

HUMAN-REQUIRED ORIGINALITY:
COPYRIGHT ELIGIBILITY IN A POST-AI WORLD

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I. INTRODUCTION

The advent of generative artificial intelligence (GenAI) raises a host of challenges for copyright law.¹ Perhaps the greatest of these is the risk GenAI poses of undermining copyright law's utilitarian foundation and thereby unmooring it from its organizing principles.² This Article begins to tackle this fundamental challenge to 21st-century copyright law by proposing a legal change that would re-center human creativity and help ensure that copyright law remains tethered to its constitutional purpose.

It begins by exploring the fundamental challenge GenAI poses to a copyright regime that evolved in a sociotechnical reality where the creation of copyrighted works presumed human authorship. GenAI's capacity to produce works that, were they human-authored, would be subject to copyright threatens to upset copyright law. The most obvious copyrightable subject matter question raised by GenAI is whether its products should be entitled to copyright.³ However, answering this question—regardless of whether it is in the affirmative or negative—is insufficient to address the challenges posed by GenAI. This is because GenAI's ability to produce creative works at almost zero marginal cost unmoors copyright from its utilitarian foundation.⁴ Without meaningful reform, the future of copyright faces two fundamental problems arising from this unmooring.

¹ Artificial Intelligence and Copyright, 88 Fed. Reg. 59942, 59942 (Aug. 30, 2023) (a Notice of Inquiry detailing a series of questions about how GenAI intersects with copyright law).

² See Mark A. Lemley & Bryan Casey, *Fair Learning*, 99 TEX. L. REV. 743, 746–49 (2020) (explaining how machine learning alters the economic logic traditionally used to justify copyright protection); Pamela Samuelson, *Generative AI Meets Copyright*, 381 SCI. 158, 158–59 (2023) [hereinafter *Generative AI Meets Copyright*] (arguing that generative AI destabilizes the incentive assumptions underlying copyright by enabling the low-cost production of expressive substitutes for human-authored works).

³ See Simon Chesterman, *Artificial Intelligence and the Limits of Legal Personality*, 69 INT'L & COMPAR. L.Q. 819 (2020) (providing a discussion of the different approaches to the copyrightability of GenAI produced works).

⁴ See Christopher Sprigman, *Copyright and the Rule of Reason*, 7 J. ON TELECOMM. & HIGH TECH. L. 317, 325–29 (2009) (arguing that copyright doctrine becomes incoherent as creation and distribution costs approach zero); WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF INTELLECTUAL PROPERTY LAW* (2003); see also Pamela Samuelson, *Allocating Ownership Rights in Computer-Generated Works*, 47 U. PITT. L. REV. 1185, 1191–94 (1985)

The first of these problems is theoretical incoherence. Copyright law is built on a utilitarian foundation.⁵ Congress is empowered to grant copyright protection to “promote the progress of science,”⁶ where science is generally taken in its 18th-century meaning of ‘knowledge.’⁷ Thus, the state grants limited monopolies to copyright owners to give them an incentive to create art, literature, music, etc.⁸ Grounded in this framework, the Copyright Office and courts have declined to provide copyright protections for GenAI-created works.⁹ After all, the cost for GenAI to produce new works approaches zero. So, no copyright incentive is needed to ensure their production.¹⁰ However, if the same work were authored

[hereinafter *Allocating Ownership Rights*] (observing early on that machine-generated works challenge incentive-based copyright assumptions).

⁵ See Justin Hughes, *The Philosophy of Intellectual Property*, 77 GEO. L.J. 287 (1988) (detailing the utilitarian theory of intellectual property law). *But see Copyright and the Rule of Reason*, *supra* note 4 (arguing that there is a growing disconnect between utilitarianism and copyright law).

⁶ U.S. CONST. art. I, § 8, cl. 8.

⁷ See *Twentieth Century Music Corp. v. Aiken*, 422 U.S. 151, 156 (1975) (Copyright law “must ultimately serve the cause of promoting broad public availability of literature, music, and the other arts.”); *see also* Jeanne C. Fromer, *The Intellectual Property Clause’s External Limitations*, 61 DUKE L.J. 1329, 1373 (2011) (explaining the historical understanding of “progress” and “science” as informational advancement).

⁸ See *Mazer v. Stein*, 347 U.S. 201, 219 (1954) (“The economic philosophy behind the clause empowering Congress to grant patents and copyrights is the conviction that encouragement of individual effort by personal gain is the best way to advance public welfare through the talents of authors and inventors.”); *Twentieth Century Music Corp.*, 422 U.S. at 156 (“The immediate effect of our copyright law is to secure a fair return for an author’s creative labor. But the ultimate aim is, by this incentive, to stimulate artistic creativity for the general public good.”).

