Copyright, Competition, and GenAI: Policy choices and economic implications from the US, China, and the EU

Yong Huang, Vanessa Yanhua Zhang, Alexander White, and Jin Kiat Tan[1]

June 3, 2026

1 Introduction

1.1 The United States, China, and the EU are grappling with a common set of questions at the intersection of copyright and Generative AI (GenAI). To what extent should AI models be allowed to train on copyrighted works? When should AI-generated content receive copyright protection? And how do the answers to these questions affect competition and innovation? In this article, we address this important set of positive and normative questions related to intellectual property rights and competition in the world of artificial intelligence, covering these three major jurisdictions.

1.2 We first examine the topic of "training data authorisation". In doing so, we review the most consequential cases that have taken place across the three jurisdictions and their governing legal principles. An important point that emerges is that, whereas China and the US allow AI models to train on copyrighted material, the EU gives copyright holders the chance to opt out. We then discuss prominent scholarly literature on the economic pros and cons of such policies and related questions regarding royalties that AI companies might be required to pay copyright holders.

1.3 Second, we study copyright protection of AI-generated content (AIGC). Here, we find that the overarching principle across the US, China, and the EU is that AIGC can receive copyright protection, but only when it contains an element of "human authorship", and that the precise meaning of this standard is rather murky. Turning to conceptual analysis of this topic, we find that a view has emerged that there is likely a trade-off between short-run benefits and long-run costs of giving strong copyright protection to AIGC. Broadly speaking, strong protections are likely to accelerate the development of the AI industry, but they could also lead to the emergence of unintended consequences over time.

2 Training data authorisation

2.1 Authorities in China, the EU, and the US have, in our view, on the whole been quite permissive in allowing AI developers to use copyrighted data as training material for AI models.

---

[1] *Prof. Yong Huang is the Director of the Competition Law Centre of the University of International Business and Economics (UIBE) and a law Professor of UIBE Law School. He is also an appointed member of the Expert Advisory Board of the State Council Anti-Monopoly Commission in China. Dr. Vanessa Yanhua Zhang is an Executive Vice President at Compass Lexecon (New York and Beijing) and Senior Researcher at MRLC of Renmin University. Dr. Alexander White is a Senior Vice President at Compass Lexecon (Boston). Jin Kiat Tan is a Senior Economist at Compass Lexecon (Singapore). The views expressed in this article are the views of the authors only and do not necessarily represent the views of the authors' affiliations.*

2.2 The approach adopted in the US has been guided by the American "Fair Use" doctrine that limits enforceability of copyright protection. Four main factors are considered when assessing if a particular use is "fair":[2]

a. the purpose of the use,

b. the nature of the copyrighted work,

c. the portion of the copyrighted work used, and

d. the effect on the potential market of the copyrighted work.

2.3 This Fair Use doctrine featured recently in a landmark ruling in *Bartz v. Anthropic*, adjudicated in the US District Court for the Northern District of California.[3] In this case, Judge William Alsup ruled that Anthropic had not infringed upon copyright protections when training its AI model on copyrighted works. In particular, the defendant's AI activity was considered by the court to be 'transformative', generating new text, rather than simply redistributing the original copyrighted works. Hence, the training in question qualified as fair use.

2.4 Whereas China does not have a Fair Use doctrine, the Third Revision to China's Copyright Law, enacted in 2020, includes 13 "enumerated copyright exceptions".[4] These exceptions include, among others, personal use, proper quotation, the use of timely articles, educational purposes, scientific research, non-profit performances,[5] as well as a somewhat flexible category of "[o]ther circumstances provided for by laws and administrative regulation".[6]

2.5 To be sure, neither the American Fair Use doctrine nor the Chinese enumerated exceptions approach afford AI developers *carte blanche* to use copyrighted works however they want. Courts in both the US and China have ruled against claims by AI developers of a right to override copyright protection in circumstances where (a) the AI models' outputs directly competed against the copyrighted work used for training (e.g., in *Thomson Reuters v. Ross Intelligence*[7]) or (b) the AI model substantially reproduced the copyrighted works in its output (e.g., in *Shanghai Character License Administrative Co., Ltd v. Guangzhou Nianguang Network Technology Co., Ltd*[8] and the *Medusa* case in the Jinshan District People's Court of Shanghai[9]).

