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Reconciling AI innovation with copyright values: why reliance on individual licences is not enough

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To ensure appropriate remuneration for the use of human literary and artistic works in the development and exploitation of generative AI models, both individual licensing and collective remuneration solutions have been proposed. The following analysis sheds light on the heated discussion about the best remuneration mechanism and contrasts the current trend towards individual licensing with potential advantages of collective approaches that take AI output as a reference point. An assessment of the various regulatory options in light of competing policy objectives – fair remuneration on the one hand, broad access to training resources for culturally diverse AI on the other hand – concludes the discussion.

Keywords: *Text and data mining, Fair remuneration, Collective copyright management, Three-step test, Cultural diversity, AI training, AI output, Memorization, Idea/expression dichotomy*

1 INTRODUCTION

In the current debate on appropriate remuneration for authors and rights holders for the use of human works in AI development, the argument of parasitic appropriation of human training material without prior consent often occupies centre stage.¹ In addition, the socio-political objective plays a crucial role to provide adequate support to creators who are losing income and jobs due to increasing competition from generative AI systems (GenAI).² However, the broader societal dimension of the GenAI phenomenon must not be overlooked. Human creativity and the resulting literary and artistic artworks fulfil an important function.³ Findings from cultural studies leave little doubt that critical reflections on social, political and economic circumstances

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1. See MRF Senftleben, 'Generative AI and Author Remuneration' (2023) 54 International Review of Intellectual Property and Competition Law 1535, 1536–42, for an overview of the arguments.

2. See A Mok and J Zinkula, 'ChatGPT May Be Coming for Our Jobs. Here Are the 10 Roles that AI Is Most Likely to Replace', *Business Insider*, 6 March 2023 <<https://www.businessinsider.com/chatgpt-jobs-at-risk-replacement-artificial-intelligence-ai-labor-trends-2023-02>>.

3. MRF Senftleben, 'Works of Authorship and the Single Equitable Remuneration for AI Substitutes' in V Fischer, G Nolte, MRF Senftleben and L Specht-Riemenschneider (eds),

in literary and artistic works provide templates for the improvement of societal conditions.⁴ As the machine does not experience social, political and economic circumstances in the same way as human artists, it is doubtful whether GenAI can provide comparable impetus for the improvement of social conditions.⁵ The impressive possibilities of GenAI merely give the illusion of social progress through new technology, while the number of effective initiatives for the improvement of societal conditions – with dwindling human creativity – is actually declining. Instead of making society richer and more adaptable, GenAI may impoverish the literary and artistic discourse by reducing the supply of valid and socially effective literary and artistic productions by human hands.

Finally, the preservation and promotion of human art and creativity are also desirable from the perspective of the AI industry.⁶ In the long run, even machines lack the impetus that comes from new human training material. The constant repetition and recombination of the same repertoire leads to a flattening and deterioration of AI-generated content. In addition, the influx of ‘fresh’ works by flesh-and-blood creators is necessary to enable the machine to reflect current developments – both new events and new forms of expression – in its output. It is, therefore, also in the interest of the AI industry to create a solid basis for the continuation of human creative activity. If copyright is employed for this purpose,⁷ this leads to the question of appropriate remuneration mechanisms for human authors.

2 INDIVIDUAL LICENSING

The current discussion on remuneration for the use of human works in AI development shows a clear trend towards individual licensing.⁸ The need for licence agreements is self-evident in copyright systems, such as the UK, that do not contain exceptions for commercial AI training.⁹ In countries relying on fair use provisions, such as Israel, Singapore and the US, licensing becomes inescapable when use for AI development is

Gestaltung der Informationsrechtsordnung – Festschrift für Thomas Dreier zum 65. Geburtstag (C.H. Beck, Munich 2022) 111, 122–4.

4. F Schiller, in KL Berghahn (ed), *Über die ästhetische Erziehung des Menschen* (Reclam, Stuttgart 2000) (originally published 1794–1795) 35–6 (Letter 9), 92 (Letter 23) and 120–21 (Letter 27); TW Adorno, in G Adorno and R Tiedemann (eds), *Aesthetic Theory* (Suhrkamp, Frankfurt am Main 1970) 27–34, 55–6, 197–8, 337–8; P Osborne, *Anywhere or Not at All – Philosophy of Contemporary Art* (Verso, London and New York 2013) 203–11.

5. Senftleben, *supra* n 3, 122–4.

6. Senftleben, *supra* n 1, 1541.

7. For an alternative tax-based solution, see P Samuelson (forthcoming), ‘Assessing the Feasibility of Collective Licensing of In-Copyright Works as Training Data for Generative AI’ (2026) Proceedings of the National Academy of Sciences, and Senftleben, *supra* n 1, 1540. For a cultural fund solution, see S Jacques and M Flynn, ‘Protecting Human Creativity in AI-Generated Music with the Introduction of an AI-Royalty Fund’ (2024) 73 *Gewerblicher Rechtsschutz und Urheberrecht – International* 1137, 1140–43.

8. See E Rosati, ‘TDM Exceptions (Not Just the Three-Step Test) Don’t Allow All Unlicensed AI Development’, *IPKat*, 13 October 2025 <<https://ipkitten.blogspot.com/2025/10/tdm-exceptions-not-just-three-step-test.html>>.

9. As to the current regulatory framework and proposals for changes, see M Kretschmer, B Meletti et al, ‘Copyright and AI: Response by the CREATE Centre to the UK Government’s Consultation’, CREATE Working Paper 2025/2 (CREATE Centre, Glasgow 2025) 23.

deemed unfair.¹⁰ In Japan, the broad exemption of analytical use for ‘non-enjoyment purposes’¹¹ is rendered inapplicable when the use unreasonably prejudices legitimate rights holder interests.¹²

Even the configuration of European rules on text and data mining (TDM) – explicitly offering TDM freedom for both scientific¹³ and commercial¹⁴ purposes – is strengthening the trend towards individual licensing. According to Article 4(3) of the 2019 Directive on Copyright in the Digital Single Market (CDSMD),¹⁵ rights holders have the option of neutralizing the exemption of commercial TDM in Article 4(1) and, thus, withdrawing their works from AI training. As a result, GenAI developers are forced to either refrain from using material under TDM embargo or obtain licences. Obviously, the legislator hopes that the opt-out mechanism in Article 4(3) will lead to licensing agreements between high-tech companies and the creative industry and ensure appropriate remuneration in the free play of the market.¹⁶

In addition, the decision of the Regional Court of Munich in *GEMA/OpenAI* suggests that a licence may be required for sufficiently stable embeddings of human works in GenAI models (‘memorization’).¹⁷ If further court decisions consolidate this memorization approach, GenAI developers will have to secure licences in order to offer GenAI models on the market, regardless of the training freedom given in Article 4(1) CDSMD.

10. cf K de la Durantaye, ‘Exceptions for Training Generative AI’ (2025) 56 International Review of Intellectual Property and Competition Law 737, 747–50; M Sag and PK Yu, ‘The Globalization of Copyright Exceptions for AI Training’ (2025) 74 Emory Law Journal 1163, 1182–3, 1190–92; D Tan and T Lee Chee Seng, ‘Fair Use, Computational Data Analysis and the Personal Data Protection Act’ (2021) 33 Singapore Academy of Law Journal 1032, 1068–76; E Rosati, ‘Copyright Exceptions and Fair Use Defences for AI Training Done for “Research” and “Learning,” or the Inescapable Licensing Horizon’ (2025) 16 European Journal of Risk Regulation 961, 979; MA Lemley and B Casey, ‘Fair Learning’ (2021) 99 Texas Law Review 743, 772–3, 779–80; M Sag, ‘Fairness and Fair Use in Generative AI’ (2024) 92 Fordham Law Review 1887, 1916–20; P Samuelson, ‘Fair Use Defenses in Disruptive Technology Cases’ (2024) 71 UCLA Law Review 1484, 1488–93.

11. Article 30-4 of the Copyright Act of Japan. cf T Ueno, ‘The Flexible Copyright Exception for “Non-Enjoyment” Purposes: Recent Amendment in Japan and Its Implication’ (2021) 70 Gewerblicher Rechtsschutz und Urheberrecht International 145, 148.

