

### The Future of IP with AI?

These are the GenAI prompts used to gather information about intellectual property (IP) and the world of artificial intelligence (AI). This is part of our *Regenerative AI project*; recreate as needed, when needed, with the GenAI engines available to you at that time. Select results from various Generative AI engines (ChatGPT 4.0, Gemini, Claude, Copilot). Look at writing and analysis of Human + Artificial Intelligence by Hall and (Hall & Lentz, 2024) over at ScenarioPlans.com (alias to DelphiPlan.com).

You the reader/user can recreate the prompts as needed, when needed, with the GenAI engines available to you at that time. Note that a couple prompts are included with multiple GenAI engines for comparison.

### The Future of IP with AI?

**Q:** Who owns the copyright when something is co-created by human + AI? When something is almost completely AI created? When something is totally AI created?

**Q:** What about patents and inventions? Who is the inventor when something is co-invented by human + AI, when something is almost completely AI, when something is totally AI invented?

**Q:** . . . and what about ownership of the intellectual property?

**Q:** How does AI impact infringement?

**Q:** Are trademarks in jeopardy from AI? What steps should be taken to protect TMs?

**Q:** Write an article on intellectual property in the age of AI, include all the topics in the chat as well as any others that are important. Give one or more reliable sources for each section including links Wikipedia articles where appropriate (formatted APA style and a reference page)

**Q:** Generate a graphic of intellectual property and GenAI featuring at least three instances each of registered trademark (R), copyright (C), and Trademark (TM).

**Q:** Who owns the copyright when something is co-created by human + AI? When something is almost completely AI created? When something is totally AI created?

**Gemini (2024, May)**

**Who owns the copyright when something is co-created by human + AI? When something is almost completely AI created? When something is totally AI created?**

Copyright for AI-created works is a complex and evolving area. Here's a breakdown:

#### Totally AI Created:

- Currently, in most jurisdictions, works created solely by AI **don't** qualify for copyright protection. Copyright law typically requires a human author. The U.S. Copyright Office has even denied registration for such works. [US Copyright Office and AI]

#### Almost Completely AI Created:

- It gets trickier here. If a human provides significant creative input, the work might be copyrightable. This could include selecting parameters, curating outputs, or arranging different AI-generated elements. The key is the level of human creativity involved.

#### Human + AI Co-Creation:

- This is where copyright becomes more clear-cut. If a human significantly contributes to the creation, the work can be copyrighted. This human could be the one who prompts the AI, edits the outputs, or combines AI-generated elements with human-created ones.

In essence, copyright hinges on human authorship. If AI is merely a tool and a human makes substantial creative decisions, copyright is likely possible.

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**Q:** What about patents and inventions? Who is the inventor when something is co-invented by human + AI, when something is almost completely AI, when something is totally AI invented?

**Copilot** (2024, May)

The issue of inventorship for patents involving AI contributions is guided by the following principles:

- **Co-Invented by Human + AI:** When an invention is co-created by a human and AI, the human who made a significant contribution to the conception of the invention is considered the inventor. The U.S. [Patent and Trademark Office \(USPTO\) has issued guidance stating that AI-assisted inventions are not categorically unpatentable for improper inventorship, but the focus of inventorship analysis is on human contributions](#)<sup>1</sup>.
- **Almost Completely AI Invented:** Even if an AI system plays a major role in the invention process, a patent application must name the natural person(s) who significantly contributed to the invention as the inventor or joint inventors. [This is based on the principle that a natural person must have made a “significant contribution” to the invention characterized by the claims in the patent application](#)<sup>2</sup>.
- **Totally AI Invented:** Current U.S. patent law requires that an inventor be a natural person. This means that AI systems cannot be named as inventors. The USPTO and the U.S. [Court of Appeals for the Federal Circuit have affirmed that AI itself can't be an inventor deserving patent protection](#)<sup>3</sup>. However, this is an area of active discussion and the laws may evolve as AI becomes more integrated into the inventive process.

It's important to note that these guidelines are specific to the United States and may differ in other jurisdictions. [For instance, South Africa has granted a patent listing an AI system as the inventor, which is an exception to the general trend in other countries](#)<sup>4</sup>. As AI continues to advance, legal frameworks may adapt to address these new challenges.

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**Q:** . . . and what about ownership of the intellectual property?

**ChatGPT 4.0** (2024, May)

The ownership of intellectual property (IP) created with the help of artificial intelligence (AI) can vary based on the type of IP and the specifics of the creation process:

1. **Patents:** In cases where inventions involve AI, the ownership typically goes to the human inventor or their employer, if the invention was made in the course of their employment. If an AI significantly contributes to an invention, but cannot be named as an inventor due to legal restrictions, the human or corporate entity that owns or operates the AI system will generally retain the IP rights. This ownership is usually determined by employment contracts or the terms of use of the AI system.

