Intellectual Property Rights in the Age of AI: Legal challenges of AI-Generated Works

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Abstract

This research aimed to analyze the involvement of Generative AI and the hindrance to innovation in Intellectual Property Laws. With the emergence of Generative AI being easily accessible on every social media platform, creating images while writing simple prompts has become easier. The results indicate that a large sector of the working class of our economy is affected by Gen AI in our day-to-day life. This research also clearly illustrates the debatable question of granting AI legal ownership and individuality, but also raises the question upon pre existing AI laws and the reforms required. Based on these conclusions, practitioners should consider the creation of an AI-generated content labelling Regime to reduce potential confusion and ensure transparency, and implement legal reforms to limit the use of AI in creative fields. To better understand the implications of these results, future studies could address technological implementations to limit the credibility of AI and prevent the misuse of data unethically.

Keywords: Intellectual Property Rights, Generative AI, AI-generated content, Copyright Law, AI Authorship, Legal Reforms, Data Privacy, Machine Learning, Innovation, Ethics in AI.

CHAPTER 1 INTRODUCTION

1.1 Overview

"Intellectual Property Rights (IPR) are the exclusive rights provided over the creations of their minds"- World Trade Organisation. India has a large talent pool of scientific and technological talent, and it is spread through research and development institutions. It is essential to potent these resources as it stimulates the creation of Intellectual Property Assets and motivates inventors to invest their time and resources for high-yielding results. In Cyberspace, the accessible nature of the Internet makes it a target for replication. This leads to the circulation of content without credibility. India has always been an inventive society. However, much of the Intellectual Property created remains vulnerable on both accounts of a lack of awareness and the perception of disregarding IP protection. Intellectual Property protection under the law comprises of patents, copyrights, trademarks, industrial designs, and more, which helps to appropriately credit for innovations. IPR is a general term covering patents, copyright, trademark, industrial designs, geographical indications, layout design of integrated circuits, undisclosed information (trade secrets) and new plant varieties. A patent is a legal device that grants an inventor market exclusivity over a new invention or medication. "It is also an exclusive right granted for an invention. It provides the patent owner with the right to decide how the invention can be used by others."-World Intellectual Property Organisation. To obtain a patent, an inventor should draft a patent application and then submit it to a national or regional intellectual property office. Copyright is a legal term used to describe the rights that creators have over their literary and artistic works. The Copyright range comprises books, music,

sculptures, films, computer software, advertisements, and more. In essence, obtaining a trademark registration provides the owner with exclusive rights to that mark. This allows the owner to use the trademark solely or to license it to another party for compensation.

"Artificial Intelligence is a field of computing that focuses primarily on the transmission of anthropomorphic intelligence and thinking into machines that can assist humans in ways."- L'Ordine Nuovo Publication 2022. Artificial intelligence (AI) refers to technology that allows computers and machines to emulate human learning, comprehension, problem-solving, decisiveness , innovation, and autonomy. Tools and applications that incorporate AI can recognise and identify various objects. They have the capability to comprehend and respond to human language. They are able to learn from new data and experiences. They can provide detailed suggestions to users and professionals. They can operate independently, reducing the necessity for human intelligence or involvement. In the 21st century, the majority of AI researchers and professionals, along with most of the media surrounding AI, are focusing on advancements in generative AI (Gen AI), a technology adept at creating original text, images, videos, and various other forms of content. To understand generative AI, it is essential to first grasp the underlying technologies that support generative AI tools: machine learning (ML) and deep learning (DL), which are generally built using neural networks. Prior to the surge of generative AI in recent years, discussions about AI primarily focused on machine-learning models that could learn to make predictions based on data. Generative AI can be viewed as a machine-learning model designed to produce new data instead of predicting outcomes for a specific dataset. A generative AI system is one that learns to create additional objects that resemble the data on which it was trained.

While certain generative AI systems can create original content, they also have the potential to plagiarise existing works, presenting them as their own. Algorithms such as ChatGPT, Deep-seek, and MetaAI have undoubtedly expanded the dissemination of information and knowledge, significantly contributing to technological advancements. However, they have also stifled human innovation and creativity due to the prevalence in the use of such technology and the easy access to it. Numerous plagiarism and humanisation detection tools have been developed with the assistance of AI programming to identify instances of AI-generated content in self-attributed works, highlighting the irony of the situation. Additionally, AI can serve as a tool for detecting copyright violations, demonstrating its application in Intellectual Property Rights (IPR). Unfortunately, the detrimental effects often outweigh the benefits. Due to the anonymous nature of the Internet, the use of AI in the creation of images, text, and even sources may raise questions about who owns the intellectual property of the resulting creation. This can occur if the AI is programmed to generate content based on existing works and data leading to dispute over ownership which highlights the importance of formulation of proper legal framework in order to combat with this issue. The swift progress of generative AI raises intricate legal issues, especially concerning intellectual property (IP) legislation. The main challenge is adapting current IP principles originally structured for human creators to creations generated by non-human agents. By reviewing pertinent case law and suggesting possible reforms, this article intends to clarify the route toward a more effective IP framework that includes AI-generated content