12. *ibid.* cf MRF Senftleben, ‘Text and Data Mining, Generative AI and the Copyright Three-Step Test’ (2026) 57 International Review of Intellectual Property and Competition Law (IIC) 67, 69–70.

13. Article 3(1) CDSMD.

14. Article 4(1) CDSMD.

15. Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on copyright and related rights in the Digital Single Market and amending Directives 96/9/EC and 2001/29/EC (text with EEA relevance), Official Journal of the European Union L 130, 17 May 2019, 92.

16. Senftleben, *supra* n 1, 1546.

17. Regional Court of Munich, 11 November 2025, Case 42 O 14139/24, *GEMA/OpenAI*. cf A Feder Cooper and J Grimmelmann, ‘The Files Are in the Computer: On Copyright, Memorization, and Generative AI’ (2025) 100 Chicago-Kent Law Review 141, 166–77; J Drexler, ‘KI-Nutzungen und Kreative: Umrisse eines gerechten Ausgleichs’ (2026) 70 Zeitschrift für Urheber- und Medienrecht 153, 163; I Emanuilov and T Margoni, *Forget Me Not: Memorisation in Generative Sequence Models Trained on Open Source Licensed Code* (Zenodo 7 February 2024) 1, 10–15; S Biderman, S Prashanth et al, ‘Emergent and Predictable Memorization in Large Language Models’, *arXiv*, 31 May 2023; X Gu, C Du et al, ‘On Memorization in Diffusion Models’, *arXiv*, 4 October 2023 <<https://arxiv.org/abs/2310.02664>>.

On the one hand, memorization can lead to the GenAI model as such constituting an infringing copy of memorized works.¹⁸ On the other hand, memorization increases the risk of GenAI output imitating copyright-protected features of embedded works. Under these circumstances, licences are necessary to rule out any risk of infringement.¹⁹

3 QUESTIONABLE EFFECTIVENESS IN PRACTICE

However, it is doubtful whether individual licensing actually ensures adequate remuneration for all players in the creative industry. While AI developers may be inclined to enter into agreements with large publishers and producers to gain access to extensive work portfolios, smaller rights holders with niche repertoires, as well as individual authors and performers, may be left behind. The transaction costs of individual negotiations with an extremely large number of smaller rights holders and individual authors may simply be too high.²⁰ Rather than leading to large-scale licensing initiatives covering both big and small rights holders alike, reliance on individual licensing may culminate in a ‘winner takes all’ model that favours large repertoire owners.

Licence deals with collective management organizations (CMOs) are more inclusive. They cover all authors and rights holders who are CMO members – no matter how big or small. However, it remains to be seen whether CMOs are sufficiently attractive negotiating partners for AI companies.²¹ As long as AI developers can also negotiate licences with publishers and producers, they may prefer this alternative. Unlike CMOs, publishers and producers can provide digital files of the works in their catalogues. Once a contract is concluded, they can make this training material directly accessible to an AI developer. In contrast, CMOs have copyrights but do not necessarily have digital copies of the works they administer.

Licence agreements between the creative industry and high-tech companies undoubtedly offer opportunities. Authors who are under contract with a large publisher or producer can benefit from licence fees that may be higher than standard CMO tariffs. In the end, however, the contractual terms governing the relationship between authors

18. Feder Cooper and Grimmelmann, *supra* n 17, 166; K Szkalej and MRF Senftleben, ‘Generative AI and Creative Commons Licences – The Application of Share Alike Obligations to Trained Models, Curated Datasets and AI Output’ (2024) 15 *Journal of Intellectual Property, Information Technology and Electronic Commerce Law* 313, 320.

19. MRF Senftleben, ‘Wege zur KI-Grundvergütung für Kreative – Die Verzahnung individueller und kollektiver Vergütungsmodelle’ (2026) 70 *Zeitschrift für Urheber- und Medienrecht (ZUM)* 183, 185.

20. RM Hilty and H Richter, ‘Position Statement of the Max Planck Institute for Innovation and Competition on the Proposed Modernization of European Copyright Rules – Part B: Exceptions and Limitations – Art. 3 Text and Data Mining’, Max Planck Institute for Innovation and Competition Research Paper Series 2017-02 (2017) 1; C Geiger and V Iaiia, ‘The Forgotten Creator: Towards a Statutory Remuneration Right for Machine Learning of Generative AI’ (2024) 52 (105925) *Computer Law and Security Review* 1, 5–6; C Craig, ‘The AI-Copyright Challenge: Tech-Neutrality, Authorship, and the Public Interest’ (2022) 360 *All Papers: Osgoode Hall Law School of York University* 1, 26; Lemley and Casey, *supra* n 10, 770–71.

21. See Polish Presidency, *Policy Questionnaire on the Challenges Facing Collective Management Organizations in the EU Member States – Presidency Final Summary of the Member States’ and Stakeholders’ Contributions*, Document 10355/1/25 REV 1, 26 June 2025 (Council of the European Union, Brussels) 15, concluding that ‘licensing of protected works by CMOs for the purpose of AI-training remains rare in the EU’.

and exploiters of their works will determine whether they receive an appropriate share of AI licensing revenue. In the case of a buy-out contract with a one-time honorarium payment, it will be difficult to derive a separate remuneration claim for AI training use from the exploitation contract.²² If the contract contains a royalty component, the question arises whether the exploiter categorizes AI revenue as regular licensing income. If the agreement with a high-tech company does not bear the title ‘licence agreement’ but rather the more neutral wording ‘data delivery agreement’, the exploiter may take the position that the AI cash flow falls outside the royalty agreement. Until this question of interpretation is clarified by the courts, this view may allow publishers and producers to refuse to pay contractual royalties, at least where the exploitation agreement does not grant the author – on top of royalties – remuneration from flexibly defined ancillary exploitation activities.

Of course, the author may still have the option of invoking non-waivable remuneration rights under copyright contract law to override restrictive contractual stipulations. In addition to the general right to appropriate and proportionate remuneration that has been harmonized in Article 18 CDSMD, national copyright contract law may also award authors a right to additional appropriate remuneration for new, formerly unknown forms of use.²³ There are good reasons to assume that copying human works for the purposes of automated, computational TDM constitutes a new, formerly unknown reproduction category that falls outside the scope of exploitation contracts concluded prior to the AI revolution.²⁴ However, empirical studies give little hope that appropriate remuneration rights granted in copyright contract law are effective. In particular, the fear of being blacklisted as a ‘difficult’ author with whom no producer will want to work in the future regularly prevents authors from enforcing their statutory remuneration rights in practice.²⁵

22. PK Yu, ‘Artificial Intelligence, Intellectual Property, and Sustainable Development’ in C Geiger (ed), *Intellectual Property, Ethical Innovation and Sustainability: Towards a New Social Contract for the Digital Economy?* (Edward Elgar Publishing, Cheltenham 2026) 89, 95–8. cf S Carre et al, *Buyout Contracts Imposed by Platforms in the Cultural and Creative Sector* (Study Requested by the JURI Committee, European Parliament November 2023); GESAC Report, *Study on the Place and Role of Authors and Composers in the European Music Streaming Market* (September 2022).

23. For instance, see Article 25c(2) of the Dutch Copyright Act (*Auteurswet*); Sections 31a and 32c(1) of the German Copyright Act (*Urheberrechtsgesetz*). cf AGI Terhorst, ‘Auteurscontractenrecht: er is een wettelijke regeling!’ (2015) *Tijdschrift voor auteurs-, media- en informatierecht* 162, 166; T Dreier and G Schulze, *Urheberrechtsgesetz*, § 31a, paras 2 and 86.

24. MRF Senftleben, ‘Compliance of National TDM Rules with International Copyright Law – An Overrated Nonissue?’ (2022) 53 *International Review of Intellectual Property and Competition Law* 1477, 1493–502. cf Ueno, *supra* n 11, 150–51; R Ducato and A Strowel, ‘Ensuring Text and Data Mining: Remaining Issues with the EU Copyright Exceptions and Possible Ways Out’ (2021) 43 *European Intellectual Property Review* 322, 334; MW Carroll, ‘Copyright and the Progress of Science: Why Text and Data Mining Is Lawful’ (2019) 53 *UC Davis Law Review* 893, 954; Lemley and Casey, *supra* n 10, 772–3, 779–80.