⁹ *Thaler v. Perlmutter*, 687 F. Supp. 3d 140, 146 (D.D.C. 2023), *aff’d*, 130 F.4th 1039 (D.C. Cir. 2025) (stating that “human authorship is a bedrock requirement of copyright”).

¹⁰ William M. Landes & Richard A. Posner, *An Economic Analysis of Copyright Law*, 18 J. LEGAL STUD. 325, 333–35 (1989) (showing the role of creation cost in a formal model of copyright incentives); Stan J. Liebowitz & Stephen Margolis, *Seventeen Famous Economists Weigh in on Copyright: The Role of Theory, Empirics, and Network Effects*, 18 HARV. J.L. & TECH. 435, 441 (2004) (explaining the role of incentive inducement in copyright).

by a human, it *would* be subject to copyright.¹¹ This is incoherent. If the intent of copyright is to promote progress, it makes little sense to premise copyright protection on the author's identity.¹² In a situation with identical works—one authored by a human and one authored by GenAI—both promote progress to the same degree. There is no coherent reason to provide protection for one but not the other.¹³ One might respond to this by providing copyright protection to GenAI-authored works. However, as I will explain below, it makes more sense to consider instead declining copyright protection in both instances.

The second of the fundamental problems that GenAI raises for copyright arises because its ability to substitute for human creators threatens to crowd out new creative and artistic developments. As GenAI becomes capable of substituting for human creators in a creative market, the incentive for humans to produce goods decreases.¹⁴ The first-order effect of this might be unproblematic to many. As GenAI becomes able to produce high-quality works, those markets will simply become dominated by GenAI-produced goods. Imagine the future markets for stock photography or greeting card poetry. It is not difficult to imagine them becoming dominated by GenAI, with human creators choosing to focus on markets where they can add more value.

However, the second-order effects of this substitution are more concerning. AI firms require training data to produce generative models.¹⁵ These models essentially mimic patterns they infer within these vast sets of data.¹⁶ This

¹¹ U.S. COPYRIGHT OFFICE, COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES § 313.2 (3d ed. 2021) ("The crucial question is 'whether the 'work' is basically one of human authorship.'").

¹² Unless by "progress" we refer somehow to the labor involved in creation, which seems an unlikely reading.

¹³ See, e.g., *Li v. Liu*, (2023) Jing 0491 Min Chu No. 11279 (Beijing Internet Ct. Nov. 27, 2023) (China).

¹⁴ Daron Acemoglu & Pascual Restrepo, *Artificial Intelligence, Automation, and Work*, in *THE ECON. OF ARTIFICIAL INTELLIGENCE: AN AGENDA* 197, 200 (Ajay Agrawal et al. eds., 2019) ("[R]obotics and current practice in AI are continuing what other automation technologies have done in the past: using machines and computers to substitute for human labor in a widening range of tasks and industrial processes.").

¹⁵ See DAVID FOSTER, *GENERATIVE DEEP LEARNING: TEACHING MACHINES TO PAINT, WRITE, COMPOSE, AND PLAY* 1 (2d ed. 2023) (to produce generative models "we require a dataset consisting of many examples of the entity we are trying to generate").

¹⁶ Ziv Epstein et al., *Art and the Science of Generative AI*, 380 *SCI.* 1110 (2023).

allows them to create works that are unique but rooted in and inspired by those in the training dataset.¹⁷ As human creators are crowded out by GenAI substitution, there will be fewer and fewer new human-created works to use for future model training. In the extreme case where human creators completely opt out of a market, this risks creative stagnation with limited-to-no production of new culturally and creatively innovative products in that market.¹⁸

After exploring the copyright challenges raised by GenAI, this Article then proposes a legal change that could help address these challenges. I argue that both the theoretical incoherency and the creative stagnation problems posed by GenAI can be addressed by re-thinking the law of copyright-eligible subject matter. Current law allows for copyright in “original works of authorship”¹⁹ provided they demonstrate a “modicum of creativity.”²⁰ Reinterpreting this creativity standard to only allow for copyright on works that required substantial human input in their creation would ensure copyright remains tethered to its progress-oriented principles and relevant in a post-GenAI world.²¹ Defining “modicum of creativity” to mean “works that could not be produced with *de minimis* human effort” would solve both the theoretical incoherency and practical issues raised by GenAI.

Only granting copyright to works that require more than minimal human effort resolves the core incoherency that GenAI exposes in the current regime. By

¹⁷ Sandeep Singh Sengar et al., *Generative Artificial Intelligence: A Systematic Review and Applications*, 84 MULTIMEDIA TOOLS & APPLICATIONS 23661, 23662 (2025) (“These models acquire an understanding of the underlying patterns and structures within their training data, subsequently producing fresh data that share similar traits and characteristics.”).