2.6 Authorities in the EU have not adopted as broad an approach as those observed in the US or China. However, in 2019, the EU's Directive on Copyright in the Digital Single Market introduced Text and Data Mining (TDM) exceptions which also generally permit text and data mining activities of copyrighted works.[10] More recently, the EU further clarified the copyright-related compliance obligations of general-purpose AI (GPAI) model developers on training data disclosure in the EU AI Act,[11] including compliance with the 2019 Copyright Directive.

---

2 17 U.S.C. § 107.

3 Regina Sam Penti, "*From Books to Bots: Key Takeaways from the Anthropic Fair Use Decision for AI Developers and Copyright Holders*", Ropes & Gray, 25 June 2025.

4 Chen, Yudong. "*The Legality of Artificial Intelligence's Unauthorized Use of Copyrighted Materials under China and US Law.*" IDEA 63, 2022, pp. 241-278.

5 Bertin Martens, "*Economic arguments in favour of reducing copyright protection for generative AI inputs and outputs*," Bruegel, 2024, pp.13-16 ("Martens (2024)").

6 Yu, Peter K. "*Third Amendment to the Chinese Copyright Law.*" J. Copyright Soc'y USA 69, 2022, pp. 5-25.

7 Thomson Reuters Enterprise Centre GmbH v. Ross Intelligence Inc., No. 1:20-CV-613-SB (D. Del. Feb. 2025).

8 Shanghai Character License Administrative Co., Ltd v. Guangzhou Nianguang Network Technology Co., Ltd, Yue 0192 Min Chu No.113 [2024].

9 Fei Dang, "*Shanghai Court Issues First Instance Judgment on AI Model Infringement*", MMLC Group, 17 November 2025.

10 Thomas Fischl and Andreas Splittgerber, "*Text and data mining in EU*", Reed Smith, 5 February 2024 ("Fischl and Splittgerber (2024)").

11 European Commission, "*High-level summary of the AI Act*", 27 February 2024.

2.7 The TDM exceptions have been cited by AI developers in successful defences against allegations made by copyright holders (e.g., *Kneschke v. LAION*[12]*)*. This suggests that, when it comes to the training of AI models using copyrighted data, the EU approach may be comparably tolerant to those of the US and China. Like the US and Chinese approaches, the TDM exceptions do not permit AI models to substantially reproduce copyrighted works (e.g., *GEMA v. OpenAI*[13]).

2.8 However, there is one particularly crucial distinction between the US and Chinese approaches and the European one involving TDM exceptions. This is that the TDM exemptions include a provision allowing copyright holders to opt out from having their content used other than by research organisations and cultural heritage institutions (i.e., for purposes of scientific research rather than commercial purposes).[14] AI developers wishing to train their models on the works of copyright holders who have opted out will, therefore, need to obtain specific authorisation to do so.

2.9 The recent spate of lawsuits worldwide, including those discussed above,[15] has led to debate over whether the US and Chinese approaches to training data authorisation are fit-for-purpose. Copyright holders are seeking compensation and control; AI developers are seeking clarity and access. These tensions have fueled active questions among scholars and policymakers about how copyright should apply in the AI context — and what the economic consequences of different choices might be.

2.10 The logic of the US approach is that innovation should not be constrained by rigid ex-ante rules. Courts can determine, after the fact, whether particular uses cross the line into infringement, balancing the interests of copyright holders and AI developers on a case-by-case basis. The Chinese approach, instead, is that legal certainty matters for investment guided by national policy. By specifying permitted uses in statute, the legislature provides certain guidance; by developing nuanced standards for human authorship (which we discuss in the next section), courts adapt those rules to new technologies. Such an approach is also consistent with China's use of the law as a tool for advancing innovation and economic objectives.[16] Under the EU approach, copyright holders should retain a degree of control even as technology evolves. The opt-out mechanism allows them to reserve their rights for commercial uses, while the TDM exception ensures that non-commercial research can proceed.

2.11 Given the large amount of data used in training AI models, as well as its essential role, the approach chosen by authorities is certain to have significant economic implications. In this section, we discuss these implications, focusing on:

a. the trade-offs inherent in the choice between mandating that data be available for AI model training and allowing opt-out,

b. the impact training data authorisation may have on the competitive dynamics between AI developers, and

c. key challenges in determining a fair license fee if training data authorisation were to be required.