25. C Geiger, S Scalzini and L Bossi, ‘Time to (Finally) Reinstall the Author in EU Copyright Law: From Contractual Protection to Remuneration Rights’ (2025) 56 *International Review of Intellectual Property and Competition Law* 1866, 1880; PB Hugenholtz, ‘Regulating Creator’s Contracts under the DSM Directive. What We Can Learn from the Dutch’ (2022) 4 *Nordiskt Immaterialt Rättsskydd* 466, 474–5; SJ van Gompel et al, *Evaluatie Wet Auteurscontractenrecht: eindrapport* (University of Amsterdam, Amsterdam 2020) 96–7; S Dusollier, ‘EU Contractual

In sum, the individual licensing model has the disadvantage that a potentially large segment of smaller rights holders and individual authors is unlikely to receive remuneration because their work repertoires are not attractive enough for AI developers. For authors whose publishers or producers manage to secure a licence agreement with AI companies, the question arises whether the exploiter of their works voluntarily passes on a fair share of the AI revenue to them. In light of these hurdles, the individual licensing model can hardly be considered a satisfactory solution for all authors and rights holders.

4 COLLECTIVE REMUNERATION

Hence, it is important to explore alternatives. One possibility is a collective remuneration claim that is mandatory by law and can only be exercised collectively via a CMO.²⁶ GenAI output offers a suitable starting point for such a collective claim.²⁷ A regulatory approach that focuses on AI output has the advantage of avoiding enforcement

Protection of Creators: Blind Spots and Shortcomings' (2018) 41 Columbia Journal of Law and the Arts 435, 447–8, 454–5; MRF Senftleben, 'More Money for Creators and More Support for Copyright in Society – Fair Remuneration Rights in Germany and the Netherlands' (2018) 41 Columbia Journal of Law and the Arts 413, 429.

26. As to recommendations to implement statutory licence or lumpsum remuneration regimes in the GenAI space, in particular to ensure fair remuneration for the use of human works during the training phase, see M Kop, 'The Rights to Process Data for Machine Learning Purposes in the EU' (2021) 34 Harvard Journal of Law and Technology 1, 7 (Digest Spring 2021); Geiger and Iaia, *supra* n 20, 6–7; C Geiger, 'When the Robots (Try to) Take Over: Of Artificial Intelligence, Authors, Creativity and Copyright Protection' in F Thouvenin, A Peukert et al (eds), *Innovation – Creation – Markets, Festschrift für Reto M. Hilty* (Springer, Berlin 2024) 67, 79–80; C Geiger, 'Elaborating a Human Rights-Friendly Copyright Framework for Generative AI' (2024) 55 International Review of Intellectual Property and Competition Law 1129, 1152–4; GF Frosio, 'Should We Ban Generative AI, Incentivise It or Make It a Medium for Inclusive Creativity?' in E Bonadio and C Sganga (eds), *A Research Agenda for EU Copyright Law* (Edward Elgar Publishing, Cheltenham 2024) 61, 80–87; N Lucchi, *Generative AI and Copyright – Training, Creation, Regulation* (Study Requested by the JURI Committee, European Parliament, Policy Department for Justice, Civil Liberties and Institutional Affairs, Brussels 2025) 128; Generative AI and Copyright Committee of India, Working Paper on Generative AI and Copyright – Part 1: One Nation One License One Payment – Balancing AI Innovation and Copyright (Government of India, Ministry of Commerce and Industry, Department for Promotion of Industry and Internal Trade, New Delhi 8 December 2025) 61–79 <<https://www.dpiit.gov.in/static/uploads/2025/12/ff266bbeed10c48e3479c941484f3525.pdf#page=23.27>>.

27. Senftleben, *supra* n 1, 1549–57; D Mendis and B White, *Copyright and AI* (Centre for Intellectual Property Policy and Management, Bournemouth University, Bournemouth 2025) 2, 6–7. This concept is comparable to 'residual remuneration rights', which have already found their way into legislation in the field of streaming. See Geiger, Scalzini and Bossi, *supra* n 25, 1885–96; MRF Senftleben and E Izyumenko, 'Author Remuneration in the Streaming Age – Exploitation Rights and Fair Remuneration Rules in the EU' (2025) 20 Journal of Intellectual Property Law and Practice 807, 817–21. For the basics, see S von Lewinski, 'Collectivism and Its Role in the Frame of Individual Contracts' in J Rosén (ed), *Individualism and Collectiveness in Intellectual Property Law* (Edward Elgar Publishing, Cheltenham 2012) 117, 121–2; R Xalabarder Plantada, 'The Equitable Remuneration of Audiovisual Authors: A Proposal of Unwaivable Remuneration Rights under Collective Management' (2018) 56 Revue Internationale du Droit d'Auteur 256.

problems that may result from the principle of territoriality. First rulings on copyright infringement during the AI training phase raise the question of whether the allegedly infringing use of human works for training purposes has taken place on European soil.²⁸ In the case of AI training in the US or China, a lawsuit for copyright infringement during the training phase may be futile from the outset because it is impossible to demonstrate a relevant act of reproduction in any European country. A remuneration claim taking AI output as a starting point provides a more solid basis. Regardless of the country where the training has been carried out, AI output is accessible in any country where the GenAI system is offered. Accordingly, it can be proved that weights, parameters and vectors which the system derived from human works during the training phase have been activated to provide AI output and satisfy the demand of the user entering the prompt in the output country.²⁹

Templates for a mandatory collective remuneration claim relating to AI output are already available. The right to a ‘single equitable remuneration’ for the broadcasting or communication to the public of a phonogram published for commercial purposes in Article 8(2) of the Rental, Lending and Related Rights Directive (RLRD)³⁰ can serve as an example. Following this model, a regulatory solution can be designed that obliges GenAI system providers to pay fair remuneration for generating and exploiting literary and artistic AI content.³¹ To determine which AI systems trigger the obligation to pay remuneration, a fictitious originality test³² can be applied. The provider should be liable to pay remuneration when the GenAI system is capable of generating AI output that – if it had been made by a human author and not by a machine – would have satisfied the originality test. The AI fee is then paid to a central CMO for AI remuneration, which ensures the proper distribution of the proceeds among authors and other rights holders, possibly by passing on the collected money to other collecting societies in the individual sectors of the creative industry.³³

It can hardly be asserted against this regulatory model that the distribution of revenues in the case of AI output is too complex to be carried out properly by a collecting society. Admittedly, the CMO for GenAI remuneration will have to deal with a large number of authors and rights holders.³⁴ However, CMOs have experience in solving complex distribution problems. Moreover, the distribution issue arises with similar complexity when large companies in the creative industry conclude individual licence

28. See England and Wales High Court, 4 November 2025, *Getty Images/Stability AI*, [2025] EWHC 2863 (Ch) para 544; England and Wales High Court, 1 December 2023, *Getty Images/Stability AI*, [2023] EWHC 3090 (Ch) paras 44 and 58–70.

29. R Matulionyte, ‘Reconceptualising the Reproduction Right in the Age of AI’ (2025) 56 *International Review of Intellectual Property Law and Competition Law* 1914, 1934.

30. Directive 2006/115/EC of the European Parliament and of the Council of 12 December 2006 on rental right and lending right and on certain rights related to copyright in the field of intellectual property (codified version) (RLRD), OJ L 376, 27 December 2006, 28.

31. Senftleben, *supra* n 1, 1549–51.

32. As to the test applied in the EU, see CJEU, 16 July 2009, Case C-5/08, *Infopaq/DDF*, para 45; CJEU, 1 December 2011, Case C-145/10, *Painer*, para 89.