1.2 Research Objectives

The Primary objectives of this paper are to examine existing Intellectual Property Laws concerning the complication of AI-generated works, identify gaps in assigning rights and proposition of legal reforms to address these issues. Under the current regulatory framework of the Indian Constitution, these are the key laws and guidelines governing AI. The Information Technology Act, 2000 is India's primary legislation

that governs electronic transactions, digital governance, and cybersecurity. Although it was enacted before AI technologies came to the forefront, several provisions in the IT Act apply to AI-related activities. The Digital Personal Data Protection (DPDP) Act, 2023, regulates the processing of personal data, with an emphasis on privacy. AI technologies that collect or process personal data are subject to its provisions. The Copyright Act, 1957, the Trade Marks Act, 1999 and the Patents Act, 1970, are the backbone of India's intellectual property framework, particularly relevant in the context of AI-generated inventions or works. Some provisions which are the backbone of Indian Intellectual Property Law are the following

The Information Technology Act, 2000, is the foundation of law addressing technology and issues of data protection, privacy and cybersecurity.

Section 43A: This section enables compensation in case of a breach of data privacy due to negligent handling of sensitive personal data. AI systems that process user data must ensure that they comply with this provision to avoid legal repercussions.

Section 66 D: This section penalizes individuals for cheating by impersonation using a computer resource. It is particularly relevant for AI-driven deepfakes and other AI-generated fraudulent content.

Section 67: This provision prohibits the publishing or transmitting of obscene material in electronic form. AI systems capable of generating inappropriate or harmful content could fall under this section.

The **Digital Personal Data Protection Act 2013** act covers how data can be collected, stored, processed and shared, making it highly relevant for AI systems that handle large volumes of personal data. Some key provisions of this act include Data Protection Principles which mandate that AI platform obtain user consent before processing personal data, ensure transparency, and allow users to withdraw their consent.Data Localization which requires certain sensitive data to be stored within India which impacts AI systems that rely on cross-border data transfers.Companies deploying AI must report data breaches to regulatory authorities within a specific time frame, further ensuring accountability.

The Copyright Act 1957, Trademark and Patent Act laws deny AI legal personhood, meaning it has no rights of ownership in its creations. This was added under Article 57(1) of the Indian Constitution applying to failure of display a work or to display it to the satisfaction of the author shall not be deemed to be an infringement if the rights conferred by this section.

Key weaknesses in intellectual property rights concerning AI consist of: ambiguity surrounding authorship for creations made by AI, challenges in establishing fair use when AI systems utilise copyrighted materials for training, insufficient legal structures to safeguard AI algorithms, and uncertainty about whether AI can be classified as an "inventor" in patent applications; in essence, current IP regulations struggle to accommodate the notion of non-human creation and the intricacies of AI technology, leading to unclear areas related to the ownership and protection of AI-generated works.

To address the challenges posed by AI regarding intellectual property rights, legal modifications might include: detailing criteria for authorship and inventor-ship related to AI-generated works, devising new protective mechanisms for creations produced by AI (like "sui generis" rights), revising patent legislation to consider inventions created by AI, and establishing guidelines on data usage and transparency in AI development, while maintaining a balance between fostering innovation and protecting existing IP rights. Clearly defining who can be deemed the "author" or "inventor" when AI significantly contributes to a creative work or invention, potentially assigning joint ownership to both the human developer and the AI system. Sui generis rights for AI-generated works also involve exploring the creation of a novel category of intellectual property rights specifically for works produced by AI, distinct from current copyright or patent protections. Evaluating current patent legislation to determine when an AI-generated invention is

eligible for a patent, considering aspects like the level of human involvement and the innovation provided by the AI. Mandating AI system developers to reveal the data used in training their algorithms and the techniques employed in producing creative results, thereby improving accountability and encouraging fair use.

Ensuring compliance with data privacy laws when AI systems use extensive datasets to generate content, which includes addressing potential issues related to personal information and its misuse. Establishing clear guidelines regarding liability for damages stemming from AI-generated content, taking into account the roles of the AI developer, the user, and the AI system itself. Collaborating with other jurisdictions to develop cohesive legal frameworks concerning AI and intellectual property rights, addressing issues such as cross-border infringement and data protection. Some potential challenges must be considered, including the difficulties of defining creativity in AI outputs while assessing whether AI-generated content meets the legal standards of creativity required for copyright protection. Balancing innovation with protection and finding a compromise between promoting AI development and safeguarding existing intellectual property rights from possible infringements. The complexity of technology while revising legal structures to keep up with the rapid advancements in AI technology.