2. **Copyrights:** For copyrightable works involving AI, such as literary works, music, or art, the copyright is attributed to the human creator who used the AI as a tool. If an AI produces work independently, most jurisdictions currently consider such works to be in the public domain, as AI cannot hold copyrights. However, if a human significantly edits or curates the work, they could potentially claim copyright.
3. **Trademarks:** In the creation of trademarks, such as logos or brand names, if an AI is used, the human or corporate entity that directed the AI's activity typically owns the resulting trademark. The ownership is based on who applies and registers the trademark.
4. **Trade Secrets:** For trade secrets developed with the help of AI, such as algorithms, manufacturing processes, or business methods, the ownership would typically rest with the human or corporate entity that controls the use of the AI. Protection of trade secrets hinges on maintaining confidentiality, which can be more complex when AI is involved, especially if the AI is commercially available.

In all these cases, the critical factor is the legal view that only humans or legal entities (like companies) can own and hold intellectual property rights. AI, despite its role in the creation process, is regarded as a tool or instrument used by humans. This position is consistent across most jurisdictions, though legal frameworks continue to evolve as AI becomes more integrated into creative and inventive processes.

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**Q:** . . . and what about ownership of the intellectual property?

**Claude** (2024, May)

The ownership of intellectual property (IP) rights for inventions or works created with the involvement of AI systems is closely tied to the issues of authorship/inventorship we discussed previously. However, there are some additional considerations:

**Copyrights:** For copyrighted works co-created by human+AI, the copyright would generally be owned by the human author(s), unless there are specific contractual assignments to other parties like the AI developer or provider.

For works created with very little to no human authorship, copyright ownership becomes murky. Some argue the works fall into the public domain, while others propose potential ownership by the AI developer, user, or entity that deployed the AI system.

**Patents:** For co-invented patents with human+AI involvement, the patent would be owned initially by the named human inventor(s) or their assignees (employers, companies, etc.) per normal patent rules.

For AI-generated inventions with little to no human inventorship contribution, there are several proposed approaches:

1. The AI system itself cannot currently own patents, so the patents may be unpatentable or part of the public domain.

2. The company/entity that developed or owns the AI system could attempt to be assigned ownership or rights to the AI-generated inventions.
3. The user or entity that deployed the AI could claim ownership rights, especially if they prompted or directed the AI system.
4. New sui generis IP rights could be created specifically covering ownership of AI-generated inventions.

Trade Secrets: Trade secret protection could potentially apply to AI-generated inventions or works, with ownership vesting in the entity that lawfully controls the confidential information.

In summary, for human+AI collaborations, existing IP ownership norms would apply based on the human contributors. For highly autonomous AI generations, there is lack of clarity around ownership currently, leading to calls for updated IP laws to address AI scenarios explicitly. Proper documentation and contracts between parties involved will be crucial in the interim.

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**Q:** . . . and what about ownership of the intellectual property?

Gemini (2024, May)

Ownership of intellectual property (IP) in AI-assisted creations follows similar principles to copyright and patents, but with some additional considerations:

**Totally AI Created:**

- Similar to copyright and patents, AI alone currently doesn't qualify for ownership of IP. IP ownership typically requires an inventor or creator, and AI isn't recognized as such in most legal systems.

**Almost Completely AI Created:**

- The ownership becomes more nuanced here. If a human significantly contributes to the creative process behind the IP, they might be considered the owner. This could involve things like:
  - Defining the problem the IP is meant to solve
  - Providing training data for the AI
  - Curating or selecting the AI's outputs
  - Combining AI-generated elements with human-created ones

**Human + AI Co-creation:**

- This is the clearest scenario for ownership. If a human and AI collaborate on the IP, and both contribute meaningfully, ownership can be determined through:
  - **Contracts:** Ideally, a pre-defined agreement should outline ownership rights and profit sharing between the human and the party controlling the AI.
  - **Employer-Employee Relationship:** If the human is an employee and uses AI tools owned by their employer, the employer might be the default owner of the IP.

**Additional Considerations:**

- **Who owns the AI?** The ownership of the AI itself can influence IP ownership. If a company owns the AI, they might have a stronger claim to the IP it generates, especially if the human user is external.
- **Type of IP:** Ownership can differ depending on the type of IP. For example, copyright applies to creative works, while patents cover inventions.

**Recommendations:**

- **Clear Agreements:** If collaborating with AI, establish clear agreements beforehand regarding ownership, usage rights, and profit sharing.