33. For an example of such a system, see the distribution scheme for private copying levies collecting by the Dutch CMO *Stichting de Thuiskopie* <https://www.thuiskopie.nl/nl/thuiskopie_2/verdeling-rechthebbenden>. For a more detailed discussion of the distribution scheme, see Drexler, *supra* n 17, 166–8.

34. cf The critical remarks, including this point, by Yu, *supra* n 22, 95–8; Samuelson, *supra* n 10, 1565–7.

agreements with AI development companies. Similar to CMOs, they must find an appropriate distribution scheme to make sure that the many authors whose works are covered by the AI licence receive a fair share of the licence revenue.

5 LEGAL BASIS

The question of the legal basis for the described collective remuneration model is more difficult. Output-based remuneration must not be misunderstood as a *carte blanche* for generating and exploiting any type of AI content. In particular, the payment of remuneration at the output level does not imply that users of GenAI systems are free to produce and distribute AI piracy productions that imitate (protected features of) human works. Even though remuneration is paid at the output level, authors and rights holders can still bring infringement proceedings against AI productions that contain copyrighted elements of their works.³⁵

This becomes evident when considering the reference point for output-based remuneration. The central thought underlying the approach is the fact that the machine is only capable of mimicking human literary and artistic works after it has had the opportunity to derive patterns for its own literary and artistic productions from myriad human creations that served as resources for training.³⁶ During the AI training phase, a multi-faceted kaleidoscope of human expressions is analysed. Beyond the extreme case of memorization, this analytical process leads to embeddings of knowledge derived from human works in the abstract form of weights, vectors and parameters.³⁷ When the GenAI model finally becomes part of an AI system and is brought to the market, these ‘insights’ from the training phase – the weights, vectors and parameters – enable the system to generate literary and artistic content. Every time a user enters a prompt, this request for the production of content leads to the activation of data layers that have been embedded during the training phase. Generating output, the GenAI system still relies on the insights that have been derived from human literary and artistic resources during the AI development phase.³⁸

Instead of limiting the analysis to the *analytical* use of human works during the AI development phase, output-based remuneration systems put an emphasis on the later *generative* use of the data embedded during the training process. This generative use enables the AI system to satisfy the demand of users requesting a certain type of content. When a prompt leads to the generation of output, the AI provider extracts value from the human resources that have been used for training. Against this background,

35. K Riesenhuber, ‘Die unbenannten Verwertungsrechte der KI-Auswertung und KI-Anwendung’ (2025) 2025 Medien und Recht 131, 138; Senftleben, *supra* n 12, 88–90; Senftleben, *supra* n 19, 187.

36. cf D Gervais, ‘The Machine as Author’ (2020) 105 Iowa Law Review 2053, 2055–59; JC Ginsburg and LA Budiardjo, ‘Authors and Machines’ (2019) 34 Berkeley Technology Law Journal 343, 401–2; J-M Deltorn, ‘Disentangling Deep Learning and Copyright’ (2018) Tijdschrift voor auteurs-, media- en informatierecht 172, 173–4; A Bridy, ‘Coding Creativity: Copyright and the Artificially Intelligent Author’ (2012) 5 Stanford Technology Law Review 1, 3; M Boden, ‘Computer Models of Creativity’ (2009) 30 AI Magazine 23.

37. Matulionyte, *supra* n 29, 1939–40; Szkalej and Senftleben, *supra* n 18, 319. cf England and Wales High Court, 4 November 2025, Getty Images/Stability AI, [2025] EWHC 2863 (Ch) Rn 554, 600.

38. Matulionyte, *supra* n 29, 1940; Riesenhuber, *supra* n 35, 137.

output-based remuneration approaches impose a payment obligation on the GenAI provider (who may pass on these costs to system users).

With this configuration, output-based remuneration approaches forge a link between the input dimension (analytical training) and the output dimension (generative content production). As a result, output-based remuneration cannot be regarded as remuneration for the AI output as such. It is a delayed and continued payment for the use of protected human works during the training phase,³⁹ justified by the fact that – without use of human resources for training purposes – the GenAI system would not be able to offer generative functionality and the GenAI provider would not be able to satisfy user demand for literary and artistic productions.

In practice, the output-based approach has important advantages. As already pointed out above, the output perspective solves the territoriality dilemma that arises when the remuneration claim focuses on AI training and the training process takes place outside the EU.⁴⁰ Once the production of literary and artistic output on the basis of weights, vectors and parameters derived from human works triggers the payment obligation, the territoriality problem vanishes. Regardless of the country where the training has been carried out, AI output is accessible in any country where the GenAI system is offered. Accordingly, it can be established that data layers derived from human works during the training phase are available to satisfy the demand of users in each country where the GenAI system is available.⁴¹

The focus on the activation of weights, vectors and parameters embedded in the AI model during the training phase also implies that the remuneration claim remains valid even if AI output consists merely of general ideas, concepts or stylistic elements. In line with the idea/expression dichotomy in copyright law,⁴² these abstract templates for human creativity do not enjoy protection. However, this does not change the equation. The basis for output-based remuneration lies in the consideration that every prompt activates data layers that were obtained from the analysis of human works – and thus from protected human expressions⁴³ – during the AI development process.⁴⁴ The recourse to insights distilled from human works enables the system to execute the task assigned to it. It is the abstract information obtained from the analysis of human works that finally renders the GenAI system capable of generating literary and artistic content. As the generative functionality is an exponent of the analytical use of human literary and artistic creations during the training phase, it does not matter that the output as such – the content generated by the AI system – often reflects only unprotected ideas, concepts and styles. For the system to produce this output, it must

39. cf MRF Senftleben, ‘Win-Win: How to Remove Copyright Obstacles to AI Training While Ensuring Author Remuneration (and Why the AI Act Fails to Do the Magic)’ (2025) 100 Chicago-Kent Law Review 7, 47.

40. Matulionyte, *supra* n 29, 1934. As to the territoriality dilemma, see England and Wales High Court (n 28).

41. Matulionyte, *supra* n 29, 1934.

42. Article 9(2) TRIPS; Article 2 WCT. cf Dutch Supreme Court, 29 March 2013, ECLI:NL:HR:2013:BY8661, Broeren and Duijsens, para 3.5; MRF Senftleben, *The Copyright/Trademark Interface – How the Expansion of Trademark Protection Is Stifling Cultural Creativity* (Kluwer Law International, The Hague, London and New York 2020) 27–8.

43. As to the originality requirement of ‘free, creative choices’ in EU copyright law, see CJEU, 16 July 2009, Case C-5/08, Infopaq/DDF, para 45; CJEU, 1 December 2011, Case C-145/10, Painer, para 89.

44. Matulionyte, *supra* n 29, 1940–41.

activate embedded information taken from protected human expressions during the AI development phase.

From a legal-doctrinal perspective, the focus on content production on the basis of weights, vectors and parameters learned during the training phase, nonetheless, raises a delicate problem. Moving from the analytical training process (input dimension) to the generative production phase (output dimension), GenAI transforms individual protected human expression into unprotected data layers belonging to the realm of abstract ideas, concepts and styles.⁴⁵ Hence, a legal-doctrinal mechanism is needed that forges a sufficiently strong link between the protected human expression used for AI training and the abstract weights, vectors and parameters activated for content production.

Two options are available to bridge this gap. On the one hand, the legislator can grant authors and performers a new remuneration right that covers the activation of weights, vectors and parameters derived from human works during the AI training process (section 5.1). On the other hand, the three-step test in international and EU copyright law can be employed as a vehicle to connect the dots between the analytical training process and the generative output phase. Interestingly, not only lawmakers but also judges can use this latter option – the three-step test – to establish an output-based remuneration right (section 5.2). While the first avenue requires a legislative intervention and constitutes a measure *de lege ferenda*, the second solution is directly available *de lege lata*. For instance, national courts in EU Member States – and ultimately the Court of Justice of the European Union (CJEU) – can lay the groundwork for output-based remuneration on the basis of Article 7(2) CDSMD and Article 5(5) of the 2001 Directive on Copyright in the Information Society (ISD).⁴⁶

5.1 Legislator granting a new remuneration right

First, it is conceivable that the legislator grants authors and performers a new right covering the process of generating output on the basis of weights, vectors and parameters obtained from human literary and artistic creations during AI training: the *right to activate data layers derived from human works*.⁴⁷ With this legislative intervention, the lawmaker recognizes that literary and artistic AI content emerges from the activation of data layers that are exponents of protected human expressions. The grant of a specific

45. As to the concept of individual protected expression, including both the visible external expression and the internal layer (abstract and structural authorial contributions) beneath that external expression, see PB Hugenholtz, 'Copyright and the Expression Engine: Idea and Expression in AI-Assisted Creations' (2025) 100 Chicago-Kent Law Review 251, 259–60.

46. Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001, on the harmonization of certain aspects of copyright and related rights in the information society, Official Journal of the European Communities L 167, 2001, 10.

47. Senftleben, *supra* n 19, 187. cf MM Walter, 'On the "Taming" of Artificial Intelligence under EU Copyright Law on the Assumption that the TDM Exception Applies to the Training of Generative AI Models' in R Leuyerink, P Teunissen and CJS Vrendenburg (eds), *Q – Bundel ter nagedachtenis van prof. mr. Antoon Quaedyvlieg* (deLex, Amstelveen 2025) 311, 322–3. Riesenhuber, *supra* n 35, 136, assumes that the use of human works in the context of AI training and exploitation falls within the scope of an unwritten exploitation right that displays features of reproduction, adaptation and dissemination. However, see also the critical comments by Drexler, *supra* n 17, 160–64, who warns against limiting new remuneration mechanisms to those authors and rights holders whose works have been used for AI training.

right establishes the link between the analytical AI training process and the generative AI production phase. In line with the approach described above, this right need not be an exclusive right to prohibit the activation of embedded data layers. Following the model of Article 8(2) RLRD – ensuring remuneration for the broadcasting of commercially released phonograms – it is sufficient to grant a right to a ‘single equitable remuneration’⁴⁸ for the use of data embeddings derived from human works. As a result, the CMO administering the new remuneration right is entitled to collect data activation fees from providers of AI systems.

To lay theoretical groundwork for the new remuneration right, it is possible to place it in the context of the right of reproduction and assert that AI model storage of weights, vectors and parameters derived from human works is functionally equivalent to traditional acts of copying.⁴⁹ As Rita Matulionyte has demonstrated, it can be argued that:

the “embedding” or “ingestion” of works or other protected content by AI algorithms is functionally equivalent to the reproduction or copying of these works. Namely, when ingesting the works into an AI model, the content contained in works (including ideas and expressions) is encoded in a digital form, which is a matrix of numbers, or the parameters of the AI model. This is equivalent to “storing” content, as this content is intended to be subsequently used for certain further purposes: depending on the type of algorithm, the content encoded in the AI parameters might be used to generate new content, recognise patterns, make predictions, etc.⁵⁰

While it goes too far to equate the storage of abstract weights, vectors and parameters with a traditional act of copying a protected work, the functional equivalence described by Matulionyte offers a sufficient basis for granting the outlined new remuneration right: a right that does not entitle the rights holder to prohibit the activation of data embeddings derived from human works, but ensures the payment of fair remuneration. Alternatively, the idea of the *domaine public payant*⁵¹ can be invoked.⁵² According to this approach, output-based remuneration for the activation of data embeddings derived from human works is constructed as a collective right of the community of living authors and performers to participate in revenue accruing from the exploitation of public domain facets of human creations and performances.⁵³ Discussing the concept of the *domaine public payant*, Adolf Dietz explained that the community of living authors ‘should have the direct right to participate in the income from exploitation of works of dead authors after the individual term of copyright protection has expired’.⁵⁴ GenAI models do not contain public domain works as such (unless memorization

48. cf Article 8(2) RLRD.

49. From the perspective of international copyright law, acts of reproduction carried out during the TDM process can be regarded as a new category of copying, in respect of which no international consensus has emerged so far. See Senftleben, *supra* n 24, 1486–501.

50. Matulionyte, *supra* n 29, 1939.

51. cf A Dietz, ‘A Modern Concept for the Right of the Community of Authors (Domaine Public Payant)’ (1990) 24 Copyright Bulletin 13, 13–6; A Dietz, ‘Die sozialen Bestrebungen der Schriftsteller und Künstler und das Urheberrecht’ [The Social Aspirations of Writers and Artists and Copyright Law] (1972) Gewerblicher Rechtsschutz und Urheberrecht 11, 14–5; W Dillenz, ‘Überlegungen zum Domaine Public Payant’ (1983) Gewerblicher Rechtsschutz und Urheberrecht – International 920, 920–22.

52. Senftleben, *supra* n 1, 1552–4.

53. *ibid.*

54. Dietz (n 51) 14.

occurs). Only abstract work facets remain after the training phase: weights, vectors and parameters derived from individual human literary and artistic expressions. Following in the footsteps of Adolf Dietz, it is nevertheless possible to argue that, as with the public domain status of the works in Dietz' example, the public domain status of abstract data layers in AI models does not thwart the remuneration claim. The explicit reference to the public domain *payant* indicates that, adopting this approach, the remuneration claim remains valid even if AI model weights, vectors and parameters do not constitute infringing copies of protected human works.⁵⁵ The only decisive factor is that these public domain facets of human creativity have been distilled from literary and artistic works during the training process. As custodians and developers of the treasury of human literature and art, the community of living authors and performing artists is entitled to remuneration for the exploitation of public domain data layers that have been deduced from human expressions and are used as templates for the machine to generate literary and artistic output.⁵⁶

5.2 Courts deducing the remuneration right from the three-step test

Second, the ongoing debate⁵⁷ on whether the TDM provisions in Articles 3 and 4 CDSMD are compatible with the three-step test in EU copyright law⁵⁸ offers the opportunity – for both legislators and judges – to develop a collective, output-based remuneration right. The three-step test is a provision known from international copyright law. Article 9(2) of the Berne Convention for the Protection of Literary and Artistic Works (BC) creates flexibility for national legislation to permit the reproduction of protected works:

in certain special cases, provided that such reproduction does not conflict with a normal exploitation of the work and does not unreasonably prejudice the legitimate interests of the author.⁵⁹

Offshoots of this magical formula – covering not only exceptions to the right of reproduction but all exclusive rights and all types of copyright exceptions – made their way into Article 13 of the Agreement on Trade-Related Aspects of Intellectual Property Rights, Article 10(1) and (2) of the WIPO Copyright Treaty and Article 16(1) and (2) of the WIPO Performances and Phonograms Treaty.⁶⁰ In EU copyright law, the three-step

55. England and Wales High Court, 4 November 2025, Getty Images/Stability AI, [2025] EWHC 2863 (Ch) paras 554 and 600.

56. Senftleben, *supra* n 1, 1552–4.

57. cf Senftleben (n 12) 67, 71–102; Lucchi, *supra* n 26, 34–44; TW Dornis and N Lucchi, 'Generative AI and the Scope of EU Copyright Law: A Doctrinal Analysis in Light of C-250/25' (2025) 56 *International Review of Intellectual Property and Competition Law* 1800, 1822–30; E Rosati, 'No Step-Free Copyright Exceptions: The Role of the Three-Step Test in Defining Permitted Uses of Protected Content (Including TDM for AI-Training Purposes)' (2024) 46 *European Intellectual Property Review* 262, 263–72.