---

12 Robert Kneschke v. LAION e.V., Case No. 310 O 227/23 (Hamburg Regional Court, Germany. 2024).

13 Simon Hembt, "*Landmark ruling of the Munich Regional Court (GEMA v OpenAI) on copyright and AI training*", Bird&Bird, 14 November 2025.

14 Fischl and Splittgerber (2024).

15 Further examples include the infringement lawsuit launched by The New York Times against OpenAI in the US, and the infringement lawsuit launched by Getty Images against Stability AI in the UK.

16 See for instance, Angela Huyue Zhang, "*The Sixth Layer: The Legal Infrastructure for Physical Artificial Intelligence in China"*, 2026. Available at SSRN: https://ssrn.com/abstract=6300241.

Fair Use: enabling free-riding, or driving the development of AI?

2.12 As the GenAI industry rapidly develops, the debate regarding the application of Fair Use, or similarly permissive principles, in training data authorisation is increasingly active. (In the remainder of this section, we use "Fair Use" somewhat loosely to refer to a more permissive approach.)

2.13 On the one hand, there are concerns that Fair Use prevents copyright holders from receiving adequate returns on their creations, undermining their incentive to continue creating. Padilla and Prasad (2025)[17] point out that free access to training data may lead developers to "free-ride". In this line of argument, so-called "Fair Use" prevents content creators from receiving due compensation for their work and thereby undermines their "forward-looking incentives" to invest in future creations. Requiring payment to train on original content can, the authors argue, help reduce free-riding behaviour and provide stronger incentives for creators to continue producing original works.

2.14 A counterargument to the above says that requiring AI developers to obtain authorisation for input data may lead to excessively high training costs. These would, in turn, hinder the development of the AI industry. Gans (2024)[18] emphasizes the importance of balancing the interests of copyright holders with those of AI developers, especially for large-scale AI models trained based on massive data sets. This paper weighs the value of input data in improving model quality and the expected economic damage caused by the lack of compensation to content creators. This analysis leads the author to propose a copyright protection method based on Fair Use. This method seeks to minimise transaction costs stemming from litigation and/or licensing negotiations while also maintaining the incentives of copyright holders to continue creating content by maintaining their right to litigate if their commercial interests were harmed.

Training data authorisation as a new barrier to entry and expansion

2.15 Some scholars have also focused on the implications that Fair Use authorisation could have on the way competition unfolds in the GenAI market. One concern is that licensing requirements for input data may hinder smaller-scale AI startups from entering the market. For instance, Hagiu and Wright (2025)[19] point to the fact that incumbent tech giants have, over time, accumulated extensive proprietary data. They argue that such giants could potentially build robust AI ecosystems by combining their proprietary data with copyrighted content. Having control over such a combination, they argue, could allow giants to lock users into their AI ecosystems. This could then favour market concentration and limit the growth of smaller competitors. As such, it could effectively risk centralising control over the AI-related use of copyrighted works into the hands of a few large players.

2.16 Similarly, Martens (2024) and Kretschmer, *et. al.* (2022)[20] posit that the absence of Fair Use may undermine the competitiveness of smaller AI developers, especially new entrants. They argue that AI startups may be limited not only in their ability to acquire a comparable *amount* of training data as existing incumbents, but also in their ability to acquire training data of comparably *high-quality*. Both papers speculate that, if training data authorisation were necessary, a few large AI enterprises may still be able to retain access to large-scale, high-quality, exponentially growing data. On the other hand, smaller AI firms may be forced to train their models' algorithms on cheaper, less premium datasets, comprised of data tending to be older, less accurate, or biased. This gap between incumbents and startups in the quality of data used as an input

---

17 Jorge Padilla and Kadambari Prasad, "*Demystifying licensing debates: Should GenAI developers pay to train their models on copyright protected content?*", Compass Lexecon, 2025 ("Padilla and Prasad (2025)").

18 Joshua Gans, "*Copyright Policy Options for Generative Artificial Intelligence*," NBER Working Paper No. 32106, 2024 ("Gans (2024)").

19 Andrei Hagiu and Julian Wright. "*Artificial intelligence and competition policy.*" International Journal of Industrial Organization, 2025, 103134 ("Hagiu and Wright (2025)").

