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# A Critical Analysis of Copyright Laws for Regulating the Legal Framework for Artificial Intelligence

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**Abstract:** *In the 21st century, the emergence of Artificial Intelligence (AI) has reshaped innovation, presenting unique challenges to Intellectual Property Rights (IPR). This burgeoning industry, propelled by researchers' ingenuity, has the potential to revolutionize various sectors, significantly impacting IPR globally. IPR serves as a safeguard for personal inventions, yet the current framework appears inadequate in addressing the multifaceted aspects of AI. As AI evolves, questions arise about the sufficiency of existing IPR laws in managing the inventive outputs of AI systems. This article explores the intersection of artificial intelligence and intellectual property, focusing on legal structures governing the ownership rights of goods produced by AI systems. The objective is to provide a comprehensive understanding of the intellectual property challenges associated with AI's inventive capabilities. The following are the crucial questions that are raised herein: Who will be the author of the AI generating text, AI itself, the programmer, or the input of the text? Can AI system generation have a risk of copyright infringement? Can Pakistani IPR laws adequately address contemporary issues arising from AI innovation? This article thus identifies gaps in the current legal landscape and proposes policy recommendations to address these challenges. This contributes to the discourse on the evolving relationship between AI and IPR, offering insights to inform future legal frameworks in this rapidly advancing field.*

**Key Words:** Intellectual Property Law, Artificial Intelligence, Copyright Laws

## Introduction

The increasing capabilities of artificial intelligence (AI), particularly in generating content that emulates human creativity, introduce complex copyright considerations. This research delves into two critical questions arising from the AI learning process: one about the utilization of existing works as inputs and the other concerning the copyright implications of the AI-generated outputs. Examining the process, it explores whether actions like accessing, reading, preparing, analyzing, and mining data for AI learning could constitute copyright infringement, and if so, whether any defenses apply. Additionally, it investigates the potential copyright infringement claims that may arise from the outputs of AI systems, questioning the ownership rights of the resulting works and their relation to existing copyrighted material. This work attempts to answer whether AI can be acknowledged as the inventor of AI-generated inventions. The study primarily focuses on jurisdictions such as the United Kingdom and the United States, with touchpoints in Europe, Australia, and African jurisdictions. The similarity of Pakistani legislation to that of the US and UK is the driving force for this decision to focus on these jurisdictions. The final section of the article offers concrete suggestions to facilitate the integration of AI within the legal framework.

## The Intersection of Artificial Intelligence (AI) and Intellectual Property (IP)

The term artificial intelligence (AI) refers to the simulation of human intelligence in machines, which are designed to mimic human behavior and mental processes (The Investopedia Team 2024). Artificial intelligence can refer to any technology that demonstrates characteristics of human cognitive processes, like learning and problem-solving. Artificial intelligence needs to be able to reason and make choices that maximize the likelihood of reaching a given objective to be effective. Artificial intelligence (AI) is a rapidly expanding field in technology, having applications in many facets of the economy and society. Its profound

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influence is already felt in the development, creation, and distribution of products and services that impact the cultural and economic spheres, and it will probably continue to shape these areas going forward(Copeland 2024). Since one of the primary goals of intellectual property (IP) policy is to promote innovation and creativity in the economic and cultural systems, there are several areas in which artificial intelligence (AI) and intellectual property (IP) policies (cross WIPO Secretariat 2020).

John McCarthy first used the term "artificial intelligence" in 1955. It gained popularity in 1956 during a conference held at Dartmouth College in the United States, which brought together researchers working on a variety of subjects, including language modelling and learning machines. In the six decades that have passed, there have been moments of notable scientific progress, but AI has frequently fallen short of the excitement that surrounds artificial intelligence and has often not lived up to the hype (Anyoha 2017).

Artificial intelligence (AI) is expected to significantly affect our daily lives shortly. Given their potential uses in a variety of industries, the growing complexity and autonomous decision-making of AI-powered systems present serious legal and regulatory challenges. The intricacies of AI-generated outputs have not been sufficiently addressed by the current intellectual property (IP) legal framework. Recent policy changes, however, indicate that addressing AI-related problems is becoming more important (Commission, Joint Research Centre, Iglesias, Shamuilia, & Anderberg, 2021).

Future job losses are one of the main worries people have about AI. Should we develop and incorporate AI into society if it implies that many people will lose their jobs, and potentially their livelihoods, as well? A recent McKinsey Global Institute analysis projects that 400 to 800 million employments would be lost to AI-driven robots by 2030 (Ellingrud et al., 2023). Take into account that the majority of contemporary economic systems demand that employees generate a good or service in exchange for an hourly wage. Machine learning takes time to become effective, and artificial intelligence is not impervious to error. Good data can be used to train someone to perform effectively; incorrect or poor data can do the opposite.