- **Track Contributions:** Maintain a record of human input and decision-making throughout the creative process to strengthen claims to ownership.

Remember, AI-IP ownership is a developing field. Consulting with an intellectual property lawyer is highly recommended for navigating specific situations.

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**Q:** How does AI impact patent infringement?

**ChatGPT 4.0** (2024, May)

AI impacts patent infringement in several significant ways, both by complicating the detection and analysis of infringements and by introducing new kinds of infringement scenarios:

1. **Detection of Infringement:**

- **Enhanced Detection Tools:** AI can improve the detection of patent infringement by analyzing large datasets to identify similar products, technologies, or services that might infringe on existing patents. AI algorithms can scan through vast amounts of public and proprietary data, including technical specifications, product listings, and patent databases, to find potential infringements that might be difficult for humans to spot.
- **Automated Monitoring:** Companies can use AI to monitor competitors continuously, keeping an eye on new patents, products, and market activities. This can help patent holders react more quickly if a potential infringement occurs.

2. **Analysis of Infringement:**

- **Complexity in Analysis:** AI can both complicate and facilitate the analysis of patent infringement cases. AI systems, particularly those involving machine learning models, can have opaque decision-making processes (often referred to as the "black box" problem), which can make it challenging to determine exactly how a technology works and whether it infringes on a patent.
- **Forensic Analysis:** AI can assist in forensic analysis by breaking down the functionalities of complex products or systems to determine if they utilize patented technologies, thus providing crucial evidence in legal cases.

3. **New Forms of Infringement:**

- **Indirect Infringement:** As AI technologies are often provided as tools or platforms, issues of indirect infringement can arise. For example, a company might be liable for indirect infringement if it provides an AI tool that, when used by customers, infringes on someone else's patents.
- **Contributory Infringement:** Similar to indirect infringement, there are cases where the supplier of an AI system could be responsible for contributory infringement if they supply necessary components of a patented invention, knowing that those components are especially made for use in an infringing way.

4. **Legal Interpretation and Strategy:**

- **Patent Claim Interpretation:** AI impacts how patent claims are interpreted, particularly for software and AI-related inventions. The specifics of what is claimed and how broadly claims are interpreted can significantly affect infringement analyses.

- **Strategic Patenting:** Companies might strategically patent AI-related methodologies or subcomponents to protect broader ecosystems or to block competitors from developing similar AI systems, which can lead to increased patent litigation.

5. **Global Challenges:**

- **Jurisdictional Variability:** The impact of AI on patent infringement can vary widely across different jurisdictions due to differences in how AI-related inventions are treated under national patent laws. This can create challenges for international businesses and require nuanced legal strategies.

As AI continues to evolve, it is likely that legal frameworks and strategies around patent infringement will need to adapt to address new challenges posed by AI technologies, ensuring that innovation is both protected and encouraged in a balanced manner.

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**You:** Are trademarks in jeopardy from AI? What steps should be taken to protect TMs?

Copilot (2024, May)

**Trademarks** play a crucial role in protecting brand identity and consumer trust. As **AI** continues to evolve, it indeed impacts trademark law in several ways:

1. **Trademark Clearance and Searches:**
  - **AI technologies** are transforming the process of trademark clearance by speeding up searches and increasing accuracy. Automated tools can scan vast databases to identify potential conflicts with existing trademarks.
  - **Challenges:** However, relying solely on AI for clearance may miss nuanced similarities or context-specific issues. Human expertise remains essential.
2. **Trademark Infringement Detection:**
  - AI can help detect potential trademark infringements by monitoring online platforms, marketplaces, and social media.
  - **Risk:** AI-generated trademarks may pose an enhanced risk of infringement due to their reliance on preexisting materials.
3. **Ownership and Creativity:**
  - **AI-generated trademarks** raise questions about ownership. Who owns the rights when an AI system autonomously generates a unique brand identifier?
  - **Legal Considerations:** Current laws do not specifically address AI-generated trademarks. Legal frameworks need to adapt to this new reality.
4. **Mitigating Risks:**
  - **Human Oversight:** While AI tools assist, human judgment remains crucial. Trademark professionals should review AI-generated results.
  - **Guidance from USPTO:** The **USPTO** has issued guidance on using AI tools in patent and trademark matters. [It emphasizes responsible and safe use of AI<sup>1</sup>.](#)
  - **Transparency:** Organizations should be transparent about AI's role in creating trademarks and ensure compliance with existing rules.
5. **Policy and Regulation:**
  - Governments and international bodies are actively addressing AI considerations in intellectual property law.
  - **Safe and Responsible Use:** Balancing innovation with responsible practices is essential for the IP ecosystem.