20 Martin Kretschmer, Bartolomeo Meletti, Luis H Porangaba, "*Artificial intelligence and intellectual property: copyright and patents—a response by the CREATe Centre to the UK Intellectual Property Office's open consultation*", Journal of Intellectual Property Law & Practice, 2022, 17(3):321-326 ("Kretschmer, et. al. (2022)").

would then, they claim, allow the former to have better outputs, thus reinforcing their strong market position.

2.17 According to this "strong-get-stronger" reasoning, it could be preferable to adopt a Fair Use approach, particularly when seen from a broader societal perspective. Not only, the argument goes, would adopting Fair Use promote the ability of smaller AI developers to compete, in addition, promoting such competition would have important, positive follow-on consequences. Both Martens (2024) and Yang and Zhang (2024)[21] pursue such logic. They argue that, although copyright holders may benefit from receiving the royalties that would potentially stem from a requirement for authorisation to train, the process associated with administering such an arrangement would lead to a sacrifice in the quality of GenAI models. Such a sacrifice would, in turn, hinder the broader application of the AI industry and thus negatively affect productivity growth, leading to a reduction in consumer surplus and aggregate social welfare.

Challenges in determining a fair licensing fee

2.18 In the event that authorisation is required in order to train on data, there are multiple challenges to determining what a fair license fee should be. Given the large data requirements for AI training, a drawn-out process of determining and negotiating licensing fees could lead to significant frictions, both in terms of transaction costs and possible disputes.

2.19 First, as Gans (2024) points out, it may be difficult to determine both the copyright protection status of the data used for AI training and whether a particular piece of copyrighted content has been used for training in the first place. Second, while a larger input dataset can enhance the performance of GenAI models, the incremental value contributed by each data input may vary widely, making it more challenging to properly estimate its appropriate fee. Martens (2024) believes that it is almost impossible to determine an economically effective licensing price for training input data. Without a reasonable benchmark to assess the value of the license, the pricing for training input data relies solely on a process of negotiation between the copyright holder and the AI company, which the author argues would play out in a cumbersome way.

2.20 Third, there are other challenges associated with relying solely on bilateral negotiations. Kretschmer *et. al.* (2022) and Martens (2024) argue that, since large-scale negotiations have high costs, small-scale startups will be ill-equipped to engage in such negotiations, which would damage competition in the market for AI services. Furthermore, Martens (2024) argues, such negative impacts may not be limited to startups, as AI developers may try to economise on negotiation costs by limiting negotiations to only a few, large copyright holders. This would then diminish the overall quality of GenAI models' output.

2.21 Conversely, Padilla and Prasad (2025) argue that market-based bargaining generally yields mutually beneficial license terms when licensors and licensees each face competitive alternatives. They claim that evidence is lacking that there is a true source of market failure in this setting, but that such a market failure would be necessary in order to warrant a departure from a system whereby copyright holders exercise strong property rights. Consequently, they propose that access terms for GenAI should be determined on a bilateral basis, as guided by market forces.

2.22 These challenges are real, but they are not necessarily insurmountable. As Padilla and Prasad (2025) note (and a long tradition in economics suggests), markets can and do develop mechanisms to address valuation and negotiation problems. The forms that such mechanisms will take as they emerge, in the context of AI, remain to be seen, and it is an open question how effective they will be. Moreover, they may look very different from one another across jurisdictions.

---

[21] S. Alex Yang and Angela Huyue Zhang, "*Generative AI and copyright: A dynamic perspective*," arXiv preprint arXiv:2402.17801, 2024, https://arxiv.org/pdf/2402.17801 ("Yang and Zhang (2024)").

3 Copyright protection of AIGC

3.1 The central tenet considered by authorities in the US, China, and the EU, when granting copyright protections to AIGC, centres on the concept of "human authorship" – i.e., some form of creative human control, expression, and effort.

3.2 There is broad consensus among authorities in all three jurisdictions that content primarily auto-generated by an AI tool should not be granted copyright protection. For instance, in *Thaler v. Perlmutter*,[22] the US Court of Appeals judged that all work eligible to be copyrighted must be "*authored in the first instance by a human being*". In China, a similar judgment was reached by the Zhangjiagang Court, which refused to grant copyright protections to particular AIGC in *Feng v. Dongshan*, due to insufficient evidence of creative human input.[23]

3.3 It remains unclear, however, whether the principles and thresholds applied by different authorities to determine what constitutes sufficient "human authorship" have been consistent across jurisdictions.