CHAPTER 2 BACKGROUND
2.1 Overview Of IP and History

Intellectual property (IP) involves any kind of original creation that originates and stems from human intellect, including creative, literary, technological, or research-based works. Intellectual property rights (IPR) are the legal entitlements provided to inventors or creators, allowing them to protect their inventions or creations for a specified duration. These legal entitlements grant the inventor or creator, or their assignee, the exclusive ability to fully exploit their invention or creation for a designated timeframe. IP plays a crucial role in today's economy. It has been definitively shown that the intellectual efforts linked to innovation deserve significant recognition so that benefits for the public and creators can arise from them. There has been a notable rise in research and development (R&D) expenditure, along with a corresponding increase in the investments necessary to bring new technology to market. The stakes for technology developers have escalated greatly hence, making the necessity to safeguard knowledge against illegal use critical, at least for a duration that assures recovery of R&D expenses and sufficient profits for continued investments in R&D. IPR helps to serve as a concrete tool to protect the investments, time, revenue, and effort that inventors or creators devote to their works, as it offers them exclusive rights for a specific period regarding the use of their invention or creation. Originally, the term Intellectual Property only consisted of patents, copyrights, and trademarks but over time due to new emerging technological works and inventions, the term Intellectual Property has now gained a greater realm. The term now consists of patents, copyrights, trademarks, and a new addition of geographical indicators. A patent is a legal device or entitlement that provided the innovator or creator with exclusive practising rights over a certain innovation. It provides exclusive rights and legal acknowledgement to the creator with the mandate use credibility. The legal framework of the use and unique features of a patent differ from that if other intellectual properties. The patent protection typically lasts for 20 years under the current patent laws. However, in exchange for the legal framework and credibility of a patent, the innovator or creator must publicly disclose technical details of their work in order to avoid further confusion or lawsuits in future due to the emergence of similar ideas. These exclusive rights are territorial which are enforceable and they are exercisable within the specific region or country where the patent was originally awarded. A utility

patent protects the functionality of a new or improved invention such as engineering a machine, processing, manufacturing, or composition matter, granting the patent holder to exclusive enforceable rights for up to 20 years. A design patent protects the ornamental appearance of a manufactured item, protecting its shape, size, configuration or surface rather than its function. A plant patent is a part of intellectual property rights under patent as it uniquely protects the Discovery of new plant variety which prevents others from selling, copying or claiming it as one's self for a certain period of time. A provisional patent is a preliminary step in the patent process which secured an early filing date, allowing inventors to fully finalise their works before releasing a non-provisional patent application.

"Copyright is also a type of intellectual property that protects original works of authorship as soon as an author fixes the work in a tangible form of expression."-Copyright Office Government. Collective management refers to the management of copyright and related rights by organisations that operate in the interest of rights holders. Nonetheless, the scope of copyright for any given innovation has its boundaries. Works are deemed original when they are created independently by a human author and display a minimal level of creativity. According to the Supreme Court of India, a work must exhibit a certain "modicum" of creativity to be considered creative. Certain items, like titles, names, short phrases, and well-known symbols or designs, cannot be classified as creative. Copyright primarily safeguards the expression of an idea rather than the idea itself. A work is regarded as fixed when it is captured by or under the control of an author in a sufficiently enduring medium, allowing the work to be perceived, reproduced, or communicated for more than a brief period. Under current legislation, works produced on or after January 1, 1978, are granted copyright protection for the lifetime of the author plus an additional seventy years following the author's death. In cases of joint works, the term extends for seventy years after the death of the last surviving author. For works created for hire, as well as anonymous or pseudonymous works, copyright protection lasts for either 95 years from publication or 120 years from creation, with the shorter of the two durations applying. However, as human beings, we often share similar ideas since not every idea can be entirely original. It is vital to recognise that as a society, we are all users of copyright. Nevertheless, the extent to which we can use copyrighted materials is regulated by laws that impose reasonable limitations."Fair use is an affirmative Defence that can be raised in response to claims by a copyright owner that a person is infringing a copyright."- Copyright Allegiance 2025. Fair use permits a party to use a copyrighted work without the copyright owner's permission for purposes such as criticism, comment, news reporting, teaching, scholarship or research. There are no bright-line rules in determining fair use, since it is determined upon a case-by-case discretion due to external influencing factors. But copyright law does establish four factors that must be considered in deciding whether a use constitutes as a fair use legally.

A trademark falls under the category of Intellectual Property. It acts as a symbol that can differentiate the products or services of one business from those of others. Trademarks are protected by Intellectual Property Rights. Registration brings legal clarity and bolsters the rights of the owner, especially during legal conflicts. The length of trademark registration can vary, but it generally lasts for ten years. This registration can be renewed indefinitely by paying an additional fee. Trademark rights are seen as private rights, and enforcement is executed through court procedures. A trademark may consist of a single word or a combination of words, letters, and numbers. Furthermore, trademarks can include images, symbols, three-dimensional features like shapes and packaging, non-visible attributes such as sounds or scents, or colors serving as identifying characteristics – the options are virtually limitless. At the national or regional level, trademark protection can be obtained through registration by filing an application with the

appropriate trademark office and paying the required fees. On an international level, one can either submit trademark applications to the trademark office of each desired country for protection. However, a question that might arise is: how does a copyright differ from a trademark? Like copyright, there is no necessity to register a trademark or service mark to gain protection rights, although registering a mark with the USPTO provides certain legal benefits. While overlaps between trademark and copyright laws are uncommon, they can happen. For example, if a graphic design functions as a logo, that design could be protected by both copyright and trademark. The fundamental difference between copyright and trademark lies in the fact that copyright protects unique expressions in creative works, while trademark safeguards the business reputation and goodwill associated with the word, phrase, symbol, and/or design.