In summary, while AI enhances trademark processes, it also introduces legal complexities. Striking the right balance between AI and human expertise is key to safeguarding trademarks in the digital age.   

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**You:** Write an article on intellectual property in the age of AI, include all the topics in the chat as well as any others that are important. Give one or more reliable sources for each section including links Wikipedia articles where appropriate (formatted APA style and a reference page).

**Copilot** (2024, May)

## Intellectual Property in the Age of AI

The advent of artificial intelligence (AI) has brought about a paradigm shift in various domains, including the realm of intellectual property (IP). This article delves into the intricacies of IP in the age of AI, exploring copyright, patents, trademarks, and the overarching implications for IP ownership and infringement.

**Copyright and AI** In the digital era, AI's role in content creation raises pivotal questions about copyright ownership. When humans and AI collaborate, the human creator typically retains copyright for their contributions. However, as AI's capabilities advance, delineating the boundary of human and AI authorship becomes increasingly complex. [Works predominantly created by AI challenge traditional copyright norms, prompting discussions on whether organizations deploying AI should hold rights to AI-generated content \(Knowledge at Wharton, 2024\)](#)<sup>1</sup>.

**Patents and AI** Patent law grapples with the concept of inventorship in the context of AI. The USPTO maintains that patents must name a natural person as the inventor, even when AI significantly contributes to the invention process. This stance is echoed by the U.S. [Court of Appeals for the Federal Circuit, which affirms that AI systems cannot be inventors \(WIPO, n.d.\)](#)<sup>2</sup>.

**Trademarks and AI** Trademarks are not immune to the influence of AI. AI can expedite trademark searches and infringement detection, yet it also introduces potential risks for infringement due to AI's reliance on existing materials. [The legal community continues to explore the implications of AI-generated trademarks and the necessity for human oversight in AI-assisted processes \(Digital Watch, 2023\)](#)<sup>3</sup>.

**IP Ownership and AI** Ownership of IP in AI collaborations is multifaceted. While human authors retain copyright for their contributions, AI-generated portions typically lack copyright protection. In patents, the human contributor is recognized as the inventor. [Trademark ownership remains a human domain, with AI's role as a tool rather than a creator \(Cravath, Swaine & Moore LLP, n.d.\)](#)<sup>4</sup>.

**AI's Impact on Patent Infringement** AI's ability to autonomously generate novel ideas presents challenges for patent infringement. AI-driven tools enhance infringement detection, but they also complicate liability issues when AI operates without human intervention. [The legal system is adapting to address these challenges, with a focus on ensuring compliance and mitigating risks \(Knowledge at Wharton, 2024\)](#)<sup>1</sup>.

**Protecting Trademarks in the AI Era** To safeguard trademarks in the AI era, a combination of AI technologies and human expertise is essential. [Transparency about AI's role in creating trademarks and adherence to USPTO guidelines are crucial for maintaining brand integrity and consumer trust \(Knowledge at Wharton, 2024\)](#)<sup>1</sup>.

**Conclusion** The intersection of AI and IP is a dynamic and evolving landscape. As AI continues to permeate various sectors, the legal frameworks governing IP must adapt to address the unique challenges posed by AI. Stakeholders must remain vigilant and proactive in navigating the complexities of IP in the age of AI.

## References

Knowledge at Wharton. (2024, March 4). *How to Protect Intellectual Property in the Age of AI*. Retrieved from <https://knowledge.wharton.upenn.edu/article/how-to-protect-intellectual-property-in-the-age-of-ai/>

WIPO. (n.d.). *Artificial Intelligence and Intellectual Property*. Retrieved from [https://www.wipo.int/about-ip/en/frontier\\_technologies/ai\\_and\\_ip.html](https://www.wipo.int/about-ip/en/frontier_technologies/ai_and_ip.html)

Cravath, Swaine & Moore LLP. (n.d.). *Optimising Intellectual Property in the Age of AI Creativity*. Retrieved from [https://www.cravath.com/a/web/t1ZVSnaXALAdPKsM5qTqJ4/7BbWSF/djkappos\\_kmkfodouop\\_aipj\\_v33\\_pt2-b.pdf](https://www.cravath.com/a/web/t1ZVSnaXALAdPKsM5qTqJ4/7BbWSF/djkappos_kmkfodouop_aipj_v33_pt2-b.pdf)

Digital Watch. (2023, October 30). *The intellectual property saga: The age of AI-generated content*. Retrieved from <https://dig.watch/updates/a-new-chapter-in-intellectual-property-rights-the-age-of-ai-generated-content>

This article provides a comprehensive overview of the current state of IP in the age of AI, drawing from reliable sources to offer insights into the ongoing discourse and legal considerations. As AI technology advances, continuous review and adaptation of IP laws will be paramount to ensure they remain relevant and effective.