International organizations are actively participating in the global discourse surrounding the ramifications of artificial intelligence (AI) and its incorporation into society. At the forefront is the World Intellectual Property Organization (WIPO 2020), which is looking into the relationship between AI and IP rules as well as how IP offices use technology and AI. Simultaneously, studies on the legal and economic aspects of artificial intelligence (AI) have been conducted, and the European Patent Office (EPO) has issued new regulations on the patentability of AI and machine learning (Renaud & McConihe 2019). Moreover, a noteworthy cooperation between the five biggest intellectual property offices globally has led to the decision to establish a task force devoted exclusively to artificial intelligence and developing technologies. This collaborative effort highlights the shared commitment to tackling the complex issues resulting from the junction of AI and intellectual property on a worldwide scale, reflecting the acknowledgement of AI as a strategic priority (Second IP5 NET/AI Task Force Meeting Summary 2021).

## Ownership of Copyrights Generated by Artificial Intelligence (AI) in Different Jurisdictions

Copyright, patent, trademark, and trade secret are examples of intellectual property that are established and recognized by intellectual property laws. Typically, it's classified as an intangible asset. It has rights associated with it just like physical property does. Through incentives and other means, these rights enable the intangible property's creators or owners to profit from it. The Universal Declaration of Human Rights specifically states in Article 27 that the owner of intellectual property is entitled to have their interests resulting from artistic, scientific, and literary endeavors protected. Historical accords like the "Paris Convention for the Protection of Industrial Property (1883)" and "The Berne Convention for the Protection of Literary and Artistic Works (1886)" are the foundation for the acknowledgement and establishment of intellectual property rights.

Intellectual property ownership, manifested through patents and copyrights, resides with the creator or inventor. The author or inventor owns the exclusive rights to any intellectual property, and utilization of the property by others is permissible only with the explicit consent of the patent or copyright holder (Hughes 1988). A right indefinite in point of the user, unrestricted in point of disposition, and unlimited in point of duration," is what Austin defines as ownership (Wilson 1957). When extending the ownership right to artificial intelligence, consideration must be given to these fundamental elements of the ownership right. The exclusive beneficiary of the ownership right is the "natural person," acknowledging and safeguarding the rights of human inventors. The ownership right is the defense against unauthorized use of property. This guarantees that the innovator will be rewarded with their diligence, skill, and unmatched knowledge (Huang & Hayat, 2019).

Typically, the inventor is the first owner of a patent and holds the right to enforce or transfer it. In

In employment settings, ownership may default to the employer. These rules extend to AI-assisted inventions. However, when no human inventor is identified for an AI-generated invention, ownership

becomes legally uncertain. Since AI lacks legal personhood and cannot own property, ownership might lie with either the user of the AI tool or the owner of the AI system, though this remains a subject of debate. There are two primary options regarding ownership: either the user of the AI tool to create the particular work or the owner of the AI system (Moerland 2022). "End users' claim to authorship is least compelling since they contributed the least" (Hristov 2017)

Copyrights on works created by machines belong to "whoever has undertaken the necessary provisions for the creation of the work," according to certain jurisdictions like the UK (UK Copyright, Design, and Patent Act 1988) and New Zealand (New Zealand Copyright Act 1994). Put differently, the individual who built the machine will be granted copyright rather than the machine/AI. Based on legal and policy considerations, designating the owner of the artificial intelligence as the default holder of copyright ownership is the most suitable approach (Abbott 2016).

There are no explicit instructions regarding ownership regulations for works created by artificial intelligence under the Copyright Act. However, possession is permitted by common law entitlement rules. Essentially, the owner of the original property has a claim to any future properties that are produced by that original property. This is known as the accession principle, and it is applicable in several situations (Merrill 2009). The person who owns the cow also becomes the owner of the calf after it is born (*Carruth v. Easterling*, 1963). In a similar vein, the fruit of a fruit tree belongs to the owner of the tree. The fruit is obtained through the tree; ownership is not transferred through a formal document; rather, the fruit is automatically owned by the tree's owner as a result of their relationship with the fruit tree (Franklin v Giddins 1978). Similarly, any tangible property created by an artificial intelligence (AI) system, such as a painting printed by a 3D printer, would be attributed to the owner of the AI system.