¹⁸ Robert E. Lucas Jr., *Ideas and Growth*, 76 ECONOMICA 1 (2009) (demonstrating that growth requires a “sustained flow of new ideas.”); PHILIPPE AGHION ET AL., *THE POWER OF CREATIVE DESTRUCTION* 1 (Harv. Univ. Press 2021) (emphasizing that long-run innovation depends on continued entry and experimentation by new creators).

¹⁹ 17 U.S.C. § 102(a)(1).

²⁰ *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co.*, 499 U.S. 340, 362 (1991).

²¹ Erlend Lavik & Stef van Gompel, *On the Prospects of Raising the Originality Requirement in Copyright Law: Perspectives From the Humanities*, 60 J. COPYRIGHT SOC'Y U.S.A. 387, 391–93 (2012) (reviewing other rationales for raising the copyright creativity threshold); Justin Hughes, *Restating Copyright Law's Originality Requirement*, 44 COLUM. J.L. & ARTS 383, 385–89 (2020) (demonstrating that originality doctrine is historically flexible and sensitive to context).

shifting the inquiry away from who created a work and toward the creative labor actually required to produce it, this approach treats human- and machine-authored works on equal footing.²² If a work can be generated with minimal human input—whether by typing a generic prompt into a generative model or by making similarly trivial decisions with conventional tools—it would fall outside the scope of copyright protection regardless of its nominal author. This aligns doctrine with copyright’s utilitarian foundation: exclusive rights should attach only where incentives are needed, and only where human creative effort is meaningfully responsible for the resulting expression.²³ Conversely, works that contemporary GenAI cannot easily replicate would remain eligible for protection, preserving incentives for human creators to continue generating innovative, idiosyncratic, and culturally enriching contributions. In this way, the proposed standard not only restores theoretical coherence but also mitigates the longer-term risk of creative stagnation by maintaining an economic environment in which new human expression continues to emerge.

Implementing this standard will require modest but significant adjustments to existing copyright doctrine. Because the creativity threshold becomes tied to the evolving capabilities of generative models, copyright-eligible subject matter will necessarily become less categorical and more context-sensitive than under current law.²⁴ To maintain administrative workability and to avoid introducing prohibited “formalities,” this Article proposes a rebuttable presumption of eligibility: works that would qualify under today’s low creativity threshold would continue to enjoy a presumption that they embody sufficient human creativity.²⁵ That presumption would operate at the registration stage and

²² A focus on creativity rather than identity is not a novel proposition for copyright law. See, e.g., *Feist*, 499 U.S. at 346–49 (holding that copyright protection turns on “the author’s own intellectual creation,” not the amount of labor expended); *Burrow-Giles Lithographic Co. v. Sarony*, 111 U.S. 53, 60–61 (1884) (locating authorship in the photographer’s creative choices regarding pose, lighting, and composition rather than in the mechanical act of image capture); *Meshwerks, Inc. v. Toyota Motor Sales U.S.A., Inc.*, 528 F.3d 1258, 1267–68 (10th Cir. 2008) (denying protection to digital models that embodied technical skill but “lacked expressive choices”).

²³ See Jeanne C. Fromer, *An Information Theory of Copyright Law*, 64 EMORY L.J. 71, fn. 24 (2014); see also *An Economic Analysis of Copyright Law*, *supra* note 10, at 343.

²⁴ See *infra* Part IV.

²⁵ See Berne Convention for the Protection of Literary and Artistic Works art. 5(2), Sept. 9, 1886, as revised July 24, 1971, 828 U.N.T.S. 221 [hereinafter *Berne*

until litigation. However, in an infringement dispute, an alleged infringer could rebut the presumption—raising an affirmative defense—by demonstrating that the work could have been generated with only minimal human effort using state-of-the-art generative technology available at the time of authorship or registration. This structure preserves automatic protection for most works while ensuring that the legal system can withhold exclusive rights from works that, in a post-GenAI creative ecosystem, no longer require copyright’s incentives. It thus provides a doctrinally familiar, administratively feasible, and normatively justified mechanism for recalibrating copyright law to match twenty-first-century creative realities.²⁶

II. COPYRIGHT THEORY AND TECHNOLOGY

Copyright exists for a reason, and that reason is neither static nor immune to shifts in the technological environment in which creative works are produced and consumed.²⁷ This Part explains how the fundamentally utilitarian basis of American copyright law—rooted in the constitutional mandate to “promote the Progress of Science and useful Arts”²⁸—requires the doctrine to remain responsive when changes in sociotechnical conditions undermine the assumptions on which its incentive structure rests.²⁹ Since its inception, copyright law has been shaped by the technologies that define the production and distribution of expressive works, from the printing press to photography, radio, photocopying, personal

Convention] (prohibiting formalities as conditions of protection while leaving member states discretion to define protected “works”).

