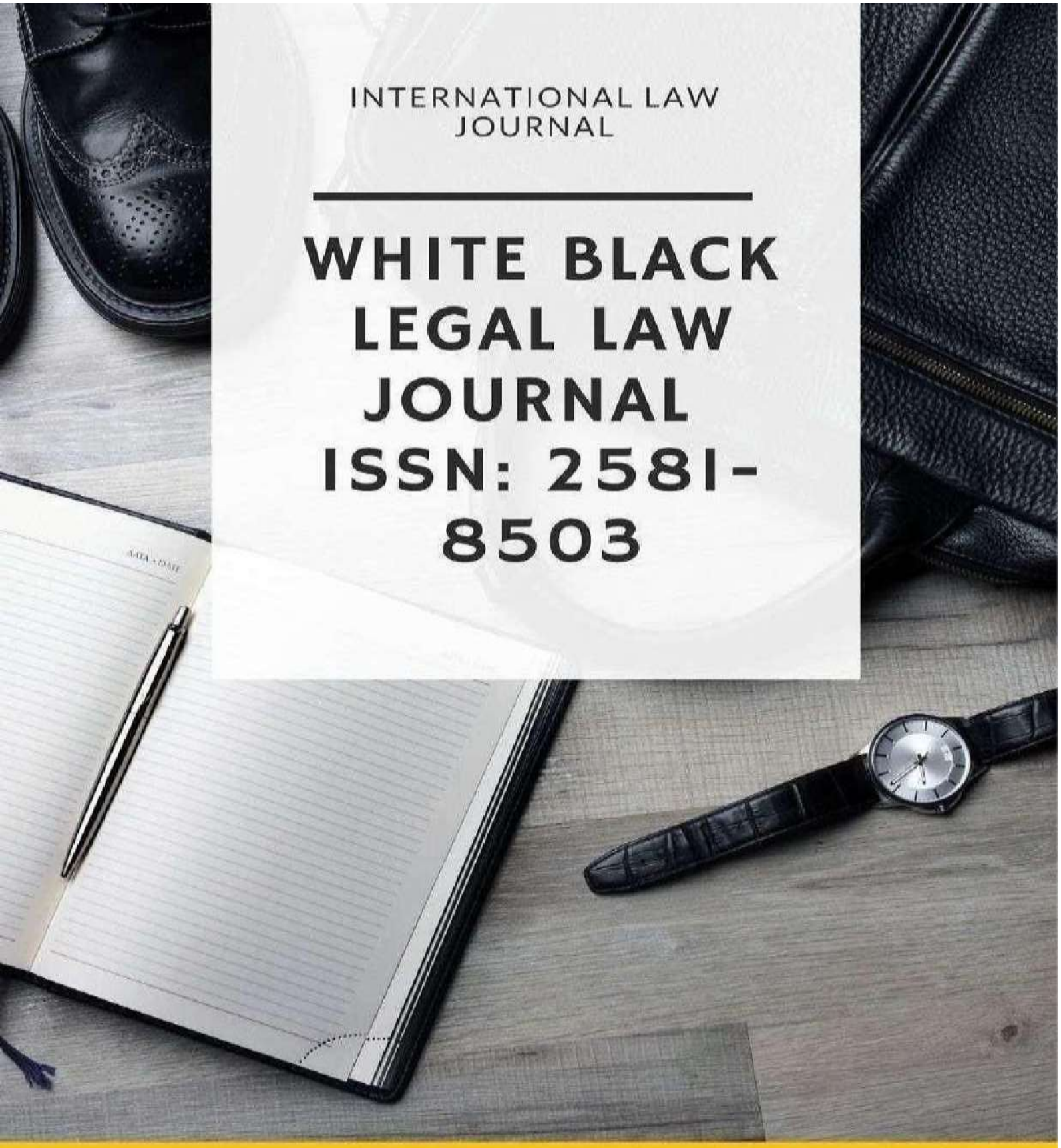

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WHITE BLACK LEGAL is an open access, peer-reviewed and refereed journal providededicated to express views on topical legal issues, thereby generating a cross current of ideas on emerging matters. This platform shall also ignite the initiative and desire of young law students to contribute in the field of law. The erudite response of legal luminaries shall be solicited to enable readers to explore challenges that lie before law makers, lawyers and the society at large, in the event of the ever changing social, economic and technological scenario.