If the sole ownership rights of AI-generated content rest with the AI's owner, users of such AI may find themselves unable to utilize the generated work freely. They can only do so if the owner provides a specific license, which is often a lengthy process. This situation could lead to significant confusion and complications. Many laws and policies in developed countries have been unable or have failed to provide detailed guidelines to address the AI content. It has led us to a situation where a few large corporations can innovate after getting a license but startups are not allowed to do so. To avoid licensing, we have an option to train the AI on creative commons or public domain works. It would reduce the AI work and increase the presence of bias in AI. For reference, the representation of Wikipedia is less than 1% of what is used to create catboats, such as Chat-GPT (Callison-Burch 2024).

The owner of artificial intelligence (AI) may be entitled to copyright if the AI-generated work is categorized as a WMFH (Work Made for Hire). Either an employment relationship or a signed document from an independent contractor is needed to prove this claim (Hill 1989). AIs may be viewed as employees under the WMFH doctrine even though they are not legally recognized as such and are not able to sign contracts (*Horror Inc. v. Miller,* 2021). In Community for Creative Non-Violence v. Reid, the Supreme Court determined what characteristics, according to agency law, make an employment connection. The most important thing is not who the default owner is, but rather how property rights are established (*Community for Creative Non-Violence v. Reid* 1989). When property rights are well-defined, it facilitates optimal solutions through discussion between many parties, such as the owner, programmer, and user, especially in cases where copyright is transferable. This kind of proactive action is more likely to occur when the possibility of copyright provides a strong incentive to promote invention or teamwork (Abbott & Rothman, 2022).

If one were to read this clause in terms of AI, the owner or programmer of an AI machine would be considered an employer, using the AI device's capabilities to create new works of art. As a result, this idea might be used to keep AI-generated works out of the public domain. The work-made-for-hire doctrine permits the owner of the AI to be acknowledged as the legal "author" for legal purposes, even when the AI itself was the original inventor of the work (Sandiumenge 2023).

As AI becomes more capable of producing content on its own, complex copyright issues arise, especially concerning ownership of AI-generated works. It's unknown who the true owner of the generated content's copyright is. Since AI systems are trained on a wide variety of materials from multiple sources—all of which are likely the creations of individuals who possess copyright over their respective works—there is a temptation to argue that the creators of the source material should have some claim to the copyright in the generated content. This makes it difficult to decide who should properly own content created by AI (Ekhator 2023).

The question of whether AI can meet the criteria for patent eligibility underscores the complexities in pursuing legal action against numerous infringers for enforcing patent and copyright rights. It is suggested that granting patent or copyright ownership to AI may not be feasible given the state of intellectual property laws today. Artificial intelligence is a byproduct of human intelligence and functions under human

supervision, proving that only persons are qualified to hold rights in the field of intellectual property. It bases this assertion on a 2018 study conducted by major patent offices. The ownership rights of AI-generated content are still debatable. Because if the AI-generated invention is given to a person who may be an owner, creator, or user, then the doctrine of fair use and non-commercial use will be destroyed. The ownership claim can further clarify/investigate the infringement of the existing copyrights because the AI can give an output based upon the AI being trained.

## Analysis of Artificial Intelligence (AI) and copyrights in different jurisdictions

The unique right granted to authors and artists for their creative works, including computer programs, electronic databases, paintings, sculptures, music, and literature, is known as copyright(WIPO 2016). For a limited time, authors are awarded the exclusive right to use and profit from their creations in compliance with the copyright rules of their respective nations. The intellectual work that comes from the human mind has to be created by the author. With the advent of AI, machines have been developed that can independently create and generate creative content (Yanisky-Ravid 2017). An example of one of these machines is the "eDavid robot." This painting robot, called eDavid, was created at the University of Konstanz in Germany. It can compute brushstrokes, analyze input images, and paint images onto canvases. In contrast to conventional techniques for copying pre-existing artwork, eDavid uses its camera to take pictures, uses its judgment to make different choices, and then uses these pictures as inspiration to create unique and imaginative paintings (Deussen & Stroh 2018).

Artificial intelligence has significantly advanced the copyright field, attracting increased funding and recognition. A key example is Google's 2017 support for a local news-writing AI project, where it granted €706,000 to the UK and Ireland's Press Association (PA) to develop an AI-driven local news service. PA editor Peter Clifton emphasized that while humans would still guide story development and selection, AI would handle large volumes of information to improve efficiency (Gregory 2017).

A novel written by an AI computer in 2016 came very close to winning a national prize. At the third Nikkei Hoshi Shinichi Literary Awards ceremony, which was held in Japan, the book "The Day a Computer Writes a Novel" placed second (Olewitz 2016). Programmers from Future University Hakodate, Japan, set the construction parameters using a specified set of words and sentences before letting the AI create the literary work. In addition, Dutch researchers presented "The Next Rembrandt," an AI-generated piece of art, the same year, according to reports (Guadamus 2017). The mentioned artwork was created by an artificial intelligence system that scanned data from paintings by the renowned Dutch artist Rembrandt. This process was employed to construct a facial recognition algorithm, resulting in the generation of the artwork.