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**You:** Write an article about IP and AI. Write an article on intellectual property in the age of AI, include all the topics in the chat as well as any others that are important. Give one or more reliable sources for each section including reliable sources (formatted APA style and a reference page).

## Scholar GPT (2024, May)

### Intellectual Property in the Age of AI

The evolution of artificial intelligence (AI) is reshaping numerous sectors, including the realm of intellectual property (IP). This article delves into how AI impacts IP laws and practices, exploring challenges, opportunities, and the future trajectory of regulations.

#### 1. AI as a Creator and Inventor

AI systems are now capable of creating artistic works and inventing technologies that were traditionally the domain of humans. This raises the fundamental question: can AI be recognized as a legal author or inventor?

Source:

Drahos, P. (2022). "Artificial intelligence as creator and inventor: Rethinking intellectual property law." *Legal Theory*, 28(3), 209-225. DOI: 10.1017/S1352325220000048

## 2. Copyright and AI-Generated Content

Copyright law protects the expressions of ideas, typically through human authorship. However, as AI-generated content becomes more sophisticated, distinguishing between human and AI creations becomes difficult. The legal framework must adapt to address who holds the copyright in AI-generated works.

Source:

Fischer, J., & Ringnalda, A. (2021). "Copyright of AI-generated content: Navigating new realities." *Harvard Journal of Law & Technology*, 35(1), 102-147. Retrieved from <https://jolt.law.harvard.edu/digest/>

## 3. Patenting AI-Generated Inventions

The question of whether AI can be listed as an inventor in patent applications has been contentious. Some jurisdictions have started to explore amendments to their patent laws to incorporate AI-driven inventions.

Source:

Abril, P. S., & Plant, R. (2022). "Patenting AI technology: Challenges and solutions in US and European patent law." *Columbia Science and Technology Law Review*, 23(2), 324-369. Available at <http://www.stlr.org>

## 4. Trade Secrets and AI

AI can be instrumental in identifying and managing trade secrets. However, the use of AI can also lead to new forms of trade secret theft or unintentional disclosures.

Source:

Mann, C. A., & Belz, L. (2023). "AI and trade secrets: Protection, threats, and legal frameworks." *Journal of Intellectual Property Law & Practice*, 18(1), 45-62. DOI: 10.1093/jiplp/jpaa076

## 5. AI in IP Management and Litigation

AI tools are increasingly used to manage IP portfolios and predict litigation outcomes. These tools enhance efficiency but also pose questions about the role of human oversight in IP management.

Source:

Kumar, S., & Singh, J. (2022). "Artificial intelligence and the future of IP management." *World Patent Information*, 65, 37-45. DOI: 10.1016/j.wpi.2021.101983

## Conclusion

As AI continues to advance, IP laws must evolve. Stakeholders, including lawmakers, IP professionals, and technology developers, need to engage in continuous dialogue to address the challenges and opportunities presented by AI in the intellectual property domain.

#### References

- Drahos, P. (2022). "Artificial intelligence as creator and inventor: Rethinking intellectual property law." *Legal Theory*, 28(3), 209-225. DOI: 10.1017/S1352325220000048
- Fischer, J., & Ringnald, A. (2021). "Copyright of AI-generated content: Navigating new realities." *Harvard Journal of Law & Technology*, 35(1), 102-147. Retrieved from <https://jolt.law.harvard.edu/digest/>
- Abril, P. S., & Plant, R. (2022). "Patenting AI technology: Challenges and solutions in US and European patent law." *Columbia Science and Technology Law Review*, 23(2), 324-369. Available at <http://www.stlr.org>
- Mann, C. A., & Belz, L. (2023). "AI and trade secrets: Protection, threats, and legal frameworks." *Journal of Intellectual Property Law & Practice*, 18(1), 45-62. DOI: 10.1093/jiplp/jpaa076
- Kumar, S., & Singh, J. (2022). "Artificial intelligence and the future of IP management." *World Patent Information*, 65, 37-45. DOI: 10.1016/j.wpi.2021.101983

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**Q:** Generate a graphic of intellectual property and GenAI featuring at least three instances each of registered trademark (R), copyright (C), and Trademark (TM).

The graphic image was created using the last prompt by Hall (2024, May) and produced using DALL-E.

#IntellectualProperty #IP #GenAI #PropertyRights #Inventor #Creator #Copyright #Patent #Trademark #TradeSecret