58. Article 7(2) CDSMD; Article 5(5) ISD.

59. Article 9(2) BC.

60. With regard to the evolution of this 'family' of copyright three-step tests in international copyright law, see MRF Senftleben, *Copyright, Limitations and the Three-Step Test – An Analysis of the Three-Step Test in International and EC Copyright Law* (Kluwer Law International, The Hague, London and New York 2004) 43–98; D Gervais, 'Fair Use, Fair Dealing, Fair Principles: Efforts to Conceptualize Exceptions and Limitations to Copyright' (2009–2010) 57 *Journal of the Copyright Society of the U.S.A.* 499, 510–11; A Kur, 'Of Oceans, Islands, and Inland

test became a central yardstick for assessing the permissibility of copyright exceptions with the adoption of Article 5(5) ISD. In line with Article 7(2) CDSMD,⁶¹ both the general TDM exemption in Article 4(1) and the specific rule for scientific TDM in the preceding Article 3(1) are subject to additional scrutiny in the light of the three-step test.⁶²

The following path through the criteria of the three-step test⁶³ leads to an output-based right to equitable remuneration: when assessing a potential conflict with a work's normal exploitation (second test) and an unreasonable prejudice to legitimate author or rights holder interests (third test), the examination of the TDM provisions must address both the analytical training process (input dimension) and the generative production phase (output dimension) that only becomes possible because of the data layers derived from human works during the training process. In the three-step test analysis, this culminates in an approach that considers not only the potential loss of licence fees for the analytical TDM training process but also the future destabilization of the market for human works ('market dilution')⁶⁴ that arises when a GenAI system becomes available in the marketplace and produces alternatives to human creations.⁶⁵

Examining the latter aspect of market usurpation, it becomes apparent that AI output merely imitating ideas, concepts and styles does not constitute a relevant impairment of a work's normal exploitation within the meaning of the second criterion of the three-step test.⁶⁶ Abstract ideas, concepts and styles fall outside the scope of the copyright monopoly from the outset.⁶⁷ Hence, it can hardly be deemed normal that authors or rights holders exploit their works in this area.⁶⁸

However, it is possible to assume an unreasonable prejudice to legitimate exploitation interests within the meaning of the third test.⁶⁹ With regard to this final criterion of the three-step test, it has been recognized at the 1967 Stockholm Conference for the Revision of the Berne Convention – where the first three-step test was introduced in

Water – How Much Room for Exceptions and Limitations under the Three-Step Test?' (2009) 8 Richmond Journal of Global Law and Business 287, 307–8; J Bornkamm, 'Der Dreistufentest als urheberrechtliche Schrankenbestimmung – Karriere eines Begriffs' in HJ Ahrens, J Bornkamm et al (eds), *Festschrift für Willi Erdmann zum 65. Geburtstag* (Carl Heymanns, Munich 2002) 29.

61. Directive (EU) 2019/790 of the European Parliament and of the Council of 17 April 2019 on Copyright and Related Rights in the Digital Single Market and Amending Directives 96/9/EC and 2001/29/EC, Official Journal of the European Communities L 130, 2019, 92.

62. Lucchi, supra n 26, 34–5, 43; Rosati, supra n 57, 263–6, 272.

63. cf C Geiger, D Gervais and MRF Senftleben, 'The Three-Step Test Revisited: How to Use the Test's Flexibility in National Copyright Law' (2014) 29 American University International Law Review 581, 593–7; Senftleben, supra n 60, 134–230; MJ Ficsor, 'How Much of What? The Three-Step Test and Its Application in Two Recent WTO Dispute Settlement Cases' (2002) 192 Revue Internationale du Droit d'Auteur 111; J Oliver, 'Copyright in the WTO: The Panel Decision on the Three-Step Test' (2002) 25 Columbia Journal of Law and the Arts 119; DJ Brennan, 'The Three-Step Test Frenzy: Why the TRIPS Panel Decision Might Be Considered Per Incuriam' (2002) Intellectual Property Quarterly 213; JC Ginsburg, 'Toward Supranational Copyright Law? The WTO Panel Decision and the "Three-Step Test" for Copyright Exceptions' (2001) 190 Revue Internationale du Droit d'Auteur 13.

64. United States District Court for the Northern District of California, 25 June 2025, Case No 23-cv-03417-VC, *Richard Kadrey v Meta Platforms Inc.*, section VI.C; Sag, supra n 10, 1916–20.

65. Senftleben, supra n 12, 83–93; Rosati, supra n 57, 272; Lucchi, supra n 26, 43–4.

66. Senftleben, supra n 12, 90–92.

67. Article 9(2) TRIPS; Article 2 WCT. cf Dutch Supreme Court (n 42); Senftleben (n 42).

68. Senftleben, supra n 12, 91–2.

69. Senftleben, supra n 12, 93–4.

Article 9(2) BC – that national legislation can reduce an excessive, unreasonable prejudice caused by a copyright exception to a permissible, reasonable level by providing for the payment of equitable remuneration.⁷⁰

Court decisions in the EU show that judges can use this feature of the three-step test to soften the impact of broad copyright exceptions. Article 5(5) ISD provides that exceptions and limitations in the EU copyright acquis ‘shall only be applied’ when the three-step test is satisfied. Judges infer from this formula that it is their task to bring the application of copyright exceptions and limitations in line with the three-step test.⁷¹ Where necessary, they impose an obligation to pay equitable remuneration to prevent a copyright exception from making overbroad inroads into the exclusive rights of authors and rights holders.

Before the adoption of Article 5(5) ISD, the German Federal Supreme Court already paved the way for this approach in the decision *Kopienversanddienst*.⁷² The case concerned the practice of the Technical Information Library Hannover to copy and dispatch scientific articles on request by single persons and industrial undertakings.⁷³ Underlining the public interest in unhindered access to information, the Court offered support for this library practice, considering the exemption of copying for personal use in § 53 of the German Copyright Act, as in force at the time. Under this provision, authorized users did not have to produce the copy themselves but were free to ask a third party to make the reproduction on their behalf. The Court admitted that the dispatch of copies came close to a publisher’s activity.⁷⁴ Nonetheless, it refrained from putting an end to the library service by assuming a conflict with a work’s normal exploitation (second criterion of the three-step test). Instead, the Court deduced an obligation to pay equitable remuneration from the prohibition of an unreasonable prejudice to legitimate interests (third step) and enabled the continuation of the information service in this way.⁷⁵

Similarly, CJEU decisions demonstrate that the payment of equitable remuneration can tip the scales in favour of a copyright exception where compliance with the three-step test is doubtful because of the breadth of the use privilege. In *Technische Universität Darmstadt*, the CJEU recognized an ‘ancillary right’⁷⁶ of libraries to digitize books in their holdings for the purpose of making these digital copies available via dedicated reading terminals on the library premises. To counterbalance the creation of this broad use privilege, the Court deemed it important – in light of the three-step test – that equitable remuneration be paid. Discussing the compliance of German legislation

70. WIPO, *Records of the Intellectual Property Conference of Stockholm June 11 to July 14, 1967* (WIPO, Geneva 1971) 1145–6 (Report on the Work of Main Committee I). See Senftleben, *supra* n 60, 131–3, 237–8.

71. cf MRF Senftleben, ‘From Flexible Balancing Tool to Quasi-constitutional Straitjacket – How the EU Cultivates the Constraining Function of the Three-Step Test’ in J Griffiths and T Mylly (eds), *Global Intellectual Property Protection and New Constitutionalism – Hedging Exclusive Rights* (Oxford University Press, Oxford 2021) 83, 90–95.

72. German Federal Supreme Court, 25 February 1999, Case IZR 118/96, *Kopienversanddienst*, *Juristenzeitung* (1999) 1000, 1004–7.

73. German Federal Supreme Court, *ibid*, 1000. For an English description of the case, see Senftleben, *supra* n 60, 206–8.

74. German Federal Supreme Court, *ibid*, 1004.

75. German Federal Supreme Court, *ibid*, 1005–7. cf P Baronikians, ‘Kopienversand durch Bibliotheken – rechtliche Beurteilung und Vorschläge zur Regelung’ (1999) *Zeitschrift für Urheber- und Medienrecht* 126.