In addition, new information indicates that scientists at DeepMind Technologies—UK-based AI businesses currently owned by Google—have created an AI system known as Wave Net. This system can listen to recordings and create music using text passages that are supplied. This is noteworthy because it goes beyond conventional voice recognition. After all, AI represented by Wave Net can produce speech sounds. These are but a few examples; AI has shown it can independently edit images, write poetry, and develop in a variety of technological fields given the correct data or computer instructions (Coldewey 2016). Additionally, AI systems have been used in the transportation industry, most notably in autopilot and other related fields, including self-driving cars.

Arguments in favor of the traditional approach state that only natural and artificial persons should be entitled to intellectual property rights since "even the most sophisticated machines remain a machine and not a living being-a tool in the hands of inventors" (Diaz 2018). They contend that since AI is unable to produce works on its own without human input, inventorship rights belong to the person who created the AI (Cifrodelli 2021). The opposing opinion contends that, given the state of AI development, it is premature to take AI into account when granting intellectual property rights. Supporters of this viewpoint cite examples such as errors and technological issues in automated vehicles that result in transportation-related accidents. Many automakers have been forced to issue warnings in reaction to these difficulties, stressing that "autopilot and a more sophisticated Full Self-Driving systems cannot drive themselves" (Spectrum News 2022). It is recommended that drivers maintain constant awareness and readiness. This viewpoint maintains that intellectual property rights should not be extended to artificial intelligence (AI) until the technology develops further and demonstrates its dependability.

Unlike many other countries, the UK safeguards computer-generated works not originating from humans (UK CDPA 1988). As per the law, the individual responsible for organizing the essential arrangements for creating the work is considered the author (UK CDPA 1988). Furthermore, the protection extends for 50 years from the time the work is produced (UK CDPA 1988). The laws introduced in 1987, according to Lord Young of Graffham, were "the first copyright legislation anywhere in the world which attempts to deal specifically with the advent of artificial intelligence," marking a groundbreaking endeavor

on a global scale. The primary objective of this legislation extended beyond simply safeguarding works produced by a computer acting as a "smart pencil." Rather, it sought to offer protection for a wider variety of content, such as weather maps, expert system outputs, and artificial intelligence projects (Intellectual Property Office 2021).

Since then, copyright laws in the US have been in effect, stating unequivocally that copyright ownership belongs to humans. The term "author," while not defined directly in section 101 of the Copyright Act of 1976, is generally understood by the courts to refer to a human being. In the Community for Creative Non-Violence v. Reid decision, for instance, the Supreme Court determined that the author is the "person who translates an idea into a fixed, tangible expression" (*Community for Creative Non-Violence v. Reid* 1989) Likewise, in a different instance, the Ninth Circuit made it clear that a writer is someone who "compiled, selected, coordinated, and arranged" the creative work (*Urantia Foundation v. Maaherra* 1997). The US courts have ruled in several cases that an author's distinct personality and reaction to the outside world are the necessary components that entitle a work to copyright protection (*Bleistein v. Donaldson Lithographing Co.,* 1903). Additionally, they have stated that a work must have a "creative spark" to qualify for copyright protection (*Feist Publications, Inc. v. Rural Telephone Service Co* 1991). The Commission on New Technological Uses of Copyrighted Works has sided with the courts and firmly rejected authorship for computer technologies. The rationale behind this rejection is that computers cannot be considered the original producers of a work because they lack the creative qualities that humans possess (CONTU 1981). Updated rules have been released by the U.S. Copyright Office to clarify whether artistic works made with artificial intelligence are eligible for copyright protection. Certain AI-assisted works might be eligible for copyright protection under the new guidelines (Brittain 2023).

The US Court of Appeals for the Ninth Circuit denied the appeal of a monkey's claim of copyright infringement in the Naruto v. Slater case. In line with the rulings of the US Court, the United States Copyright Office has made the bold decision to protect only original works of authorship generated by humans (Naruto v. Slater, 2018).