3.4 In America, the US Copyright Office's (USCO) report on the copyrightability of AIGC has set out guidelines on what it considers to be sufficient human authorship.[24] Specifically, the USCO considers that:

a. Prompts or repeatedly revising prompts does **not** constitute "*sufficient human control to make users of an AI system the authors of the output*".[25] Such considerations were borne out in recent decisions that gave no heed to applicants' arguments emphasising both the large number of prompts they had used and the detailed nature of these prompts (e.g., "*Théâtre D'opéra Spatial*"[26] and "*Zarya of the Dawn*"[27]).

b. Where a human inputs their own copyrightable work into an AI model, and that work is perceptible in the output, at least that portion of the output **can be** copyrightable. However, such protections do not extend to AI-generated elements with no perceptible human expression.[28] These considerations were manifested in the USCO's decision to deny copyright protection to '*SURYAST*',[29] an AIGC of an original photograph from the applicant modified to the style of a van Gogh painting by an AI platform. While the USCO welcomed the applicant to register the original photograph for copyright protection, it ruled that the AIGC did not reflect sufficient creative control by the applicant over the modification by the AI platform.

c. Copyright eligibility for AIGC that uses an AI output as an intermediate step, and adds further human authorship to derive the final output, will need to be determined on a **case-by-case basis** to assess whether the human-made modifications meet the minimum standard of originality.[30] It was under this principle that the USCO issued its sole decision to date granting copyright protection to an AIGC in *Keirsey v. USCO*.[31] In this case, evidence submitted by the applicant on human-made refinements to an AI output was judged to reflect human control over the creative processes and the final output.

---

22 Thaler v. Perlmutter, No. 23-5233 (D.C. Cir. 2025).

23 Seagull Song, "*Chinese Court Found AI-Generated Pictures Not Copyrightable – Convergence with the U.S. Standard?*", King & Wood Mallesons, 5 December 2025.

24 USCO, "*Copyright and Artificial Intelligence, Part 2: Copyrightability*", January 2025 ("USCO Copyrightability report").

25 USCO Copyrightability report, pp. 18-20.

26 Gerard Donovan , "*How to navigate the distinction between AI-generated material and AI-assistive use as copyright law catches up to AI*", Reed Smith, 10 September 2025.

27 Zarya of the Dawn (Registration # VAu001480196).

28 USCO Copyrightability report, pp. 24.

29 Second Request for Reconsideration for Refusal to Register SURYAST, (11 December, 2023), Boston, Copyright Review Board, SR # 1-11016599571; Correspondence ID: 1-5PR2XKJ.

30 USCO Copyrightability report, pp. 27.

31 John Wang, "*Copyrights for AI-Generated Images: A New Era for Art?*", 23 March 2025.

3.5 By comparison, authorities in China and the EU have so far been less active in articulating the standards for sufficient human authorship.

3.6 Chinese courts have developed a more nuanced understanding of human-AI collaboration than their US counterparts. In *Yunkai Li v. Yuanchun Liu*, the Beijing Internet Court recognized efforts made towards crafting prompts, adjusting parameters, and selecting final outputs constituted protectable intellectual effort.[32] The Changshu People's Court recognised efforts made towards crafting prompts and making subsequent modifications when granting copyright protection to an AIGC image of a heart-shaped balloon floating on water.[33] Such reasonings reflect a sophisticated appreciation of how creativity actually functions in the AI era: the author is no longer necessarily the person holding the brush, but the person directing the creative process through carefully designed instructions and curation. These decisions reflect a focus on the creative process as a whole, rather than isolating individual prompts.

3.7 This contrasts with the USCO's emphasis on the perceptibility of human contribution in the final output. Under the US approach, prompts alone are generally treated as unprotected "ideas" under the idea-expression dichotomy, regardless of their number or detail. The Chinese approach, by contrast, is more willing to consider the cumulative creative effort embodied in the process of interacting with AI.