²⁶ See *Generative AI Meets Copyright*, *supra* note 2, at 158 (observing that adapting copyright eligibility doctrines to new technological realities falls squarely within the system’s historical pattern of recalibration).

²⁷ See generally, Pamela Samuelson, *Copyright and Freedom of Expression in Historical Perspective*, 10 J. INTEL. PROP. L. 319 (2002) (explaining that copyright doctrine historically recalibrates in response to changes in information production and dissemination technologies); BENEDICT ATKINSON & BRIAN FITZGERALD, *A SHORT HISTORY OF COPYRIGHT: THE GENIE OF INFORMATION* (2014) (explaining how technological innovation, far more than economic principle, have determined the shape of modern copyright law).

²⁸ U.S. CONST. art. I, § 8, cl. 8.

²⁹ See *Sony Corp. of America v. Universal City Studios, Inc.*, 464 U.S. 417, 430 (1984) (“From its beginning, the law of copyright has developed in response to significant changes in technology”).

computing, and the internet.³⁰ At each of these junctures, doctrine has evolved not because technology posed an abstract philosophical puzzle, but because it altered the economic and informational landscape in ways that compelled recalibration of copyright's balance between incentives and access.³¹

Generative AI presents a transformation of even greater magnitude, calling into question not only the allocation of rights but the foundational justifications for granting copyright at all. To understand why this moment may require a doctrinal shift in copyright's core threshold of protectability, we must first situate the analysis within copyright's normative foundations and examine the role that originality, incentives, and human creativity have historically played in defining the scope of copyrightable subject matter.

A. COPYRIGHT'S THEORETICAL JUSTIFICATION – PROGRESS

Ultimately, US copyright law is built upon a utilitarian foundation.³² The Constitution grants Congress the power “[t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”³³ This grant of authority to Congress is unique amongst those in Article I, Section 8, because it not only provides the power to grant patents and copyright, but it also prefaces that grant with an explanation of *why* that power has been granted—to further “progress.”³⁴

The utility that copyright seeks to further is therefore the promotion of “progress.”³⁵ This, of course, raises a variety of questions about how to interpret the intellectual property clause, and what precisely it means to “promote the progress of science and the useful arts.”³⁶ Some have argued that by “progress”

³⁰ See *Copyright and Freedom of Expression in Historical Perspective*, *supra* note 27, at 323.

³¹ See *id.* at 326.

³² See Barton Beebe, *Bleistein, the Problem of Aesthetic Progress, and the Making of American Copyright Law*, 117 COLUM. L. REV. 319, 396 (2017) (“[I]ntellectual property law is the one area of American law explicitly committed to the promotion of ‘Progress.’”); see Sara K. Stadler, *Forging a Truly Utilitarian Copyright*, 91 IOWA L. REV. 609, 611 (2005).

³³ U.S. CONST. art. I, § 8, cl. 8.

³⁴ See Fromer, *supra* note 7, at 1339 (“[T]he IP Clause is structured differently from other Article I, Section 8 powers. It is the only clause that specifies the means for carrying out the allotted power.”).

³⁵ See *id.* at 1366.

³⁶ See U.S. CONST. art. I, § 8, cl. 8.

the framers meant to encourage the spread or diffusion of information.³⁷ Others argue that, normatively speaking, “progress” should be interpreted to include aesthetic progress.³⁸ While some disagreement about interpretation exists, the dominant explanation for the existence of the IP clause is to empower Congress to provide incentives for the production of new works.³⁹ These incentives help address a perceived market failure that would otherwise accompany information goods, which are, in many contexts, non-excludable.⁴⁰

The copyright eligible subject matter doctrine at the heart of copyright’s incentive system provides protection for “original” works that are fixed in any “tangible medium of expression.”⁴¹ This requirement ensures that unoriginal—and therefore not contributive to “progress” in any real measure—works are not subject to copyright. In its current form, the originality requirement sets a low bar. To be “original” requires only that the work be independently created—i.e., not copied—and exhibit a “modicum” of creativity.⁴²

³⁷ See, e.g., Malla Pollack, *What Is Congress Supposed to Promote: Defining Progress in Article I, Section 8, Clause 8 of the United States Constitution, or Introducing the Progress Clause*, 80 NEB. L. REV. 754, 755 (2001); Jake Linford, *Datamining the Meaning(s) of Progress*, 2017 BYU L. REV. 1531, 1541 (2017).

³⁸ See Beebe, *supra* note 32, at 341.