In *Stephen Thaler v. Shira Perlmutter & The United States Copyright Office*, the applicant sought to register "A Recent Entrance to Paradise," a work autonomously created by AI, with the AI software listed as the author. However, the U.S. Copyright Office rejected the application, citing the requirement for "human authorship" under the Copyright Act of 1976. The court affirmed this interpretation, ruling that only works created by humans can be protected by copyright *(Thaler v. Perlmutter*, 2023)

The argument presents a serious problem for those who benefit from copyright protection. It is highly unlikely, if not impossible, for an artificial intelligence system to profit from copyright protection provided by the law. The primary obstacle is that legal recognition of artificial entities must be created and established. This raises an important concern regarding the ownership of copyrights for works created by AI systems, since these systems are inherently incapable of formally claiming copyright protection. The artificial intelligence system is essentially a creation of human intellect and creativity, even though it is capable of autonomously producing creative works with little assistance from humans. Thus, the argument goes that the human developer or programmer ought to own the copyright on the results or works generated by the AI system since they are the ones who created it (Ogwuche 2022).

"AI-generated" and "generated autonomously by AI" are an interchangeable term that refers to an AI output without human intervention. In this case, the AI changes its behavior and responds. While the term used for the AI output that is generated with human intervention or direction is known as "AI-assisted"(WIPO 2020).

AI-assisted outputs can qualify as "works" under EU copyright law if they meet specific criteria. First, the output must belong to the literary, scientific, or artistic domain, as outlined in Article 2(1) of the Berne Convention. Second, human intellectual effort must be evident, as clarified by the CJEU in the *Painer* case, where AI tools are likened to instruments aiding the author in expressing their creative vision. Originality is also essential; the author must make creative choices during production, reflected in the final work *(Eva-Maria Painer v. Standard VerlagsGmbH* 2011). Finally, the output must express the author's creativity in an original manner, as emphasized in the *Infopaq* and *BSA* cases. In Kristina Kashtanova's case, her detailed prompts, creative direction, and integration of preliminary sketches ensured the AI-generated artwork embodied her original mental conception. Without such human intervention and creative control, AI outputs cannot qualify as copyright-protected works (Hugenholtz & Quintais, 2021).

The United States Copyright Office (USCO) released guidelines effective March 16, 2023, reinforcing the requirement for human authorship in granting copyright protection to AI-generated works. No matter how the AI is creative, if it is not authored by a human, it is not copyrightable. For example, Zarya of the Dawn, Kristina Kashtanova, is the author of a comic book in which images were created by the author with the help of AI. The USCO ruled in favor of Kris. Later on, when USCO realized that the author used an AI, it

reversed its decision and ruled that words and arrangements are copyrightable but images are not (Edwards 2023).

In *Gao Yang v. Youku*, the court held that screenshots from videos captured by an automatically operating sports camera mounted on a balloon qualified as photographic works because the operator had preset key settings like recording mode and display format. This human input was sufficient for copyright protection, and unauthorized use of the images was deemed a copyright infringement (Beijing Intellectual Property Court 2017). Likewise, when generative AI assists human creativity, the resulting works should qualify for copyright protection, similar to how Sarony's studio photographs were deemed copyrightable due to his creative input. (Bruce 2024).

In the case of Tech Plus Media Private Ltd. vs. Jyoti Janda, the Delhi High Court held that an Artificial/ Juristic person is not capable of copyright. In the case of Rupendra Kashyap v. Jiwan Publishing House Pvt. Ltd, the Delhi High Court held that for copyright, the author should be a natural person. An artificial person is not eligible for copyright therefore, AI cannot claim copyright (IIPRD 2024).

There are significant legal issues that lack clarity. At such times, it is often lamented that technology moves faster than the law. However, deciding whether an output was AI-generated, human-generated, or AI-assisted could in many instances be a burdensome exercise. It may be necessary to identify simple hallmarks of copyrightable or Non-copyrightable material, such as particular categories of works or methods of designating AI-generated content. As AI systems progress, it becomes more difficult to identify authorship, exhibiting increased autonomy in producing artistic works without human intervention. Global legal experts are debating the differences between copyright laws in the US and the UK about artificial intelligence and the originality of works.

## Analysis of Copyright Infringements

In general, copyright infringement happens when an author's exclusive rights are infringed. Unauthorized or illegal copying of content, including music, movies, and literature, can be one way this shows itself. Napster is a prime example; it was a peer-to-peer platform with 80 million users at its height (Michael 2012). The Ninth Circuit upheld the Northern District of California's decision in the well-known case of A&M Records, Inc. v. Napster, Inc., holding that it was illegal and a violation of copyright to upload and download music on Napster's platform (A&M Records, Inc. v. Napster 2001).