3.8 Whether one approach is more "correct" has been extensively debated. For instance, multiple scholars have argued for the copyright protection of AIGC reflecting sufficient human authorship.[34] In particular, Cui (2024)[35] and Cui (2025)[36] contend that a series of sufficiently personalised prompts represents meaningful original contributions. On the flip side, some opponents of giving copyright protection to AIGC argue that, while user prompts may influence AI-generated content, the output is ultimately determined by the underlying algorithms and training data, rather than by the users.[37]

3.9 Thus far in the EU, fewer cases relating to the copyrightability of AIGC have been litigated. The municipal court in Prague has, however, clarified in *S. Š. v. Taubel Legal* that only works that are a unique result of a user's creative intellectual ability qualifies for copyright protection.[38]

3.10 The copyright protection of AIGC is an important issue with both legal and economic dimensions. On the one hand, AI, as a new type of creative tool, is used by human creators; on the other hand, AI competes with humans in creating content. Whether and to what extent AIGC should be protected by copyright is a complex issue that requires further analysis. In the remainder of this section, we discuss a set of prominent academic perspectives on the short- and long-term implications that would likely arise from copyright protection for AIGC.

---

32 Yunkai Li v. Yuanchun Liu, Jing 0491 Min Chun No.11279 [2023].

33 Edward Chatterton and Liam Blackford, "*Another Chinese court finds that AI-generated images can be protected by copyright: the Changshu People's Court and the 'half heart' case*", DLA Piper, 21 May 2025.

34 See for instance, Wu Handong, "*Institutional Arrangements and Legal Regulation in the Age of Artificial Intelligence*", Law Science (Northwestern University of Political Science and Law Journal) 5, 2017, pp.128-136; Wu Handong, "*On the Copyrightability of AI-Generated Content: Practice, Legal Theory and Institutions*", China Law Review 3, 2024, pp.113–129; Jiang Ge, "*On the Copyrightability of AI-Generated Content: A Perspective from Users' Original Expression*", Intellectual Property 1, 2024, pp.36–67.

35 Cui Guobin, "*Users' Originality Contributions in AI-Generated Content*", China Copyright, 6, 2023, pp.15-23.

36 Cui Guobin, "*Judicial Commentary on the Copyrightability of AI-Generated Works*", Digital Rule of Law 2, 2025, pp.43–55.

37 See for instance Wang Qian, "*Revisiting the Legal Characterization of AI-Generated Content under Copyright Law*", Legal Forum 4, 2023, pp.16-33 ("Wang (2023)"); Wang Qian, "*The Third Discussion on the Positioning of AI-Generated Content in Copyright Law*", Studies in Law and Business 41(3), 2024, pp.182-200 ("Wang (2024)").

38 CMS, "*Czech Republic - S. Š. v TAUBEL LEGAL, advokátní kancelář s.r.o.*", 11 October 2023.

Short-term gains and long-term balancing of copyright protection for AIGC

3.11 In the short term, copyright protection may help increase the economic value of AI content and encourage more capital to flow into the industry, bringing somewhat straightforward economic benefits.

3.12 Abbott and Rothman (2023)[39] describe such benefits, suggesting that the most direct, practical social goal of the copyright protection system is to promote the generation and dissemination of works. The copyright protection mechanism could encourage creators to use AI and the development of AI, thereby promoting the creation and dissemination of more works.

3.13 Yang and Zhang (2024) also recognise similar short-term benefits. Strong copyright protection is beneficial in increasing the profits of AI companies and the income of creators. However, they note that this has a dual impact on consumer surplus: it encourages AI to generate more high-quality content, which benefits consumers, but it may lead to a higher share of total surplus flowing to AI companies.[40]

3.14 However, potential long-run consequences are less clear. As pointed out in Wang (2023) and Wang (2024), there is currently no empirical evidence that granting copyright protection to AIGC will generate long-term benefits for the development of the AI industry. Abbott and Rothman (2023), instead, explain that a general concern related to AI is its potential to lead to technology-driven unemployment. To the extent the AI industry becomes concentrated, strong copyright protection for AIGC could lead to excessive concentration of ownership of copyrighted materials. This could potentially exacerbate the unemployment problem contemplated above, and, as the authors argue, it could also undermine human motivation for originality. Ideally, the intensity and the scope of copyright protection for AIGC would strike a balance that encourages innovation while minimizing such negative effects.

3.15 Yang and Zhang (2024) further characterise the relationship between AIGC and original human works. Their account is as follows. Original human works are used for AI model training, and the quantity and quality of such original works affects the performance of the AI model. Therefore, the improvement of AI via training requires continuous input of original human works. At the same time, AIGC also directly competes with original human works. Therefore, if AIGC is overprotected, it may inhibit the supply of human originality, which would reduce the original data available for AI model training. Ultimately, the quality of the model will be reduced, and social welfare will be harmed.