76. CJEU, 11 September 2014, Case C-117/13, *Technische Universität Darmstadt*, para 48.

with this requirement, the Court was satisfied that the conditions of the three-step test were fulfilled because German libraries had to pay adequate remuneration for the act of making works available on dedicated terminals after digitization.⁷⁷

Applying these guidelines to TDM for AI training, it can be said that the general exemption of TDM in Article 4(1) CDSMD requires the payment of equitable remuneration when it is invoked for commercial AI training.⁷⁸ Article 4(1) permits all forms of TDM, including use for commercial purposes. If this broad TDM freedom is used as a basis for GenAI training, it supports the process of deriving abstract weights, vectors and parameters from protected human works employed as training resources. Once fully developed GenAI systems are brought to the market, the insights learned during the computational analysis can have strong repercussions on the market for the works used for training purposes. Embeddings of work-related information in the form of weights, vectors and parameters enable the GenAI system to generate literary and artistic output that is similar to the human expressions analysed during the training phase. Considering the market impact of this generative functionality and viewing it as an exponent of the analytical TDM process during the training phase, a judge can arrive at the conclusion – with *Kopienversanddienst* and *Technische Universität Darmstadt* as precursors – that the GenAI provider is obliged to pay equitable remuneration for the activation of weights, vectors and parameters obtained during the TDM process on the basis of Article 4(1).

Providing for the payment of equitable remuneration, judges can avert the unreasonable prejudice which the broad TDM exemption in Article 4(1) would otherwise bring to authors and rights holders whose works are used as data resources for commercial AI training. The final criterion of the three-step test – prohibiting unreasonable prejudice to legitimate author and rights holder interests⁷⁹ – thus offers judges a basis for establishing a right to output-based remuneration in the existing EU copyright acquis. Following the described path through the three-step test criteria, a remuneration system that forges a link between the analytical use of protected human expressions for AI training and the generative functionality of fully developed GenAI systems can take shape within the existing copyright framework – without legislative intervention.

As to the practical implementation of this court-made remuneration right, the same recipe – the model of Article 8(2) RLRD – can be applied. Based on the described three-step test arguments, judges can recognize a right to a ‘single equitable remuneration’⁸⁰ for the use of data layers derived from human works during the training phase and specify that the remuneration must be paid to CMOs in the different sectors of the creative industry. In *Kopienversanddienst*, the German Federal Supreme Court stated explicitly that the new remuneration right could only be exercised via a CMO:

In the case of reprographic reproduction of a copyright-protected work by a public library [...] for the purpose of sending it by post or fax to a customer who requests the reproduction for a privileged purpose under Section 53 of the Copyright Act, [...] it is necessary to recognize that the author has a claim to equitable remuneration as compensation for the exclusion of the right to prohibit such reproduction; this claim can only be asserted by a collecting society.⁸¹

77. CJEU, *ibid*, para 48.

78. Senftleben, *supra* n 12, 101.

79. Article 7(2) CDSMD; Article 5(5) ISD; Article 10 WCT; Article 13 TRIPS; Article 9(2) BC.

80. Article 8(2) RLRD.

81. German Federal Supreme Court, 25 February 1999, Case IZR 118/96, *Kopienversanddienst*, *Juristenzeitung* (1999) 1000, 1007 (machine translation corrected by the author).

6 OVERVIEW OF REGULATORY OPTIONS

Considering the described weaknesses of individual licensing and the advantages of output-based remuneration, the question arises how the interplay between these remuneration approaches can be organized. Should collective remuneration provide general AI income which authors and rights holders can supplement with individual licences if they manage to reach an agreement with the AI industry (section 6.1)? Should collective remuneration at the output stage replace individual licences for AI training (section 6.2)? Or is it advisable to introduce a system that requires a choice between individual and collective remuneration and allows authors and rights holders to switch from one remuneration component to the other (section 6.3)? The answer depends on the policy objectives which legislators and courts find most important.

6.1 Cumulative individual and collective remuneration

Lawmakers seeking to maximize remuneration flows in favour of authors and rights holders may be tempted to impose a double rights clearance obligation on the AI industry. Adopting this maximal approach, AI developers must obtain licences for the use of protected human works for AI training. Once a fully developed AI system is brought to the market, the system provider must pay output-based remuneration to the CMO collecting the fees for the activation of data layers derived from human works during the training process.⁸² The obligation to seek licences for AI development, thus, exists alongside the collective output-based remuneration. In any case, authors and rights holders, thus, receive fair remuneration under the collective output-based regime as a standard AI revenue component. If they have success in granting individual licences for GenAI training, they also receive revenue from the licence fees paid under individual licence agreements with the AI industry.

6.2 Collective remuneration as the sole source of revenue

However, lawmakers seeking to strike a balance between competing policy objectives will look for more nuanced solutions. As explained above, fair remuneration for the use of human creative works in GenAI contexts is of particular importance to society. However, the creation of favourable conditions for the development of high-quality, internationally competitive and culturally diverse GenAI systems is also an important societal goal.⁸³ In addition to these innovation arguments focusing on competitiveness and digital sovereignty, Viktoria Kraetzig has pointed out that GenAI systems give individuals in today's information society broad access to the literary and artistic discourse. If it is used productively – as a tool for human literary and artistic expression⁸⁴ – GenAI can significantly expand the opportunities for human users to

82. cf A Strowel, 'The Risks of AI Slop and AI Model Collapse, and Why It is Essential to Adequately Feed the Next Generative AI Models and to Remunerate Creators Through a Dual Right System' (2025) 24–25 Pin Code 46, 54; Matulionyte, supra n 29, 1941; Drex1, supra n 17, 164; Riesenhuber, supra n 35, 137; Walter, supra n 47, 320–23.

83. Senftleben, supra n 39, 16–22.

84. cf Hugenholtz, supra n 45, 257–8; PB Hugenholtz and JP Quintais, 'Copyright and Artificial Creation: Does EU Copyright Law Protect AI-Assisted Output?' (2021) 52 International Review of Intellectual Property and Competition Law 1190, 1212–3; D Burk, 'Thirty-Six Views of Copyright Authorship, by Jackson Pollock' (2020) 58 Houston Law Review 263, 270–321.

make valid contributions to the field of literature and art.⁸⁵ If no human creativity is added, GenAI output still enriches the public domain with literary and artistic productions that remain unprotected in the absence of human free, creative choices.⁸⁶

A legislator seeking to reconcile these competing societal interests – fair remuneration on the one hand and culturally diverse, high-quality GenAI systems on the other hand – may abandon the individual licensing approach in favour of mandatory output-based remuneration. Following this approach, authors and rights holders only receive collective remuneration – paid by AI providers when GenAI systems are brought to the market – as their sole source of GenAI income.⁸⁷ In contrast to individual licensing, the collective output-based remuneration model is inclusive in the sense of covering all authors and rights holders who are members of a CMO involved in the distribution of the revenue accruing from the collective GenAI remuneration scheme. In practice, this approach results in a scenario in which the use of human works for GenAI training is completely free. GenAI trainers gain broad, essentially unrestricted access to human works as training resources.⁸⁸ In return, AI system providers must satisfy the collective remuneration claim at the output stage when they offer GenAI products and services in the marketplace. Developing an appropriate AI levy scheme, the legislator can ensure that – depending on the output volume of the AI system concerned – substantial compensation is paid for the activation of weights, vectors and parameters derived from human works during the training process.

For users of GenAI systems, this approach has the advantage that broad access to protected human expressions during the training phase allows the AI industry to develop powerful, culturally diverse GenAI models.⁸⁹ However, users also face higher subscription fees for the use of GenAI when AI system providers pass on the costs of output-based remuneration to the users of their systems.⁹⁰

For authors who categorically reject the use of their works for AI training on ethical or moral grounds, the switch to output-based remuneration has the disadvantage that they have no veto right to prevent the use of their works for AI development altogether. It is conceivable, however, to impose an obligation on GenAI providers to filter AI output. The cascade of content moderation obligations in Article 17(4)(a)–(c) CDSMD⁹¹ offers a template for this solution. As explained above, output-based remuneration must not be misunderstood as a *carte blanche* for copyright infringement. Following the Article 17 model, authors who categorically object to the use of their works in GenAI contexts have the option to oppose the production and distribution of GenAI output that contains protected traces of their works.

85. V Kraetzig, ‘AI Art as Creative Destruction’ (2024) *Neue Juristische Wochenschrift* 697; Yu, *supra* n 22, 95–8; Samuelson, *supra* n 10, 1570–72.

86. Kraetzig, *ibid.* As to the requirement of ‘free, creative choices’, see CJEU, 16 July 2009, Case C-5/08, *Infopaq/DDF*, para 45; CJEU, 1 December 2011, Case C-145/10, *Painer*, para 89.