A geographical indication (GI) is a specific mark used on products and works that originate from a particular location and have qualities or a reputation attributed to that location. For a sign to function as a GI, it must indicate that a product comes from a specific area. Furthermore, the qualities, characteristics, or reputation of the product should arise from its place of origin. A geographical indication right allows the holder to prevent third parties from using the indication if their products do not meet the required standards. For instance, in regions where the geographical indication for Parmesan cheese is protected, only producers from the Parma area in Italy can label their cheese as such. However, having a protected geographical indication does not allow the holder to stop others from producing a product using the same methods outlined in the standards for that indication. Typically, protection for a geographical indication is achieved by obtaining rights over the sign that acts as the indication. Geographical indications are safeguarded through national legislation and by the World Trade Organization's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS). GIs are primarily applied to agricultural goods, food items, wines, spirits, handicrafts, and industrial products. There are mainly four methods to protect a geographical indication: application with the so-called sui generis systems (i.e., unique protection frameworks), collective or certification marks, approaches centered on business practices, which include administrative product approval schemes, and via unfair competition laws. These methods vary with respect to crucial issues, such as the criteria for protection and the extent of that protection. Conversely, two of the protective modes — specifically sui generis systems and collective or certification mark systems — exhibit some common characteristics, such as establishing rights for collective usage by those who meet defined standards. Overall, geographical indications are protected in various countries and regional systems through a diverse range of methods and often utilizing a blend of two or more of the aforementioned approaches.

The concept of Intellectual Property Rights existed in the 17th and 18TH centuries in England with landmark statutes such as the statue of Monopolies of 1624, and the statue of Anne 101.

This regime was characterized by statutes passed by the British Parliament and assented by the British Monarchy. They date back to the 17th and 18th centuries and are exemplified by the Statute of the Monopolies of 1624 and the Statute of Anne of 1710. Both statutes form the basis of intellectual property protection in most jurisdictions in the world today.

The Statute of Monopolies was an Act of the Parliament of England noted as the earliest statute regulating English Patent Law. It can be seen from the above that the Statute of Monopolies was related to patent law, protecting the inventions of new inventors and the manufacturers of such inventions. The Statute also made such grants for a fixed term of 14 years or under

The Statute of Anne of 1710 is also referred to as the Copyright Act, 1710. It was an Act of the Parliament of Great Britain and is credited as being the first statute to provide for government and court regulation of

copyright rather than regulation by private parties.

2.2 RISE OF AI-GE

Generative AI, such as chatbots, represents a growing and widespread advancement in today's technology. While these innovations offer significant benefits, they may inadvertently stifle creativity, original ideas, and raise concerns regarding the validity, authenticity, and applicability of Intellectual Property Rights. Generative AI frequently reproduces the creative work of artists, creators, or innovators, presenting it as if it were its own, which has sparked considerable debate. This issue is particularly prominent in fields such as art, music, and literature. Platforms like DeepArt, DALL-E, and GPT-3 engage in what can be seen as unethical data collection practices, compromising user privacy and the integrity of their creations. Detractors contend that the essence of art and literature lies in creativity and originality, aspects that AI tends to appropriate. Instances of plagiarism facilitated by AI use are increasingly common. To address the problem of unethical data collection, it is essential to first grasp the processes and mechanisms underlying Generative Artificial Intelligence.

Generative Artificial Intelligence operates on Machine Learning Algorithms that utilize deep learning and the principles of Neural Networks, which mimic the functioning of human brain cells or neurones. Neural Networks exclusively handle numerical data. Various forms of text, images, audio, and video are converted into numerical formats, which are then processed by the neural network to produce corresponding textual or visual outputs. This constitutes a sophisticated coding procedure. During the algorithm coding phase, training datasets are often supplied for the machine software's evaluation and data feeding. These training datasets vary depending on the category of Machine Learning Algorithms; for example, the training sets for Unsupervised Generative Artificial Intelligence differ from those used in Reinforcement Learning. Neural Networks are a subset of Deep Learning, which in turn is a further subset of Machine Learning. These networks can learn and recognise patterns directly from data without needing pre-established instructions. The fundamental units that receive inputs are termed Neurons. Each neuron operates with a certain threshold and an activation function that interprets the numerical data. The links between neurons, governed by weights and biases, are referred to as connections. When data is fed into the network, it traverses through the network in a forward manner, moving from the input layer, through hidden layers, to the output layer. This procedure is called forward propagation. Every neuron in a layer accepts inputs, which are multiplied by the weights linked to the connections. These products are summed, to which a bias is then added. This operation is recognised as Linear Transformation, represented mathematically as: $z = w_1 x_1 + w_2 x_2 + \ldots + w_n x_n + b$, where w signifies the weights, x represents the inputs, and b denotes the bias. The outcome of the linear transformation, designated as z, is subsequently passed through an activation function. The activation function is vital as it introduces non-linearity into the system, enabling the network to grasp more intricate patterns. Common activation functions include ReLU, sigmoid, and tanh.

