

Generative Artificial Intelligence and Intellectual Property: Comparative Approaches and the Egyptian Charter

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Introduction

The concept of artificial intelligence (AI) emerged in the mid-twentieth century, particularly following the 1956 Dartmouth Conference. Since then, AI has evolved from an area of academic research into a central component of modern economic, technological, and commercial activity.

AI generally refers to the ability of computer systems to perform functions associated with human intelligence, including learning, analysis, reasoning, prediction, and decision-making. Through increasingly sophisticated algorithms and mathematical models, AI systems can process large volumes of data, identify patterns, generate content, and recommend or perform actions with varying degrees of human intervention.

The rapid development of generative artificial intelligence has significantly expanded the legal questions surrounding AI. Generative AI systems can produce texts, images, music, videos, and other forms of content, often based on relatively limited human instructions.

This development presents particular challenges for intellectual property law, which has traditionally been structured around human creativity and human invention. Questions concerning authorship, inventorship, ownership, infringement, training data, and liability have therefore become increasingly important.

The impact of generative AI on creative and innovative fields

Artificial intelligence has expanded beyond analytical and operational functions into fields traditionally associated with human creativity, including literature, visual arts, music, graphic design, and audiovisual production.

Generative AI technologies can now produce creative outputs with limited direct human intervention. Depending on the system and the manner in which it is used, a user may generate a written work, image, musical composition, or video through a prompt or a series of instructions.

Examples of widely used generative AI applications include:

- **ChatGPT and other large language models**, which can generate and transform literary, analytical, and other forms of written content.
- **DALL·E and Midjourney**, which can generate images based on textual instructions.
- **AIVA**, which uses AI technologies to generate musical compositions.
- **Runway and Sora**, which support the generation and manipulation of audiovisual content.

The increasing ability of AI systems to produce sophisticated creative outputs raises fundamental questions concerning the nature of creativity, the role of human contribution, and the legal basis for granting intellectual property protection to AI-assisted or AI-generated works.

Intellectual property and traditional legal principles

Intellectual property law protects a broad range of creations and innovations, including literary and artistic works, inventions, trademarks, and industrial designs.

The underlying objective is to establish an appropriate balance between protecting the interests of creators and innovators and promoting the dissemination of knowledge, competition, and technological development.

Copyright protection

Copyright traditionally protects original literary and artistic works that reflect an author's intellectual contribution and creative expression.

The concept of authorship has historically been associated with a human creator capable of exercising intellectual judgment and producing an original work.

The emergence of generative AI challenges this assumption where the final output is generated with limited or no direct human creative intervention.

Industrial property

Industrial property protection covers areas such as patents, trademarks, and industrial designs.

Patent systems, in particular, are based on the concept of an inventor who develops an invention through an intellectual and inventive process.

The increasing sophistication of AI systems raises the question of whether an AI system capable of generating an inventive solution should itself be recognized as an inventor, or whether inventorship must remain attributed to a human being.

The human contribution principle

Traditional intellectual property systems generally rely on two fundamental assumptions:

- The existence of a human author or inventor; and
- A sufficient intellectual or creative contribution attributable to that person.

This approach is reflected in international intellectual property principles and remains central to the current treatment of AI-generated and AI-assisted creations.

Can AI be an author or inventor?

One of the most significant legal questions arising from generative AI is whether an AI system can independently acquire the status of an author or inventor.

The prevailing approach in comparative legal systems remains that AI cannot be recognized as an independent author or inventor.

This position is primarily based on the fact that AI systems do not possess independent legal personality and cannot exercise legal rights or assume legal obligations in the same manner as natural persons or legal entities.

The position in copyright

In the copyright context, the central issue is generally whether sufficient human creative contribution exists to justify protection.

Where a human exercises meaningful creative control over the process and contributes original expression to the resulting work, the circumstances may support recognition of copyright protection.

Conversely, where an output is generated entirely by an AI system without sufficient human creative contribution, the availability of copyright protection becomes significantly more uncertain.

The DABUS patent cases

The debate has also extended to patent law through the DABUS proceedings, in which attempts were made to identify an AI system as the inventor of inventions generated through AI.

Authorities and courts in several jurisdictions rejected the proposition that an AI system could be recognized as an inventor under existing patent legislation.

These developments demonstrate the continuing importance of the traditional legal concept of the inventor as a natural person and highlight the difficulty of applying existing intellectual property frameworks to autonomous AI-generated inventions.

Who owns AI-generated outputs?

Even where AI cannot itself hold intellectual property rights, another important question remains: who, if anyone, should own the resulting output?

Potential candidates may include:

- The developer of the AI system;
- The user who generated the output;
- The entity operating or owning the AI infrastructure; or
- Another party determined by contract or applicable law.

The answer may depend on the level of human contribution, the contractual terms governing the use of the AI system, and the nature of the particular intellectual property right involved.

The Egyptian Charter for Generative AI

Egypt has also begun addressing the responsible development and use of generative AI through the Egyptian Charter for Generative AI.