With this thought, we hereby present to you

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AI-GENERATED INVENTIONS: OWNERSHIP AND LIABILITY IN INTELLECTUAL PROPERTY

AUTHORED BY - NUPUR DHANERIYA & ANUSHKA BANSAL

Abstract:

The Swift Amalgamation of artificial intelligence al into creative and inventive paradigms has catalysed a significant challenge within the realm of intellectual property law as AI systems increasingly reduce patent table and ventures and copyrightable creations in existing legal frameworks exhibit difficulties in addressing pertinent issues of ownership and liability these papers the human centric underpinnings of IP law, which enable mandate human authorship or inventorship juxtaposing them with nascent driven innovations through the examination of case studies such as DABIS and Thaler vs USPTO at Elucidates the jurisdictional disparities an ethical quantities associated with the allocation of rights to AI generated outwards the analysis unveils the fragmentation of policy across the United States European Union India and Japan accentuating the imperative for coherent global standards proposed reforms in the past the recognition of ai assisted in mentors the establishment of sewage and risk protection for ai generated talks and imposition of transparency requirements regarding ai training data.

Ultimately this inquiry advocates for a judicious methodology that promotes artificial intelligence AI innovation while concurrently preserving human creativity and equitable practices by amalgamating legal ethical and policy dimensions this investigation delineates a strategic framework for policymaker's academies and industry pioneers to adequately navigate the dynamic milieu of ai and intellectual property.

Keywords: Artificial Intelligence (AI), Intellectual Property (IP) Law, AI-Generated Works, Copyright Law, Patent Law, AI and Inventorship**.**

Introduction:

Despite incorporation of AI intelligence end to create one inventive endeavours has fundamentally disrupted the human centric principles underpinning intellectual property jurisprudence from AI generated artistic creation such as portrait of Edmond de Belamy Two inventions Formulated by systems like Dabus device for the autonomous bootstrapping of a unified sentence the inquiry into whether machines can be classified as mentors or authors within the parameters of current legal structures has ignited a worldwide discourse although ai is capability to independently produce patentable inventions and copyrightable creations presence and parallel prospects for innovation it simultaneously reveals Significant ambiguities within IP regulations start for established safeguard human creators.

Despite opportunities for innovation current laws face ambiguities in the backing alt assignment or authors the US and EU reject AI generated IP while South Africa and Australia offer limited recognition revealing a fragmented global response.

Display per explores legal ethical and policy challenges in assigning ownership and liability for AI generated works key questions include:

1. Ownership who owns AI generated IP the developer user or AI itself?
2. Liability who is accountable for IP infringement by AI systems?
3. Policy how can IP laws balance innovation with fairness for human creators?

By analysing landmark cases like Thaler vs USPTO and the us copyright Director the study aims to inform policymakers on harmonizing IP laws with ai driven innovation.

Literature Review:

The intersection of Artificial Intelligence (AI) and Intellectual Property Rights (IPR) presents significant complexities, primarily concerning the ownership and legal treatment of AI-generated outputs. Current human-centric IP frameworks, as evidenced by cases like *Thaler v. USPTO* (2022) in the US, generally deny copyright protection to purely AI-created works due to the lack of human authorship, a stance echoed in the EU and India. While South Africa's grant of a patent to the AI inventor DABUS stands as a notable divergence in patent law, most jurisdictions, including the US and EU, maintain the requirement of human inventorship. This discrepancy highlights jurisdictional inconsistencies, a concern underscored by WIPO (2024), which emphasizes the need to balance innovation incentives with established legal principles

to avoid disincentivizing human creators. The ambiguity surrounding authorship and originality of AI-generated content creates legal grey areas, with the U.S. Copyright Office requiring significant human input for protection and scholars like Guadamuz (2021) arguing that AI outputs often fail to meet traditional originality standards. Similarly, patentability of AI-assisted inventions faces scrutiny under non-obviousness criteria. In response to these challenges, recent scholarly discussions and policy proposals suggest exploring sui generis rights for AI-generated works and recognizing AI-assisted inventorship, though ethical concerns regarding potential stifling of innovation remain, as cautioned by the *Journal of Modern Law and Policy* (2024). WIPO (2024) further advocates for international cooperation to harmonize AI-related IP laws and address cross-border challenges.