Following forward propagation, the network assesses its performance by utilizing a loss function, which quantifies the difference between the actual results and the predicted outcomes. The objective of the training process is to reduce this loss. This is where back propagation becomes essential. The network calculates the loss, giving a measure of prediction error. The loss function may differ; common selections include mean squared error for regression problems or cross-entropy loss for classification tasks. The network computes the gradients of the loss function concerning each weight and bias in the system. This calculation entails applying the chain rule of calculus to determine how much of the output error can be attributed to each weight and bias. After the gradients are determined, the weights and biases are adjusted

via an optimization method like stochastic gradient descent (SGD). The weights are modified in the opposite direction of the gradient to help reduce the loss. The magnitude of the adjustments made during each update is governed by the learning rate.

In a neural network, input data traverses through various layers, including one or more hidden layers. Each neuron within these hidden layers performs multiple operations, converting the input into a functional output. Despite the existence of several layers, only the input and output layers are visible to users. Input data is transmitted through multiple layers, which include one or more hidden layers. Every neuron in the hidden layer executes the following operations: each input is multiplied by its corresponding weight assigned to the connection, known as the weighted sum. The activated outputs from the hidden layer are sent to the output neuron. The output neuron receives values from the hidden layer's neurons and calculates the final prediction using weights. Different types of learning exist within a neural network. In supervised learning, a neural network learns from labeled input-output pairs provided by an instructor. The network produces outputs based on inputs, and by contrasting these outputs with the known desired results, an error signal is generated. The network continuously fine-tunes its parameters to diminish errors until it achieves a satisfactory performance level.

Unsupervised learning deals with data that lacks labeled output variables. Its main objective is to comprehend the underlying structure of the input data (X). Unlike supervised learning, there is no instructor to direct the process. Instead, the emphasis is on modeling data patterns and relationships, employing techniques such as clustering and association. Reinforcement learning allows a neural network to acquire knowledge by interacting with its environment. The network receives feedback in the form of rewards or penalties, which directs it to discover an optimal policy or strategy aimed at maximizing cumulative rewards over time. This method is commonly applied in areas like gaming and decision-making. The U.S. Copyright Office has issued guidance stating that works containing AI-generated material are not copyrightable unless there is evidence of human creative authorship. The legal landscape surrounding AI-generated works is still evolving, and there may be some uncertainty about the specific requirements for copyright protection in these cases. In India, the Copyright Act recognizes human authorship, and AI cannot be an author of a work under the Copyright Act.

CHAPTER 3 MODULE LEGAL CHALLENGES

The dilemma of AI-generated works lies in the credibility and authorship concerns since AI lacks creativity, hence, it generates content based on existing human works, which raises the issues of plagiarism. According to the US Constitution, the idea of AI not being recognised as an author, which results in the lack of credibility, is followed by other countries like India. Artificial Intelligence lacks an Individual persona and identity. Artificially generated content can undermine the efforts of human creators, stripping them of their exclusive intellectual property rights without proper credibility. It is a prevalent legal loophole that, in certain jurisdictions, blatant plagiarism can take place in the name of Generated-AI without facing appropriate consequences for such actions.

The struggle of assigning authorship appropriately is demonstrated in the case commonly known as the "monkey selfie" case, legally known as Naruto v. Slater. In 2011, British Wildlife photographer David Slater set up a camera in an Indonesian Forest. A crested Macaque named Naruto allegedly pressed the shutter, taking selfies. The images went viral, and Slater claimed copyright, but PETA (People for the Ethical Treatment of Animals) sued on Naruto's behalf, arguing the monkey should own the copyright. In the US District Court, PETA's case was dismissed, ruling that animals cannot hold copyright under US

law. The case was further taken to the U.S Court of Appeals, which only reaffirmed the judgment of the lower court and stated that copyright law can only belong to humans.

In the case of Thaler vs Perlmutter, Stephen Thaler, who was an AI researcher, created an artwork using his AI system, and he applied for copyright while listing AI as the sole author. The U.S. Copyright Office rejected the application, stating copyright requires human authorship. The court used previous judicial precedents in order to strengthen their argument i.e, the case of Naruto v. Slater stated above, emphasising the necessity of human creativity and human authorship. This landmark case established a legal barrier for AI-generated works. Thaler faced a similar fate when he attempted to list his AI (DABUS) as the inventor of a patent. The UK Intellectual Property Office rejected it, stating and emphasising the requirement for a human inventor.