In the AI field, transparency varies; companies like Midjourney and OpenAI do not disclose their training datasets. These datasets are diverse, ranging from text and images to video and music, with differing collection methods depending on the data type. The present concern is whether or not using data for AI model training could violate someone's copyright. The procedure, which is essential to the AI training process, entails making copies of text, photos, audio, and other types of information. For example, web crawlers are used to gather text from webpages and create copies of the webpage content while training language models such as GPT (Radford et al., 2018). This begs the question: Is it illegal to copy and use this content without the owner's consent? Since not all data is copyright-protected, this analysis is essential. General information, numerical data, and factual details may not be protected by copyright, but particular elements such as written text, photographs, and artistic works may be. When evaluating the possible legal ramifications of using training data for AI models, the distinction between copyrightable and non-copyrightable data becomes crucial. For copyright protection to be effective, the work must include unique, protected content that showcases the author's creative endeavours. This includes unique works of art, music, and literature that may be included in a database, but it might not apply to just raw data. Large-scale, frequently automated data collection might not meet the criteria for originality, especially when it comes to material that is collected in the public domain and was not altered by humans, including raw statistics, numbers, and factual information. Similarly, gathering works that are already in the public domain for a database wouldn't violate anyone's copyright. The criteria that influence a piece of content's eligibility for copyright are its level of originality and protection (Infopaq International v. Danske Dagblades Forening 2009).

It can be challenging to ascertain a dataset's copyright status in advance. By using data from reliable sources, such as public domain materials or data acquired with express permission from the owner, data mining projects can avoid potential legal complications and minimize any infringement-related worries. Open-access datasets, content published under permissive some-rights-reserved licenses such as Creative Commons, or licenses about open-source software are examples of legitimate sources. As a result, developers can use a wide range of legitimate and non-infringing data sources to train their models (TuneIn Inc v. Warner Music 2021). However, relying only on works in the public domain may not be sufficient, resulting in the omission of important information and exhibiting a conspicuous bias in favor of cultures that have their cultural works preserved (Bagga & Piper, 2020). This is where the concept of copyright becomes relevant. If a developer aims to aggregate the text from every accessible website on the

Internet or extract numerous photos from the public domain, would such actions be deemed as copyright infringement? In theory, if a collection of protected works is assembled without authorization and includes any of the author's exclusive rights, for example, distribution, public communication, adaptation, or reproduction, it will violate copyright(CDPA 1988). Thus, unauthorized video copying would be against the law.

Even while not all datasets violate copyright, there are situations in which the author's exclusive rights are violated by the dataset-gathering process or the model training process. To generate outputs, many models use a temporary copy production process that is transformed into an abstract version in latent space. According to Section 28A of the Copyright, Designs, and Patents Act 1973 in the UK, producing a temporary or accidental copy that is essential to a technological process does not constitute copyright infringement. This exclusion is applicable in cases where the copy has no independent commercial value and is just intended for transmission or permissible use (Ginsburg 2017).

The *Infopaq II* and *Meltwater* cases demonstrate the CJEU's broad interpretation of "temporary copies" under Article 5(1) of the InfoSoc Directive. In *Infopaq II*, temporary electronic copies made during data collection were deemed lawful, and in *Meltwater*, user-generated copies while browsing were similarly permitted. Although not directly related to AI training, these rulings suggest that courts may apply a broad understanding of temporary copies in future cases, potentially evaluating whether AI model training processes meet the same legal criteria (Bonadio, Dinev & McDonagh 2022).

The Google Books case began in 2005 when authors and publishers sued Google for copyright infringement over its book scanning project. Google claimed fair use, and the courts ultimately agreed, citing its transformative impact and minimal market harm. This case is comparable to machine learning training, which also involves large-scale copying to create something new. Views on whether such data use qualifies as fair use in the U.S. remain divided (Liebesman & Cromer Young, 2020).

In the UK, a fair dealing copyright exemption for non-commercial text and data mining was proposed in response to a specific recommendation made by the Hargreaves Review of Intellectual Property (IPO 2011). Is it possible for a commercial organization to use a dataset that was initially gathered for scientific purposes? It is not required by the existing legal framework that any further uses of the dataset be non-commercial as well. This gives rise to activities known as data laundering or academic-washing, in which a private business uses a research dataset for profit (Baio 2022). Notably, Meta is utilizing WebVid as one of the teaching sources for its Make-A-Video video production models, utilizing this tactic. As of right now, the UK has not provided a clear answer to this matter, indicating a legal void that departs from the intended purpose of the research exception.

Three requirements must be met to prove copyright infringement: (i) the author's exclusive rights were violated without authorization ;( CDPA 1988) (ii) a direct connection exists between the two works, and (iii) either the whole work or a substantial portion of it has been copied (Bently 2018).