Point of intersection and complexities between AI and IPR:

a. Ownership of AI generated IP

Human-Centric Frameworks: Current IP laws universally require human authorship/inventorship, as seen in *Thaler v. USPTO* (2022)[1], where AI-generated works were denied copyright protection due to lack of human creativity.

Jurisdictional Divergence: While South Africa granted a patent to DABUS (AI inventor), the US, EU, and UK rejected similar claims, highlighting inconsistencies in patent law application.

Economic Implications: WIPO (2024) emphasizes the need to balance innovation incentives with human-centric IP frameworks to avoid disincentivizing human creators.

b. Legal challenges in AI generated content

Authorship Ambiguity: The U.S. Copyright Office maintains that AI lacks legal personality, leaving AI-generated works in a "Legal grey area" unless significant human input exists.

Originality Standards: Guadamuz (2021) argues that AI-generated works fail to meet originality thresholds in copyright law unless human creativity directs the output.

Patentability: AI-assisted inventions face scrutiny under non-obviousness criteria, as AI's iterative processes complicate traditional patent assessments.

[1] Thaler v. Vidal, 43 F.4th 1207 (Fed. Cir. 2022).

Policy responses and theoretical gaps:

Recent policy responses on scholarly discussions are highlighted several recon proposals to address the complexities around big artificial intelligence and intellectual property ownership. Notably recent studies have suggested the implementation of sui genres right for AI travelled groups of limited term protection tailored specifically to machine created outputs another prominent commendation is the recognition of ai assisted inventorship, where in ownership rights would be shared between AI developers and users who contribute to the creative or inventive process however these proposals are accompanied by significant ethical concerns. Extending intellectual property rights to AI generated content may inadvertently stifle innovation particularly if overprotection limit access to and reuse of machine generated materials. Liff concern was emphasized in the Journal of modern law and policy 2024[2] which cautions Against granting expansive rights that could handle further technological advancement on a global scale the world intellectual property organization had underscored the need for international Cooperation to address jurisdictional fragmentation in AI related IP laws. As outlined in 2024 report WIPO Advocates or harmonized frameworks that can effectively manage cross border challenges posted by AI generated inventions and ensure a balance fair approach to intellectual property governance in the era of artificial intelligence.

- **Patent Law**

  Patent law in most jurisdictions continues to require women inventorship as a prerequisite for patent eligibility. Authorities such as United States patent and Trademark Office (USPTO) and the European patent office EPO have explicitly rejected applications listing artificial intelligence systems such as DABUS, as inventors reaffirming that current legal frameworks could not recognize AI as a legitimate inventor. In Indian context while patent act does not specifically address the question of AI inventorship the government maintains that the existing legal provisions are adequate to safeguard innovations involving AI without necessitating the introduction of new rights or legal categories however the conversation around this issue is evolving. A 2024 paper published on the Social Science Research Network (SSRN) discusses emerging proposals that support the recognition of “AI-assisted inventions.” These proposals suggest that patent protection could be granted in cases where human-AI collaboration satisfies existing patentability criteria, reflecting a growing interest in

[2] Journal of Modern Law and Policy, Vol. 5, No. 1, (2025), published on Dec. 31, 2024.

adapting legal norms to accommodate the realities of technological advancement.