In another case, a similar subject matter is displayed, the case of Felinin v. Copyright Office 2023, where Artist Juris Feilin applied for copyright for an artwork partially created using Mid-Journey AI. The U.S. Copyright office denied the request, arguing the AI-generated portion lacked human invention. This was the first major case addressing partial AI authorship. These cases demonstrate the global struggle to define AI authorship. She also claimed joint authorship for her invention, which was later. Courts consistently rule that AI cannot hold copyright or Intellectual Property for that subject matter, but they acknowledge that human involvement in AI-generated works might still be protected. The New York Times V. OpenAI case is a pivotal legal battle that was filed in December 2023. The lawsuit Alleges that open AI and Microsoft infringed upon the New York Times copyrights by using its articles without permission to train AI models like ChatGPT and Microsoft's Copilot

"The Act or process of taking control of the largest part of something so that other people are prevented from sharing it" is known as Monopolization by the Oxford Dictionary. "Monopolization" is a specific term. It does not pertain to elevated prices, reduced wages, or poor customer service. Instead, it focuses on a particular category of economically detrimental actions that utilize market power to bolster an existing monopoly. Monopolization is the act or process of obtaining complete control over something, especially a market or industry, while sidelining others. Monopolization involves acquiring, preserving, or exploiting a monopoly, which means having exclusive control over a specific market, commodity, or resource. In a business setting, it signifies a company or a coalition of companies attaining such a dominating position that they can dictate prices, restrict competition, and impede other firms from entering or thriving in the market. A monopoly represents a market structure with a sole seller or producer that holds a commanding role in an industry or sector. Monopolies are viewed unfavorably in free-market economies because they hinder competition, reduce consumer alternatives, and consequently limit consumer choices.

Generative AI has the potential to boost artists' creative skills, but it also carries risks for their careers due to unethical data practices and possible job displacement. While generative AI presents avenues for innovation and progress, these possibilities come with fresh challenges, including potential biases and privacy concerns. Organizations looking to mitigate these risks and implement generative AI in a transparent, fair, and responsible way should place people at the center of their strategies. AI has the potential to revolutionize education by offering personalized and customized instruction, which can lead to improved learning outcomes. By evaluating student data, AI can provide instant feedback to both teachers and students, allowing them to adjust their teaching and studying methods accordingly. AI acts as a powerful force that significantly influences human cognition, fundamentally altering our cognitive functions and transforming how we learn and process information.

Recently, the rising trend of creating AI-generated works and filters has increasingly ignored the original

artists, undermining their credibility. Since its beginnings, artificial intelligence has sparked anxiety within the creative sector. With the swift development of AI and ongoing conversations about how machine learning might disrupt contemporary existence, numerous artists are raising concerns about a potential wave of unapproved usage and appropriation. Nothing illustrates that conflict more clearly than the current uproar surrounding OpenAI's latest image generator and the renowned animation studio Studio Ghibli. GPT-4 recently demonstrated its ability to convert photographs into illustrations mimicking the distinctive style of Hayao Miyazaki's animated films at Studio Ghibli, such as My Neighbor Totoro and Spirited Away. This program excelled at this task, producing images that closely resembled the unique artistic style of Studio Ghibli. People highlighted the issues of OpenAI profiting from another company's intellectual property, referenced a documentary clip in which Miyazaki referred to AI as an "insult to life itself," and pondered the threats that this technology poses to human creativity.