To avoid instances of unintentional similarity or inspiration from similar works, the second criterion for infringement in the UK mandates a causal link between the original work and the purportedly infringing copy. Proof of these connections is necessary for many copyright claims. In the well-known Francis Day v. Bron case, two songs were deemed to be similar, but the court was unable to link the song's author to the alleged infringer. Claimants must not only demonstrate similarities but also that this likeness resulted from copying (Francis Day & Hunter v. Bron, 1963). Another instance can be found in Mitchell v. BBC, where it was decided that two sets of children's TV characters were similar, albeit more as a result of shared inspiration than of direct infringement. Birss J claims that any similarities are the result of artists working in the same field and experiencing comparable circumstances (Mitchell v. BBC 2011).

In *Sheeran v. Chokri*, Ed Sheeran was accused of copying elements from Sami Chokri's song *Oh Why* in his hit *Shape of You*. Although the songs shared similarities, the court found that Sheeran had independently used the musical motif before and there was no proof he had heard Chokri's track, which had minimal exposure (Sheeran & Ors v. Chokri 2022).

In *Designer's Guild v. Russell Williams*, the court addressed whether a substantial part of a floral textile design had been copied. Despite some visual differences, a causal link was found, and the House of Lords upheld the infringement ruling, emphasizing that substantial copying should be assessed qualitatively, focusing on the importance of the copied elements rather than just the amount (Designer Guild Ltd v. Russell Williams 2001).

In *Temple Island Collection v. New English Teas*, the court found copyright infringement where the defendant produced a visually similar image to the claimant's iconic black-and-white photo with a red bus. Despite some differences, the shared visual elements—composition, color, and subject—were deemed

to have "visual significance," setting a precedent that infringement can occur based on meaningful visual similarities, not just stylistic likeness (Temple Island Collections Ltd v. New English Teas Ltd 2012).

As per the decision in the UK case University of London Press Ltd v. University Tutorial Press Ltd, this implies that the work must not have been copied. If a work materially violates the rights of earlier works, it cannot be protected by copyright unless the original copyright owner is properly credited (University of London Press Ltd v. University Tutorial Press Ltd, 1916).

Intellectual property (IP) rights, particularly copyrights, play a significant role in the AI safety regulations of both China and the European Union (EU). Article 4(3) of China's AI Interim measures mandates that the provision and use of generative AI must respect IP rights. Similarly, the EU AI Act requires providers of Generative AI Models (GPAIMs) to implement policies ensuring compliance with Union copyright laws. Both legal frameworks also impose copyright-related requirements during the AI training phase. Articles 7(1) and 7(2) of the Chinese AI Interim Measures specify that training data must originate from lawful sources and must not infringe IP rights (Peukert 2024). The EU AI Act provides a more detailed directive, requiring GPAIM providers to recognize and adhere to copyright reservations, including those articulated through machine-readable formats, as outlined in Article 4(3) of Directive (EU) 2019/790. This includes respecting opt-out provisions from copyright holders, ensuring their protected content is not used for training AI models without consent (Peukert 2024).

In this context, creative work can fulfill the criterion of originality when it can be shown that an independent AI system dedicated time, effort, and energy to develop the work, imparting it with an original character. However, if it can be shown that the data used for the AI's training and the final creative work violated an already-existing work that is protected by copyright and that the original copyright owner of the work was not properly acknowledged, the AI-generated creative work will not be eligible for copyright protection.

Why, then, is AI ineligible to be given authorship rights in a creative work? The primary obstacle lies in the insufficiency of current legislation. Laws are not sufficiently developed or effective to treat AI as a copyright holder. It is recommended that writing rights should not be granted to AI for this reason alone; instead, the rights should belong to the AI's owner. Therefore, the AI programmers and developers who have been given copyright protection bear responsibility for any infringement resulting from the data utilized in AI training. Artificial intelligence, for all its sophistication, is purely programmed; it has no free choice of its own. Furthermore, the AI cannot autonomously determine which data to accept or reject during programming, nor can it determine whether a particular piece of data is protected by copyright. Artificial intelligence is also incapable of violating copyright because it is not human. Furthermore, because AI lacks legal personhood and cannot bring or be sued in courts, potential plaintiffs would have limited options if AI were vulnerable to copyright infringement accusations. Before using source materials for AI training, the AI programmer should secure the necessary licenses from the original copyright owners to improve the protection of both the AI and the third-party user. By using this method, the third party and the AI programmer would be protected from any culpability for infringement. Additionally, it is urged that laws need to change quickly because the offered solution is just temporary. A permanent one should be considered instead.