- **Copyright Law**

  Authorship standards incorporate law continues to emphasize the necessity of human creativity for protection eligibility. in the United States the Copyright Office has consistently rejected AI generated box as demonstrated in Thaler vs USCO, on the grounds that such creations must involve human authorship to qualify for protection. Similarly, the European Union's copyright directive 2019 permits certain users like text and data mining but upholds the principle that only works created by humans can receive copyright protection. In India, The Copyright Act of 1957[3] grants rights to legal persons explicitly excluding AI from authorship recognition. The Indian government has clarified that for AI generated invokes to be protected they must include meaningful human input. These standards reflect broader concerns about originality in the age of generative ai. A notable example is the AI generated portrait Edmond de Belamy, which was rejected for copyright protection and jurisdictions like US due to absence of human authorship highlighting the ongoing tension between technological capability and legal recognition.

- **Jurisdictional Comparisons**

Jurisdiction	Patent Approach	Copyright Approach
US	Rejects AI inventors (*Thaler v. USPTO*)	Requires human authorship (*Thaler v. USCO*)
EU	Follows EPO's human-centric rules	Permits AI-assisted works if human-directed
India	No explicit AI provisions; relies on existing Patent Act	Requires human input for copyright eligibility
South Africa	Granted patent to DABUS (2021)	No clear stance on AI authorship

[3] The Copyright Act, 1957, No. 14, Acts of Parliament, 1957 (India).

- **Emerging Proposals**

  These in the field of AI and intellectual property seek to strike a balance between fostering innovation and maintaining legal clarity. A 2025 Dentons report re commends the creation of sui generis rights that offer limited protection for AI generated works aiming to encourage continued development while avoiding long term monopolies. In Indian context legal scholars have suggested amending the patent act to recognize AI systems as contributors rather than inventors in collaborative inventions thereby acknowledging their role without conflicting with existing human inventorship requirements. At the international level the world intellectual property organization (WIPO) has emphasized the need for global harmonization. In its 2024 report WIPO Calls for Unified Standards to mitigate the challenges of jurisdictional fragmentation and to ensure consistent treatment of AI related intellectual property across borders.

Policy Responses and Proposed Reforms:

Government and Institutional Initiatives

a. National Strategies

Government and institutional initiatives are increasingly shaping the regulatory landscape for ai and intellectual property the United States Patent and Trademark Office (USPTO) introduced its 2025 AI Strategy with a focus on inclusive innovation aiming to modernize patent examination guidelines to accommodate AI-assisted inventions while retaining the essential requirement of human inventorship. In the United Kingdom the Labor government's 2025 consultation proposes expanding text and data mining (TDM) exceptions to facilitate AI training. This includes permitting commercial use of copyrighted materials provided that copyright Holders retain the right to opt out. Meanwhile, New Zealand has adopted a light-touch regulatory approach choosing to apply existing IP laws to AI generated outputs. This strategy reflects a deliberate effort to encourage innovation by avoiding the complexities and potential burdens of over regulation in a rapidly evolving technological environment.

b. International Collaboration

International organizations are playing a key role in shaping the global discourse on AI and intellectual property. The world intellectual property organization (WIPO) continues to advocate for harmonization of AI related IP laws to resolve issues arising from jurisdictional fragmentation. A notable example is the contrasting treatment of the

DABUS patent applications which were approved in South Africa but rejected in jurisdictions like United States and European Union due to differing legal standards. Complementing these efforts the organization for economic cooperation and development (OECD) has issued recommendations calling for updated IP frameworks that address the complexities of ai systems trained on scrap data these guidelines emphasize the importance of striking a balance between fostering technological innovation and protecting the legitimate rights of content creators and data owners.

Proposed Legal Reforms:

These aims to create a more balanced and adaptable intellectual property framework in response to advancements in artificial intelligence. One key recommendation is the introduction of sui generis protections as outlined in the 2025 Dentons report which suggests granting limited-term IP rights typically ranging from five to ten years for AI generated works. This approach seeks to encourage innovation by ensuring timely access to the public domain. Additionally, there is growing support for recognizing AI assisted inventorship where ownership is shared between developers and users involved in producing AI assisted outputs. In the realm of copyright legal adaptations are also underway, both the EU's copyright directive (2019) and the UK's (2025) proposals advocate for expanding text and data mining (TDM) exceptions to enable AI training while still allowing right holders to opt out. Furthermore, transparency measures such as attribution requirements are being considered including mandates to disclose training data sources. These provisions are seen in the draft of EU's AI Act, aim to reduce infringement risks and promote responsible AI development.