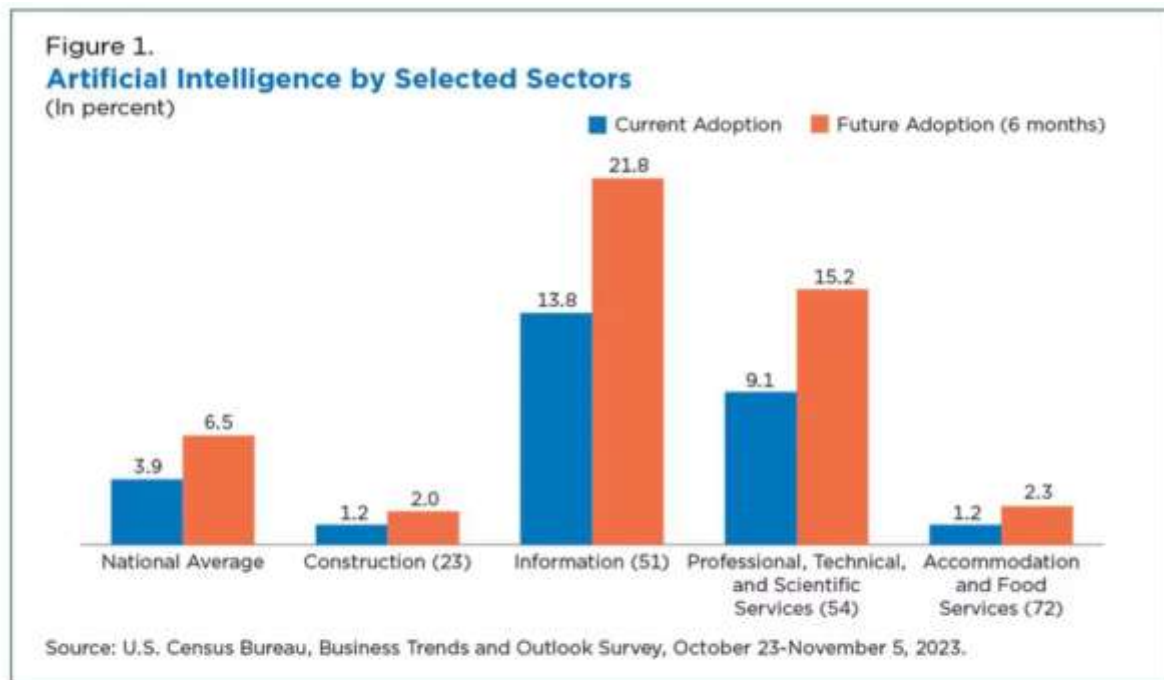## CHAPTER 4 COMPARATIVE ANALYSIS BETWEEN US AND EU

The viewpoint in the U.S. regarding AI authorship and copyright legislation is shifting, but currently, the law typically does not recognize AI as an author for copyright purposes. U.S. copyright law is primarily governed by Title 17 of the United States Code, which establishes the legal structure for copyright grants and the entities that can claim them. In the U.S, Copyright Law Section 101 provides key definitions relevant to copyright law. It specifies that only a "human author" is entitled to copyright protection, thereby excluding non-human entities like AI. More specifically, the term "author" refers to the individual who creates the work. In regard to AI, this indicates that works generated solely by AI would not qualify for copyright in the conventional way unless a human author is involved. Copyright is available only for works made by humans, not by machines. Section 102 outlines which works can receive copyright protection. It states that a work must be "original" and "fixed in a tangible medium of expression," which pertains to forms such as literary, musical, and artistic works. For an AI-generated work to be eligible for copyright, there must be a human author involved, signifying that the work must showcase human creativity. AI-only creations would not be eligible for copyright protection unless a human contributed directly to their creation. Section 201 indicates that the author (or the author's employer, in the case of a "work made for hire") is the primary owner of copyright. However, in situations involving AI-generated content, human authorship is typically not acknowledged under this section. Given that copyright law does not recognize AI as an author, the copyright would need to be assigned to the human or entity that controls or operates the AI.

The copyright law within the EU primarily operates on the principle that only natural persons (humans) can be recognized as authors of works. In other words, for a work to receive copyright protection, it must be created by a human. At present, there is no established legal framework in the EU that recognizes AI as an author of works eligible for copyright. The EU has not yet taken a definitive position on this matter, but there is considerable debate over whether AI should be afforded copyright protection, given that current laws mandate a human creator. In the EU, patents are usually granted to natural persons or legal entities acting as inventors. The European Patent Convention (EPC) defines an inventor as an individual who has made a meaningful contribution to the development of an invention. In 2020, a significant case was presented when an AI system named "DABUS" was identified as the inventor in patent applications filed in both the EU and other regions. The European Patent Office (EPO) dismissed the application, asserting that an inventor must be a natural person. This ruling exemplifies the existing EU view that AI cannot hold the status of legal inventor. The EU Digital Single Market Directive of 2019 updates copyright

laws for the digital age to boost the digital economy. Key points include requiring licenses for user-uploaded content on platforms like YouTube (Article 17), compensating press publishers (Article 15), and ensuring fair creator payments. It also allows text and data mining for research without copyright approval (Article 11) and has exemptions for educational activities. While it aims to protect creators' rights, critics worry that measures like upload filters may limit freedom of expression.

The integration of AI technology enables media and entertainment organizations to navigate vast datasets and extract significant insights, aiding in making informed, data-driven choices. Managing data can be challenging, which is why collaborating with one of the leading AI development firms can help decode and leverage this information effectively. AI has the potential to improve the efficiency of production processes in the entertainment sector. For example, AI can streamline tasks such as voiceover work, post-production, and video editing, leading to substantial savings in time and costs. Generative AI empowers content creators of all scales to gain deeper insights into audience preferences, trends, and patterns. This information, quickly analyzed by AI, assists media and entertainment companies in identifying what new content to develop or how to customize their offerings for particular demographics.

Certain industries, such as healthcare, legal services, finance and banking, retail, manufacturing, logistics, marketing, customer service, cybersecurity, and agriculture, can be significantly affected or transformed by the rise of artificial intelligence. AI is changing the healthcare field by improving diagnostic accuracy and customizing treatment strategies. Machine learning models can sift through extensive medical data to uncover patterns and forecast outcomes with incredible accuracy. AI systems can identify diseases like cancer at early stages. Additionally, it can create individualized treatment approaches based on specific genetic information. In the financial industry, artificial intelligence can evaluate transaction trends and spot fraudulent or deceptive actions in real-time. AI-powered chatbots offer personalized financial guidance and assistance. They can also make investment choices based on market analysis. AI assesses customer behavior to recommend products they are likely to buy and forecast demand patterns, assisting retailers in keeping optimal inventory levels. In the transportation sector, AI facilitates autonomous vehicles, minimizing accidents and enhancing traffic flow while determining the most efficient routes to conserve time and fuel, and overseeing traffic management systems to alleviate congestion.

Figure 1.
Artificial Intelligence by Selected Sectors
(In percent)

Source: U.S. Census Bureau, Business Trends and Outlook Survey, October 23-November 5, 2023.

Businesses in some sectors have lower levels of AI adoption. For example, only 1.2% of businesses in Accommodation and Food Services use AI.