3.16 Apart from the above considerations, some scholars also question the effectiveness of copyright protection at encouraging the creation of AIGC. GenAI technology significantly reduces the marginal cost of content creation, so the production of new content does not require additional resource input. Taking this aspect into account, Martens (2024) analyses the logic of copyright protection and concludes that there is no need to provide it for AIGC. He emphasises the view that the underlying premise for copyright protection is, in general, is that, without it, the marginal cost of *copying* is lower than the marginal costs of *creating* content. However, in the case of GenAI technology, it is unlikely that this relationship will hold in the first place. Thus, he argues, there is very limited reason for copyright protection for AIGC.

---

[39] Ryan Abbott, and Elizabeth Rothman, "*Disrupting creativity: Copyright law in the age of generative artificial intelligence*," *Fla. L. Rev*. 75, 2023, pp.1187-1191 ("Abbott and Rothman (2023)").

[40] Consumer surplus and producer surplus are fundamental tools used to study the welfare of buyers and sellers in a market. Producer surplus is the amount a producer receives from selling a good minus the cost of production, measuring the benefits the producer gains from participating in the market. Consumer surplus, on the other hand, is the amount a consumer is willing to pay for a good minus the amount they actually pay, reflecting the benefits the consumer gains from market participation. Total surplus is the sum of consumer surplus and producer surplus.
See: N. Gregory Mankiw, "*Principles of Microeconomics*" (8th Edition), Cengage Learning, 2017, Chapter 7.

4 Conclusion

4.1 In this article, we focus on two critical issues surrounding intellectual property rights related to GenAI. The first issue regards the extent to which AI models are (or should be) allowed to be trained using copyrighted works. The second issue regards the extent to which AIGC is (or should be) afforded copyright protection.

4.2 We tackle each of these issues in two steps. In the first step, we review the most relevant cases to have been adjudicated in the US, China, and the EU. In the second step, we review and analyse economic and conceptual arguments surrounding these issues, drawing attention to prominent scholarly contributions by authors on each side of the debate.

4.3 On the first issue of AI models' ability to train using copyrighted works, the main points are as follows. The US relies on Fair Use, with courts determining boundaries case by case. China provides enumerated exceptions in statute, with accumulating judicial experience gradually clarifying the relevant adjudicative standards and their application. Relative to the US and China, the EU's stance towards this issue is somewhat more restrictive, as it allows the owners of copyrighted works to opt-out from having their works be used for training. At a conceptual level, arguments for Fair Use rights emphasise the benefits of low-cost model development and the promise of lower transaction costs associated with AI training. In contrast, arguments for stronger protections for copyright holders and compulsory licensing emphasise the costs engendered by allowing AI models to free-ride on copyrighted works.

4.4 On the second issue of copyright protection for AIGC, all three jurisdictions require that AIGC must have some component of "human authorship" to receive protection, but they define that requirement differently. The US looks for perceptible human contribution in the output. China considers the creative effort invested in the process, including prompt-crafting. The EU requires the work to be the unique result of the user's creative intellectual ability. These differences may narrow over time as technology evolves and courts gain more experience, or they may persist as enduring features of each legal system.

4.5 It is too soon to tell whether differing principles will guide the respective approaches of the three jurisdictions, but early signs suggest that China may give more credit than the US to activities such as "prompt-crafting" as a basis for establishing human authorship. The arguments we analyse favouring strong copyright protection for AIGC focus on more short-term boosts this could have on AI-driven productivity. Arguments against it focus more on potential long-term harms, including concentration of copyright ownership in the hands of a small number of AI companies and discouragement of human creativity. As technology continues to evolve and judicial experience accumulates, these differences may gradually narrow, or they may persist as long-term features of each legal system.

4.6 In an era of rapidly developing AI technologies and industries, the challenges faced by traditional property-rights rules are gradually shifting from "who owns it" to "who is entitled to use it, on what terms, and in what ways." This shift makes it difficult to define the content and scope of the object of rights, and to describe its boundaries with precision. The direction of future institutional developments will largely depend on the speed of technological change, the evolution of competitive dynamics, and the progress of international coordination, all of which are important issues that warrant sustained attention and deeper research.