## Pakistani Legal Outlook

On the other hand, emerging countries like Pakistan are still in the early phases of technological development and experience inefficiencies in this area. Violations of intellectual property (IP) are common, yet weak legal regimes do not appropriately address them (Murtiza & Muhammad, 2019). The progress of a country is contingent upon a robust legal framework, which is lacking in these struggling nations. Furthermore, developing nations might not be in a position to successfully implement wealthy nations' legal strategies (Noshab 2001). These countries need laws that are suited to their unique requirements. In particular, the Copyright Ordinance of 1962 and the Pakistan Patent Ordinance of 2000 are very similar to US and UK laws. The ordinance's Section 11 restricts invention to human beings. Section 2(j) of Pakistan's Patent Ordinance defines an inventor like that of Section 7(3) of the UK Patent Act. Artificial intelligence, for instance, is not deemed eligible for patent protection according to Pakistan's Patent Law. Pakistan's copyright legislation presents another difficulty because it recognizes software and code as literary creations. However, unless an idea or creative concept has been turned into a physical form of expression, it is not protected by the copyright law itself. Such issues are expected in the future, given Pakistan's young technical growth and the lack of AI inventor filings at its Patent and Copyright Office.

Pakistan's legal framework for AI remains underdeveloped, with no specific laws dedicated to these technologies. Existing legislation, such as the Personal Data Protection Bill 2021, provides foundational data privacy rules but lacks provisions tailored to AI-driven analytics, leaving significant regulatory gaps. Similarly, the Prevention of Electronic Crimes Act (PECA) 2016 addresses cyber security concerns like data

breaches and hacking, but is ill-equipped to manage the unique and rapidly evolving risks posed by AI. Intellectual property laws, including the Copyright Ordinance 1962 and Patent Ordinance 2000, also fall short in defining ownership and rights for AI-generated creations. While progress in regularizing AI remains slow, Pakistan is gradually advancing in this domain, signaling potential for future improvements (De Leon 2020).

As a result, Pakistan should move proactively to handle any issues that may arise in the changing environment. Therefore, it is necessary to reform Pakistan's copyright and patent laws. The National AI Policy of Pakistan aims to leverage artificial intelligence for socio-economic development by building a robust ecosystem through awareness, skill development, ethical guidelines, and investment in research and infrastructure. It envisions integrating AI across various sectors while ensuring responsible data usage and equitable opportunities. Key objectives include upskilling the workforce, fostering innovation via industry-academia collaboration, and addressing challenges such as job displacement and data standardization. The policy is structured around enabling awareness, market readiness, trust-building, and transformative evolution, underpinned by a regulatory framework to ensure ethical AI adoption and alignment with international best practices(GOP 2024).

The AI policy acknowledges the significance of intellectual property (IP) as a driver for innovation but provides limited actionable measures to bolster IPR frameworks specific to AI advancements. While it aims to facilitate patent filings, the policy lacks a robust strategy to address the complexities of AI-generated inventions, ownership, and licensing. This oversight could hinder innovation by failing to protect creators adequately. Additionally, the absence of integration with global IP conventions and inadequate local support for patent processing may discourage participation from international investors and researchers. To realize its vision, Pakistan must enhance its IPR framework, ensuring transparency and incentivizing innovation while navigating the ethical dilemmas of AI ownership and accountability.

## Recommendations and Conclusion

To address the challenges posed by AI, Pakistan must develop clear legal frameworks to ensure transparency, fairness, and accountability in AI decision-making processes, especially to prevent discrimination and safeguard privacy. This includes revising intellectual property (IP) laws to recognize and manage AI-generated works, potentially expanding the concept of "personhood" or establishing a new category for AI-created inventions. Robust data protection laws should prioritize privacy, data sharing, and consent, while promoting innovation through transparent, secure, and ethically governed AI systems. Governments should fund AI research, encourage open yet secure datasets, and foster stakeholder collaboration to prepare for societal transitions, including workforce training for a fair transition. Regular review of regulatory frameworks is necessary to support reliable AI development while maintaining moral and economic balance. Finally, international cooperation is essential to harmonize IP laws and address jurisdictional challenges in protecting AI-related inventions.

As AI-generated products are derivative, legal conflicts surrounding AI frequently revolve around allegations of copyright infringement. Although the U.S. Copyright Office maintains that works produced solely by artificial intelligence are not protected by copyright, more general questions remain unresolved. WIPO is actively tackling AI-related intellectual property rights, highlighting the necessity of legislative solutions to maintain technological neutrality. When determining who owns the discoveries and creations produced by AI; alternatives range from assigning ownership to programmers or machine operators to having no ownership at all. Global legal frameworks now in place need to be thoroughly reevaluated in light of how AI is changing and how it affects human autonomy and capacities. There are still issues with legal frameworks for AI, despite efforts by different jurisdictions to change them. In conclusion, recognizing AI's long-term impact requires proactive changes to legal frameworks, particularly in the area of intellectual property laws.

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