³⁹ See Jeanne C. Fromer, *Expressive Incentives in Intellectual Property*, 98 VA. L. REV. 1745, 1746 (2012) (“According to the dominant American theory of intellectual property, copyright and patent laws are premised on providing creators with just enough incentive to create artistic, scientific, and technological works of value to society by preventing certain would-be copiers’ free-riding behavior.”); Shyamkrishna Balganesh, *Foreseeability and Copyright Incentives*, 122 HARV. L. REV. 1569, 1571 (2009); *but see* Christopher Sprigman, *Copyright and Creative Incentives: What We Know (and Don’t) Fourteenth Annual Spring Lecture*, 55 HOUS. L. REV. 451, 451 (2017) [hereinafter *Copyright and Creative Incentives*] (Bringing into doubt the empirical role that copyright incentives play in the market).

⁴⁰ See Mark A. Lemley, *Ex Ante versus Ex Post Justifications for Intellectual Property*, 71 U. CHI. L. REV. 129, 129 (2004) (“The traditional economic justification for intellectual property is well known. Ideas are public goods.”); *see also* Robert M. Hurt & Robert M. Schuchman, *The Economic Rationale of Copyright*, 56 AM. ECON. REV. 421, 422 (1966).

⁴¹ 17 U.S.C. § 102(a).

⁴² *Feist*, 499 U.S. at 346; *but see* Russ VerSteeg, *Rethinking Originality*, 34 WM. & MARY L. REV. 801, (1993); Lavik & van Gompel, *supra* note 21 (calling for higher originality requirements in copyright).

The originality requirement helps ensure that copyright law promotes progress by providing protection for works that expand society's collective universe of information. In doing so, copyright provides incentive for creators to produce new poems, paintings, photographs, software, etc. that can go on to provide utility and enjoyment for consumers.⁴³ This is the "progress" at the heart of copyright's utilitarian justification.⁴⁴

There are, of course, other ways to explain or justify the existence of copyright. Some scholars and jurisdictions rely more on a personality or moral rights grounded perspective, believing that the expression of personality present in copyright subject works gives the author the moral right to control that work in the future.⁴⁵ Others focus more on the reward for authors' labor—that is, an *ex post* award of property rights—rather than the *ex ante* incentive function such a reward plays.⁴⁶ These, though, at least in the American context, are niche justifications for copyright. Given the central importance of incentives in American copyright law, any response to the way GenAI has altered the creative landscape must assess how the changing realities of creative industries affect the incentive assumptions implicit in the copyright system. We will turn to this in Parts III-IV, but first, it will help to briefly examine how copyright has long evolved in tandem with technology.

⁴³ This incentive is imperfect and not universally required. The degree of empirical evidence supporting the need for copyright incentives is mixed and that need almost certainly varies significantly across different content markets. *See generally Copyright and Creative Incentives, supra* note 39.

⁴⁴ *But see* those who interpret "progress" to mean spread rather than quantitative or qualitative changes to content production. Pollack, *supra* note 37; Linford, *supra* note 37.

⁴⁵ This is sometimes referred to as the "personality theory." *See* Hughes, *supra* note 5, at 331–333; *See also* Edward J. Damich, *The Right of Personality: A Common-Law Basis for the Protection of the Moral Rights of Authors*, 23 GA. L. REV. 1 (1988) (explaining how the personality theory justifies not just property rights but also moral rights in copyright subject works).

⁴⁶ *See generally* Mala Chatterjee, *Lockean Copyright Versus Lockean Property*, 12 J. LEGAL ANALYSIS 136 (2020). This though has been rejected by the Supreme Court in *Feist*, 499 U.S. at 349 ("The primary objective of copyright is not to reward the labor of authors, but '[t]o promote the Progress of Science and useful Arts.'").

B. COPYRIGHT'S INTERTWINED RELATIONSHIP WITH TECHNOLOGY – IS GENAI TRULY DIFFERENT?

Copyright has long evolved in tandem with technological developments, as those developments have altered the information production systems that copyright seeks to foster.⁴⁷ This co-evolutionary relationship has been present in copyright law since the beginning of its modern era, as it responded to the rise of the printing press and the power of stationers' guilds.⁴⁸ In recent decades, these changes have been most notable in the response to the increasing prevalence of information technologies that have greatly altered the way we produce and consume content.⁴⁹

Whether it be via the Courts or Congress, copyright law has a long history of updating policy and doctrine in response to the introduction of new technologies.⁵⁰ For example, the introduction of photography raised the key question of whether photographs were subject to copyright protection.⁵¹ Subsequent information technology developments such as radio broadcasting,⁵²

⁴⁷ *Generative AI Meets Copyright*, *supra* note 2, at 159 ("When new technologies pose new copyright questions that Congress did not anticipate, courts typically consider which outcome is most consistent with the constitutional purposes of copyright.").