87. For the various advantages of this solution, see Senftleben, *supra* n 39, 34–54. Cf. P Hacker, ‘AI in EU Law: Training, Hallucinations, Memorization, and the Core Regulatory Architecture’ (2026) SSRN 1, 18, available at: <<https://ssrn.com/abstract=6356599>> (accessed 8 September 2026).

88. *ibid.*

89. *ibid.*

90. Yu (n 22).

91. cf MRF Senftleben, JP Quintais and A Meiring, ‘How the European Union Outsources the Task of Human Rights Protection to Platforms and Users: The Case of User-Generated Content Monetization’ (2023) 38 *Berkeley Technology Law Journal* 933, 945–56.

6.3 Choice between individual and collective remuneration

Finally, lawmakers can also require that authors and rights holders make a choice between individual licensing and collective output-based remuneration. According to this approach, the output-based remuneration for activating data layers derived from human works functions as a basic remuneration mechanism, which is paid to every author and rights holder who is a CMO member. If an author or rights holder has the chance of concluding a more profitable individual licence agreement, they are free to waive the collective output-based remuneration right by submitting an opt-out declaration.⁹² Authors and rights holders, thus, have the choice: they enjoy either the standard remuneration under the collective scheme or an individually agreed licence fee fixed in an agreement with the AI industry. Once an opt-out from the collective scheme is declared, authors and rights holders no longer receive output-based remuneration. Instead, they benefit from the individual contractual remuneration resulting from the agreement they conclude with an AI company. In the EU, an opt-out declared under Article 4(3) CDSMD could, at the same time, constitute the opt-out statement waiving the collective standard remuneration in favour of income from an individual AI training licence.

If producers and other rights holders in the creative industry reach a licence agreement with AI developers, the collective output-based remuneration still provides an important benchmark for authors seeking to assess the appropriateness of the remuneration that results from the licence deal. As explained, the individual licence agreement excludes the author's works from the collective output-based remuneration. Authors whose works are covered by an individual licensing agreement are no longer entitled to collective remuneration with regard to those works. However, comparing the revenue accruing from the individual licence agreement with the standard fee that has been established for collective output-based remuneration, the author can determine whether the licence deal actually generates higher revenue than the collective standard scheme. If the individual licence does not reach the remuneration level fixed for collective output-based remuneration, the author can use the fee schedule for the collective

92. In this respect, this switch model resembles extended collective licensing (ECL) systems that also allow authors and rights holders to declare an opt-out and leave the collective remuneration scheme. See Article 12(3)(c) CDSMD. cf European Copyright Society, 'Comment of the European Copyright Society on the Implementation of the Extended Collective Licensing Rules (Arts. 8 and 12) of the Directive (EU) 2019/790 on Copyright in the Digital Single Market' (2020) 11 *Journal of Intellectual Property, Information Technology and Electronic Commerce Law* 101, 105–8; T Riis, O-A Rognstad and J Schovsbo, 'Collective Agreements for the Clearance of Copyrights – The Case of Collective Management and Extended Collective Licences' in T Riis (ed), *User Generated Law. Re-constructing Intellectual Property Law in a Knowledge Society* (Edward Elgar Publishing, Cheltenham 2016) 55, 70, 75; J Axhamn, 'The Consistency of the Nordic Extended Collective Licensing Model with International Conventions and EU Copyright Norms' (2017) *Nordiskt Immateriellt Rättskydd*, 561, 561–79, 563–7. As to the ECL debate in AI contexts, C Handke, V Krätzig et al, *Angemessene Vergütung insbesondere im Bereich Streaming und Plattform-Ökonomie/Reform des Vergütungssystems für gesetzlich erlaubte Nutzungen im Urheberrecht* (DIW Econ, Berlin 2025) 516–20 <https://www.bmjv.de/SharedDocs/Downloads/DE/Fachinformationen/DIWEcon_Urheberverguetung_Endbericht.html?nn=17748>; T Nobre, 'A First Look at the Spanish Proposal to Introduce ECL for AI Training', *Kluwer Copyright Blog*, 11 December 2024 <<https://copyrightblog.kluweriplaw.com/2024/12/11/a-first-look-at-the-spanish-proposal-to-introduce-ecl-for-ai-training/>>.

remuneration as evidence that the licensing agreement does not offer ‘appropriate and proportionate remuneration’ in the sense of Article 18(1) CDSMD.

In contrast to systems that only offer output-based remuneration as the sole source of revenue (see preceding section), the model allowing a switch from collective remuneration to individual licensing includes an opt-out mechanism. The opt-out is the central tool for making a choice between output-based remuneration and individual negotiations about licences. However, it is also of particular importance to authors who, for ethical or moral reasons, want to categorically preclude the use of their works for AI development. Without any intention to grant individual licences, they can declare an opt-out from the collective scheme in order to withdraw their works from AI training. As a result, the use of their works will no longer be covered and compensated by the collective remuneration. AI trainers are bound to observe the opt-out and keep affected works outside their AI training datasets. As authors with ethical or moral objections are unlikely to grant AI development licences, the opt-out has the effect of rendering works covered by the opt-out declaration unavailable as training material altogether. In the absence of revenue from individual licences, this has the corollary that authors declaring the opt-out no longer receive any AI remuneration. The collective revenue is forfeited due to the opt-out and is not replaced by licence fees. This result is consistent with the author’s decision to impose a TDM embargo and categorically prevent use for AI training purposes.

7 CONCLUSION

In principle, the increasing number of licence deals between AI developers and rights holders in the creative industries is a positive development. If the invisible hand of the market leads to use permissions and new sources of revenue, this is good news for both rights holders seeking fair remuneration and high-tech companies looking for training resources. But wherever there is light, there is also shadow. The individual licensing model is unlikely to offer equal chances for big and small repertoire owners. In particular, individual authors and performers may have difficulty receiving a fair share of the revenue accruing from GenAI licences. Moreover, the licence approach impacts the cultural diversity of GenAI models. Given the transaction costs that negotiations with numerous small rights holders and individual artists entail,⁹³ reliance on licensing can easily lead to a focus on mainstream repertoires that can be acquired from a handful of large rights holders. The result is GenAI products and services that marginalize niche repertoires and minority expressions because these resources do not find their way into training datasets.⁹⁴

Against this backdrop, it is particularly important to develop a more inclusive regulatory approach that ensures access to diverse training resources and fair remuneration for all stakeholders: large and small rights holders alike, as well as individual creators and performing artists. To achieve this goal, a collective remuneration scheme is needed that offers fair remuneration for the activation of weights, vectors and parameters derived from human works during the AI training process. Taking the process of generating literary and artistic output as a reference point, this output-based system

93. Hilty and Richter, *supra* n 20, 1; Geiger and Iaia, *supra* n 20, 5–6; C Craig, *supra* n 20, 26; Lemley and Casey, *supra* n 10, 770–71.

94. Senftleben, *supra* n 39, 20–21, 34.

provides a basis for remuneration in all territories in which a GenAI system is brought to the market – regardless of the country where the training has been carried out.⁹⁵ Lawmakers are free to combine collective remuneration at output level with individual licensing obligations for AI training. Alternatively, they can establish collective output-based remuneration as the sole source of revenue,⁹⁶ or allow authors and rights holders to switch from collective output-based remuneration to individually negotiated licences for AI development.

The adoption of an output-based remuneration system appears as a necessity rather than a mere policy option when considering the prohibition of unreasonable prejudice to legitimate author and rights holder interests in the European and international three-step test. Copyright systems that do not provide for collective output-based remuneration fail to compensate authors and rights holders for generative AI functions. While legislative intervention is possible to repair these systems, it is not the only remedy. Judges can employ the three-step test as a vehicle to introduce output-based remuneration. Obliging AI system providers to pay output-based remuneration, they reduce the unreasonable prejudice arising from substitution effects caused by GenAI to a permissible, reasonable level.

95. Matulionyte, *supra* n 29, 1934.

96. As to advantages of this solution, see Senftleben, *supra* n 39, 34–54.