The Charter provides guiding principles intended to promote responsible use of generative AI and to address associated legal, ethical, and societal considerations.

The legal nature of the Charter

The Charter should be distinguished from binding legislation.

Its principal function is to provide a normative and policy-oriented framework that can guide institutions, businesses, developers, and users in adopting responsible approaches to generative AI.

Its significance may therefore be considered in several contexts, including:

- Guiding institutional AI policies;
- Supporting compliance with existing legal obligations;
- Promoting responsible use of AI technologies; and
- Contributing to the development of future regulatory approaches.

Key principles

The Charter emphasizes several principles relevant to the use of generative AI.

Transparency

Users and organizations should promote transparency concerning the use of AI in generating or processing content where disclosure is appropriate.

Accountability

Responsibility for the development, deployment, and use of AI should remain attributable to the relevant human actors or legal entities rather than being transferred to the AI system itself.

Data protection

The use of AI technologies should take into account applicable data protection requirements, particularly where personal data is collected, processed, used, or incorporated into AI systems.

Respect for intellectual property rights

AI development and use should respect existing intellectual property rights and avoid the unauthorized use, reproduction, or exploitation of protected works.

Responsible use

Generative AI should be used responsibly, with appropriate measures to address misleading, harmful, unlawful, or otherwise inappropriate content.

The Charter and the question of authorship and inventorship

The Charter does not establish AI systems as independent authors or inventors.

Instead, responsibility remains connected to the individuals or legal entities involved in the development, deployment, or use of AI systems.

This approach is broadly consistent with the prevailing position in comparative legal systems, which continues to place legal authorship and inventorship within the framework of human or legally recognized entities.

Nevertheless, the Charter does not resolve all questions concerning ownership of AI-generated outputs.

In particular, the absence of detailed rules concerning the threshold of human contribution leaves important questions for future legislative and judicial development.

Practical intellectual property challenges

The development of generative AI creates several practical challenges for intellectual property owners, businesses, developers, and users.

Determining substantial human contribution

One of the central questions is determining when human involvement is sufficient to establish an intellectual property right in an AI-assisted output.

Simple prompting may not necessarily constitute the type or degree of creative contribution traditionally associated with authorship. By contrast, substantial human selection, modification, arrangement, editing, or creative direction may produce a different legal assessment.

The absence of universally applicable criteria makes this an area requiring further legal clarification.

Use of copyrighted works as training data

Another significant issue concerns the materials used to train AI systems.

Where training datasets contain copyrighted works, questions may arise concerning authorization, reproduction, fair use or equivalent exceptions, licensing, and the ultimate use of the resulting model.

Determining whether training practices comply with applicable intellectual property legislation is therefore becoming an increasingly important element of AI governance.

Ownership and contractual allocation

Businesses using generative AI should also consider contractual arrangements governing ownership and permitted use of AI-generated outputs.

Contracts may address issues such as:

- Ownership of AI-generated materials;
- Responsibility for third-party infringement claims;
- Permitted commercial uses;
- Confidentiality and data handling;
- Allocation of liability; and
- Obligations concerning disclosure or human review.

Clear contractual provisions can help reduce uncertainty where legislation does not provide a definitive answer.

Potential directions for legislative development

The rapid development of generative AI may require intellectual property systems to evolve without undermining the fundamental protection afforded to human creativity and innovation.

A sui generis protection framework

One possible approach would be to establish a limited and distinct legal protection for certain AI-generated outputs that do not qualify for traditional copyright protection.

Such a system could provide limited-duration or limited-scope protection while preserving the distinction between human-created works and fully autonomous AI-generated outputs.

Rights based on human contribution

Another possible approach would be to develop rules that assess rights according to the nature and extent of human contribution.

Under such a framework, meaningful creative input by users, developers, or other participants could be taken into account when determining whether and to whom intellectual property rights should be attributed.

Any such approach would need to provide clear and predictable criteria capable of being applied consistently by businesses, registries, courts, and other relevant authorities.

Conclusion

Generative artificial intelligence is challenging traditional assumptions underlying intellectual property law, particularly the concepts of authorship, inventorship, human creativity, and ownership.

The prevailing legal approach continues to reject the recognition of AI systems as independent authors or inventors. At the same time, the increasing ability of AI systems to generate sophisticated creative and technical outputs makes it increasingly difficult to address these issues exclusively through traditional legal concepts.

The Egyptian Charter for Generative AI represents an important step toward establishing principles for the responsible use of generative AI in Egypt. However, its normative nature means that several fundamental questions remain dependent on existing legislation, contractual arrangements, regulatory development, and ultimately judicial interpretation.

As generative AI continues to develop, Egypt may need to consider a more comprehensive legislative framework addressing human contribution, ownership of AI-assisted outputs, training data, liability, and the protection of intellectual property rights.

The challenge is not simply to regulate artificial intelligence, but to develop a framework that preserves the protection of human creativity while allowing technological innovation to develop within a predictable and responsible legal environment.