⁴⁸ See Diane Leenheer Zimmerman, *The Statute of Anne and Its Progeny: Variations without a Theme*, 47 Hous. L. Rev. 965 (2010) (stating that the Statute of Anne "was passed because Parliament wanted a compromise between a pesky constituency [the publishers] and its own deep commitment to limiting monopolies.").

⁴⁹ See, e.g., 17 U.S.C. § 1201 (updating copyright law in response to digitization and the popularization of the internet.)

⁵⁰ See Jane C. Ginsburg, *Copyright and Control over New Technologies of Dissemination*, 101 COLUM. L. REV. 1613, 1614 (2001) (Paul Schiff Berman ed., 2017) ("[E]ach significant technological progress may alter the balance of control between authors and users, in turn eventually prompting a new legal calibration.").

⁵¹ See *Burrow-Giles*, 111 U.S. at 60 (ruling that photographs constitute an "original work of art").

⁵² See *Jerome H. Remick & Co. v. Am. Auto. Accessories Co.*, 5 F.2d 411, 412 (6th Cir. 1925) (holding that radio broadcast is "public performance" under the Copyright Act).

video tape recording,⁵³ and the internet⁵⁴ were also integrated into the copyright system without major upheaval in its underlying structure and logic.

The historical co-evolution of copyright law with information technology has been characterized by the steady expansion of copyright eligible subject matter. I will argue below that GenAI's introduction poses a qualitatively and quantitatively different set of challenges for the copyright system than previous technological developments, and that as a result it is now appropriate to instead *contract* the universe of copyright eligible subject matter. While previous introductions of new technologies such as photography, radio, and television posed some novel questions for copyright law, they did not challenge its fundamental utilitarian basis. GenAI does challenge this foundation. By facilitating almost zero cost creations of text, images, songs, video, computer code, and other types of content traditionally eligible for copyright protection, GenAI has the potential to completely upset market dynamics and incentive balances and thereby upend established copyright law and policy.

III. GENERATIVE AI'S COPYRIGHT CHALLENGES

Generative AI raises a wide array of copyright questions, touching nearly every aspect of the doctrine.⁵⁵ Some of these issues have already attracted sustained attention from scholars, industry stakeholders, and policymakers, and several have become the subject of high-profile federal litigation.⁵⁶ Much of this early commentary has focused on two inquiries: first, whether the training of large-scale generative models on copyrighted material constitutes infringement; and second, whether outputs produced with the assistance of these models qualify as copyrightable subject matter.⁵⁷ These debates are important, and their resolution will shape the contours of liability for AI developers and users alike. Yet they represent only the threshold layer of a much larger structural challenge. Even if courts or Congress were to provide clear answers to the doctrinal questions

⁵³ See *Sony*, 464 U.S. at 417 (allowing for the sale of video tape recorders despite possibility of infringing uses).

⁵⁴ See 17 U.S.C. § 1201.

⁵⁵ See generally, Artificial Intelligence and Copyright, 88 Fed. Reg. at 59943 (GenAI raises “significant questions for the copyright system”); *Generative AI Meets Copyright*, *supra* note 2.

⁵⁶ See, e.g., Matthew Sag, *Fairness and Fair Use in Generative AI*, 92 FORDHAM L. REV. 1887 (2024); Artificial Intelligence and Copyright, 88 Fed. Reg. at 59942; *N.Y. Times Co. v. Microsoft Corp.*, 777 F. Supp. 3d 283 (S.D.N.Y. 2025).

⁵⁷ See *infra* Part III.A.

surrounding training-stage copying, output-stage similarity, and the human authorship requirement, such answers would fail to address the more fundamental disruption GenAI introduces to creative markets. As this Part argues, the rise of generative systems destabilizes copyright not simply as a body of rules governing infringement and ownership, but as an institutional mechanism built to promote human creativity. By enabling the rapid, low-cost production of expressive works that closely substitute for human-created content, GenAI threatens both the theoretical coherence of copyright's utilitarian foundation and the practical alignment of its incentive structure. A doctrinal focus on infringement and authorship, while necessary, is ultimately insufficient to confront the deeper systemic pressures GenAI places on the copyright regime and the long-term progress it is meant to foster.

A. GENAI AND COPYRIGHT ISSUES

The copyright issues most frequently raised by GenAI fit within existing doctrinal categories, even if they manifest in novel ways. Before turning to more novel and fundamental implications for the copyright system, the subsections that follow map the two principal inquiries that have dominated early commentary and litigation: whether training or output stages infringe existing rights, and whether AI-assisted works can qualify as copyrightable subject matter.