Industry-Driven Solutions

These are emerging as complementary mechanisms to legal reforms in addressing intellectual property challenges posed by artificial intelligence. One approach is ethical self-governance, where companies such as open AI have adopted voluntary guidelines that assign ownership of AI generated outputs to users while explicitly disclaiming liability for potential copyright infringement. In parallel, licensing frameworks are evolving to manage disputes over the use of operated materials in AI training with market-based models enabling paid access to proprietary data sets. On technological front AI- powered IP management tools are gaining traction, platforms like lamb IP utilized AI to automate patent searches and detect potential infringement risks in real time enhancing efficiency and compliance. Additionally generative

AI systems are increasingly integrating safeguards such as content filters to prevent the production of Outputs that closely resemble copyrighted works. For example, Stability AI has implemented moderation tools designed to curb unauthorized replication reflecting the industry's growing commitment to responsible innovation.

Emerging Trends and Future Directions

These reflect the dynamic evolution of technology and its intersection with legal systems. One notable development is the rise of metaverse IP protections with jurisdictions exploring new patent categories tailored to virtual goods and services and immersive experiences as mixed-reality platforms continue to expand. In parallel advancements in biotechnology have quantum computing are promoting legal systems to adapt ensuring that AI-driven innovations such as gene-editing techniques and quantum algorithms are adequately protected under evolving intellectual property frameworks. Additionally, the growing scale of digital content markets as intensified the need for global enforcement mechanisms. Cross-border cooperation is becoming essential against the complexities of AI-related IP infringement particularly in regulating unauthorized use and distribution of creative works and technologies across jurisdictions.

Ethical Implications of Granting IP Rights to AI:

Redefining Creativity and Ownership

- **Challenging Traditional Notions of Creativity**:
  Intellectual property IPL laws are historically rooted in human creativity and effort granting IP rights to aid this paradigm praising questions about whether machines generated outputs can truly embody originality or authorship as traditionally defined for instance the debate over corporate protection for ai generated works such as those produced by DALL-E or ChatGPT, mirrors earlier controversies like the monkey selfie case where coach ruled that copyright could only be granted to humans. Critics argue that recognizing AI as an inventor or author diminishes the value of human ingenuity potentially eroding incentives for human creators to Innovate.
- **Blurred lines between human and machine effort:**
  Ai generated content often involves a mix of human input example prompts and machine processing determining the extent of human contribution and whether it warrants exclusive ownership remains a significant ethical challenge for example at the India's Copyright Act 1957 the person who caused a computer-generated work to be

created is considered the author but this definition lacks clarity in cases of autonomous ai systems.

Fair Use and Exploitation Risks

- **Fair Use Dilemmas:**

  AI systems trained on copyrighted material without explicit consent raise ethical concerns about fair use. While transformative use is often cited as a justification the boundaries of what constitutes fair use in the context of generative ai remains unclear. For example, lawsuits against open ai by authors like Jodi Picoult and John Grisham highlight fears that AI training on copyrighted works could exploit creators' intellectual property without adequate compensation.

- **Exploitation of Creators:**

  The ability of generative ai to replicate styles techniques or even entire work process risk to artist, musician's and writers whose livelihoods depend on their unique creative outputs this raises ethical questions about whether granting Ip rights to ai could inadvertently harm human creators by legitimizing such practices.

Privacy and Data Ethics

- **Training Data Transparency**:

  Many generated ai models rely on past datasets scraped from the Internet often without clear consent from data owners this practice not only influences on privacy but also raises ethical concerns about weather outputs derived from such data should qualify for IP protection**.** UNESCO emphasizes the need for transparency and traceability in AI systems to ensure ethical compliance throughout the data lifecycle.

- **Informed Consent**:

  Ethical frameworks must mandate that creators whose works are used in training datasets are informed and adequately compensated this principal alliance with broader calls for respecting privacy and ensuring fairness in ai driven innovation.