CHAPTER 5TH PROPOSED LEGAL REFORMS

"Humans have a history of denying that other beings are capable of suffering as they do." The majority debate of providing AI with legal individuality and responsibilities, such as acknowledging Intellectual Property Authorships, stems down to one question being Does AI deserve rights? A strong argument provided for providing AI with moral consideration and legal personhood by Pete Singer, a bio ethicist points out to reject a species on the basis of the mere fact that they are not a member of your species is is equivalent to rejecting giving rights or normal consideration to someone on the basis of their race. He highlights the need to be open to the thought that artificial intelligence could have the relevant capacities, albeit even though they're not human. But a strong point against the so said argument, if AI can be given moral consideration and basic rights of Intellectual Property, does it qualifies for basics of fundamental rights or citizenship? Assigning legal personhood to AI might enhance accountability, particularly in cases where autonomous systems inflict harm with no distinct human error. It would enable AI to possess property, engage in contracts, and face liability, akin to the way corporations operate. This designation wouldn't suggest human rights, but would acknowledge the increasing autonomy of AI and aid in governing its actions. Additionally, it could promote responsible innovation by defining legal obligations for developers and users. Arguments against giving AI legal personality include the absence of consciousness, intent, and moral responsibility—traits that are essential for legal accountability. This could enable individuals to evade responsibility by transferring liability to machines, resulting in legal ambiguities. Detractors also contend that it is unnecessary, as existing laws can already hold developers or companies responsible. Granting legal status to AI could lead to public misunderstanding and obscure the distinction between humans and machines.

Acknowledging the joint ownership among developers and users is essential for cultivating robust, collaborative communities and producing superior products. This initiative can begin with inclusive strategies such as community-driven roadmaps, user advisory groups, and beta testing initiatives that recognize and credit user input. Recognizing users through contributor acknowledgment, co-authorship on significant features or documentation, and public appreciation fosters a sense of community. Promoting knowledge sharing through joint webinars, user story highlights, and transparent development practices—like open sprint reviews or accessible developer forums—can further connect creators and users. Incorporating gamified elements, such as ownership badges or yearly contributor showcases, adds an enjoyable and rewarding dimension. For established communities, embracing open governance frameworks and supporting user-led projects provide opportunities for greater participation and mutual accountability. Ultimately, these strategies cultivate an environment where users are not simply consumers but active co-creators. To tackle the challenges that AI presents to intellectual property regulations, legal frameworks could establish a new classification for "AI-assisted creations," acknowledging the contributions of AI while ensuring that rights are retained by the individual overseeing the process. Copyright definitions might be revised to specify that authorship is reserved for humans, positioning AI as a creative apparatus rather than an originator. Attribution standards could require the disclosure of AI involvement, particularly in commercial situations. In terms of patent legislation, inventor-ship criteria could be modified to permit AI to be listed as a co-inventor without conferring rights upon it, maintaining accountability with the human contributor. Furthermore, limited or conditional rights might be assigned to works generated by AI without a human author, offering system operators temporary protection. Establishing an AI intellectual property registry could improve transparency, bolster claims of originality, and minimize legal conflicts.

CHAPTER 6 ETHICAL CONSIDERATIONS

Like other AI technologies, generative AI presents ethical concerns and risks related to data privacy, security, energy consumption, political ramifications, and workforce implications. GenAI can also introduce various new business hazards, including misinformation, hallucinations, plagiarism, copyright violations, and the generation of harmful content. Additionally, a lack of transparency and the possibility of workforce displacement are further challenges that businesses may need to confront. Generative AI systems are capable of automatically producing content based on human-generated text prompts. "These systems can significantly enhance productivity; however, they may also be misused for detrimental purposes, whether intentionally or otherwise," noted Bret Greenstein, partner and generative AI leader at professional services firm PwC. Greenstein recommended that GenAI should complement, rather than replace, human efforts or workflows to ensure that the output aligns with the company's ethical standards and brand values.

Well-known generative AI tools are trained on extensive databases of images and text gathered from various sources, including the internet. When these tools generate images or lines of code, the origin of the data may be unclear, which could pose risks for a bank managing financial transactions or a pharmaceutical firm depending on a formula for a sophisticated drug compound. The reputational and financial stakes could be substantial if one company's product draws upon another's intellectual property. Understanding Bias in Generative AI In simple terms, bias represents a tendency towards a specific group. Bias in generative AI refers to the abnormalities within AI models that favor a particular group, resulting in outputs that are unjust or biased. This issue often arises from inadequate training datasets used for AI

models. When the data reflects existing inequalities and unfair opinions from the population, the AI will adopt those biases, leading to biased outputs for certain groups. Another cause can be training models on historical data, which allows the AI to identify bias patterns that result in biased outputs. Other factors may include errors in labeling the input data or simply using a basic model. To clarify, let's explore the types of bias. A data privacy breach occurs when information provided to a trusted website is accessed by an unauthorized third party. Over the years, numerous companies have experienced data breaches where personal information, such as names, phone numbers, banking details, and social security numbers have been compromised and leaked. Such breaches underscore the importance of data privacy. Data privacy involves safeguarding all personal information, such as your phone number, email address, and financial details. It prevents third parties from accessing your data without your consent. This is vital, as if such information falls into the wrong hands, it can lead to various cybercrimes, including system hacking, fraud, or even identity theft.

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