1. *Infringement*

A body of work has developed examining the extent to which GenAI models infringe on existing copyrights. These tackle two distinct legal questions: infringement by generative model makers during training stages, and infringement by model users when generating content.⁵⁸ Both possible points of infringement have also given rise to infringement suits.⁵⁹

Generative models rely on inductive machine learning as they “learn” how to create content similar to the (mostly) human created content that they are trained on.⁶⁰ For instance, to learn how to produce a meaningful series of words and linguistic tokens in response to an input prompt, engineers at OpenAI use vast amounts of text data procured both through proprietary agreements with content

⁵⁸ See, e.g., Compl. ¶ 1–5, *Andersen v. Stability AI Ltd.*, No. 3:23-cv-00201 (N.D. Cal. 2023); Compl. ¶ 1–4, *N.Y. Times Co. v. Microsoft Corp.*, No. 1:23-cv-11195 (S.D.N.Y. 2023).

⁵⁹ Compl. ¶ 1–5, *Andersen*, No. 3:23-cv-00201; Compl. ¶ 1–4, *N.Y. Times*, No. 1:23-cv-11195.

⁶⁰ See Lemley & Casey, *supra* note 2.

owners and from publicly available sources on the web and elsewhere.⁶¹ When this data is procured without a license it raises possible copyright infringement issues.

Unlicensed use of content during training has given rise to several copyright infringement litigation cases. For instance, the *New York Times* has filed suit against OpenAI, alleging that their ChatGPT models are trained on articles published in the *Times*.⁶² Whether copying during training is indeed an infringement of copyright owners' rights or, as some believe, is sufficiently transformative to qualify as fair use is an unsettled legal question.⁶³

In addition to possibly infringing during training, GenAI may infringe copyright when it generates new output in response to user prompts.⁶⁴ In this context, the copyright issue arises not when the model is created but rather when it is used. This question does not pose any particularly novel considerations for copyright law. Although there is an argument to be made that transforming content into a highly abstracted neural network is sufficiently transformative to qualify as fair use.⁶⁵ If a model produces a work that is substantially similar to a copyright protected work, the legal analysis remains largely unchanged by the presence of a generative model. The primary distinction in these contexts is the

⁶¹ *Our Approach to Data and AI*, OPENAI (May 7, 2024), <https://openai.com/index/approach-to-data-and-ai/> [https://perma.cc/3H6R-LKHW].

⁶² *N.Y. Times*, 777 F. Supp. 3d at 301.

⁶³ Some argue that GenAI training is analogous to statistical machine learning and should fall within the scope of the fair use exemption. See Pamela Samuelson et al., *Comments in Response to the Copyright Office's Notice of Inquiry on Artificial Intelligence and Copyright* 7 (Oct. 30, 2023) (letter to Suzanne V. Wilson, Gen. Couns. & Assoc. Reg. of Copyrights, U.S. Copyright Off.) [hereinafter *Comments in Response to the Copyright Office*]. This issue may decrease in relevance if licensing training data becomes the norm.

⁶⁴ See *Artificial Intelligence and Copyright*, 88 Fed. Reg. at 59945, 59948 (asking whether "AI-generated outputs implicate the exclusive rights of preexisting copyrighted works, such as the right of reproduction or the derivative work right.").

⁶⁵ *Fairness and Fair Use in Generative AI*, *supra* note 56, at 1915; Matthew Sag, *Copyright Safety for Generative AI*, 61 HOUS. L. REV. 295 (2023); Pamela Samuelson, *Fair Use Defenses in Disruptive Technology Cases*, 71 UCLA L. REV. 1486, 1551 (2024); Micaela Mantegna, *ARTificial: Why Copyright Is Not the Right Policy Tool to Deal with Generative AI*, 133 YALE L.J.F. 1126, 1162 (2024); Lemley & Casey, *supra* note 2, at 748.

identity of the infringer—i.e. the user and/or the model provider—and whether liability is direct or indirect.⁶⁶

While these questions of infringement that arise from the training and use of GenAI introduce some novel problems for the copyright regime, they reflect only one aspect of the changes that arise from the availability of generative models. Even if the courts or Congress provide a clear and definitive answer to these infringement questions, copyright will remain fundamentally unsettled by GenAI. Beyond these questions of infringement, more fundamental questions of authorship and copyright eligibility loom.

2. Copyright Eligibility – GenAI as Author

In parallel to discussions of whether GenAI infringes copyright during either training or output stages, another related discussion has arisen asking which outputs produced by generative models are eligible for copyright protection.⁶⁷ Although GenAI may be relatively new, this question is not.⁶⁸ Some have argued that allowing for generative models to fit within the legal definition of an author comports with the underlying goals of the copyright system.⁶⁹ While others believe

⁶⁶ The “Snoopy problem” when GenAI models are used to produce what may be considered derivative works in the style of content in the dataset—e.g. images of Snoopy—is a related infringement issue. See *Fairness and Fair Use in Generative AI*, *supra* note 56, at 1913; *Fair Use Defenses in Disruptive Technology Cases*, *supra* note 65, at 1555.