Societal impacts of granting IP rights to AI

- **Economic Disparities:**

  Granting IP rights to a I systems for exacerbate Existing inequalities by consolidating power in the hands of large corporations that own or develop these systems. This raises ethical concerns about equitable access to innovation and its benefits.

- **Impact on Employment**:

  As industries increasingly adopt generative AI for creative tasks, traditional roles in art, music, writing, and design may face displacement. Ethical considerations must address how granting IP rights to AI could reshape labour markets and affects human livelihoods.

Balancing innovation with ethical responsibility

- **Encouraging responsible innovation:**

  Policymakers must strike a balance between fostering innovation through IP protections for AI generated works and safeguarding human creativity and rights. This may involve creating new frameworks such as Sui Generis writes that provide limited term protections for machine generated outputs while preserving public domain access.

- **Global collaboration on ethical standards:**

  International organizations like UNESCO advocate for harmonized ethical guidelines that prioritize transparency fairness and accountability in ai governance. Collaborated efforts among governments industry leaders and Academia are essential to address these challenges holistically.

Case Studies:

Landmark Legal Disputes on AI-Generated IP

a. DABUS Patent Applications: Human vs. Machine Inventorship

Jurisdictional Split: South Africa's 2021 patent grant to DABUS (AI inventor) vs. rejections by the USPTO, EPO, and India.

Implications: Highlights the lack of global consensus on AI's role in inventorship.

b. Thaler v. U.S. Copyright Office (2023)

Issue: Denial of copyright protection for AI-generated artwork (*A Recent Entrance to Paradise*).

Outcome: Reinforced the human authorship requirement under U.S. law.

c. New York Times v. OpenAI (2023)

Allegations: Unauthorized use of copyrighted articles to train ChatGPT.

Ethical Dimension: Raises questions about fair use and compensation for creators.

AI generated art and copyright

a. **Portrait of "Edmond de Belamy" (2018)**

Background: AI-generated artwork sold at Christie's for $432,500.

Legal Status: Denied copyright protection in United States and European Union due to lack of human authorship.

b. **India's AI Art Dilemma**

Example: AI-generated devotional art (e.g., Ganesha images) challenges traditional authorship norms.

Policy Gap: India's Copyright Act (1957) lacks explicit provisions for AI-generated works.

Text and Data Mining (TDM) Controversies:

a. **European Union Copyright Directive (2019)**

TDM Exception: Allows AI training on copyright data but grants opt-out rights to creators.

Impact: Balances innovation with rights-holder protections.

b. **Getty Images v. Stability AI (2023)**

Issue: Unauthorized use of copyrighted images to train Stable Diffusion.

Outcome: Ongoing litigation underscores liability risks in AI training practices.

Emerging Jurisdictional Approaches

a. **Japan's Flexible Stance**

Policy: Permits AI training on copyrighted data without opt-out clauses, prioritizing innovation.

Criticism: Risks undermining creators' rights.

b. **India's "AI-Assisted" Framework**

Proposal: Recognizing AI as a "contributor" (not inventor) in collaborative outputs.

Example: AI-generated Bollywood scripts and their copyright eligibility under current laws.

c. **Lessons from the Cases**

Ownership Ambiguity: No unified global standard for AI-generated works, leading to forum shopping.

Liability Risks: Developers, users, and platforms face unpredictable legal exposure.

Policy Lag: Laws struggle to keep pace with generative AI's rapid advancements.

Conclusion:

The intersection of artificial intelligence and intellectual property law present complex challenges requiring urgent legal and policy adaptation. Liability remains a grey area, with courts struggling to assign responsibility between developers, users, and AI systems, while national policies differ—some fostering innovation, others prioritizing creator protection. Creators face displacement risks, corporations navigate both litigation threats and monetization opportunities, and policymakers must balance AI innovation with fair competition.

The Policy recommendations include recognition of AI assisted inventorship, sui generis protection for AI generated work and enforcement of data mandates for transparency and instruments safeguards.