⁶⁷ See generally, REGISTER OF COPYRIGHTS, COPYRIGHT AND ARTIFICIAL INTELLIGENCE PART 2: COPYRIGHTABILITY 1 (2025).

⁶⁸ See, e.g., Timothy L. Butler, *Can a Computer Be an Author - Copyright Aspects of Artificial Intelligence*, 4 U.C.L.S.F. COMM’N & ENT. J. 707, 723 (1981); Darin Glasser, *Copyrights in Computer-Generated Works: Whom, If Anyone, Do We Reward?*, 1 DUKE L. & TECH. REV. ¶ 1, 7 (2001). Note that this is distinct from the relatively new question as to whether or not generative models themselves are subject to copyright. See Jie Ren et al., *Copyright Protection in Generative AI: A Technical Perspective* (July 24, 2024), <https://arxiv.org/abs/2402.02333> [<https://perma.cc/B54Z-5XWK>]; Ryan Abbott & Elizabeth Rothman, *Creative Machines: Generative Artificial Intelligence and Copyright Law*, 100 CHI.-KENT L. REV. 221, (2025) [hereinafter Abbott & Rothman, *Creative Machines*].

⁶⁹ See Ryan Abbott & Elizabeth Rothman, *Disrupting Creativity: Copyright Law in the Age of Generative Artificial Intelligence*, 75 FLA. L. REV. 1141 (2023) [hereinafter Abbott & Rothman, *Disrupting Creativity*].

that autonomous machine authorship does not produce works meriting copyright protection.⁷⁰

The stance of the Copyright Office is that the copyright eligibility question turns on whether the output is “the result of mechanical reproduction or ... an author’s own original mental conception.”⁷¹ This standard focuses primarily not on the substance of the output, but rather the process underlying its production. Under this status quo there are instances where some uses of GenAI as a tool during content production will negate copyright eligibility and others where it will not.⁷² There has also been some international jurisdictional variation on this question. For instance, courts in China seem more open to granting copyright protection to GenAI produced works,⁷³ and current UK law allows for copyright of computer-generated works.⁷⁴

In the United States, the Copyright Office and courts have stated that generative models themselves cannot be authors. Dismissing arguments that a “human authorship requirement is unconstitutional,” the Copyright Office has declined to register copyright claims as works-for-hire produced by GenAI, stating unequivocally that “copyright law as codified in the 1976 Act requires human

⁷⁰ See, e.g., Daniel J. Gervais, *The Machine as Author*, 105 IOWA L. REV. 2053 (2019); James Grimmelman, *There’s No Such Thing as a Computer-Authored Work - And It’s a Good Thing, Too*, 39 COLUM. J.L. & ARTS 403 (2015).

⁷¹ Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence, 88 Fed. Reg. 16190, 16192 (2023).

⁷² Some argue that this line should favor copyright eligibility for AI produced works. See Abbott & Rothman, *Disrupting Creativity*, *supra* note 69, at 1144; Others advocate more stringency against allowing AI generated works to be eligible for copyright protection. See, e.g., *Comments in Response to the Copyright Office*, *supra* note 63, at 5; How these lines are drawn will ultimately be an important determinant of how creative industries adapt to the post-GenAI world. Epstein et al., *supra* note 16, at 1110–11.

⁷³ *Li*, (2023) Jing 0491 Min Chu No. 11279 at 13.

⁷⁴ U.K. Copyright, Designs and Patents Act 1988, c. 48, § 9(3).

authorship.”⁷⁵ Appeals to the judiciary to overrule the Copyright Office Review Board’s decision to withhold copyright registration have also failed.⁷⁶

Answering the questions of whether generative models are authors, whether their generated works are subject to copyright, and if so, who owns those rights is important, but doing so will not solve the problems that GenAI poses for the copyright system. Moreover, unless the answer to these questions is that GenAI is capable of authorship and its creations are subject to copyright—which seems unlikely given the status quo—society will perpetually face complex and potentially intractable questions about who authored what. A system that declines to provide copyright protection for GenAI produced works creates an incentive for would-be copyright owners to overclaim the degree of human authorship involved in producing their works.⁷⁷

Most of the discourse surrounding AI and copyright continues to orbit these two familiar questions of authorship and infringement.⁷⁸ Yet, as significant as those questions are, they capture only a narrow slice of the disruption generative AI introduces into the copyright system. Determining whether the ingestion of copyrighted works during training qualifies as infringement, or whether an AI-assisted output satisfies the human-authorship requirement, may clarify liability at the margins, but it will not repair the deeper structural strain

⁷⁵ Letter from U.S. Copyright Rev. Bd. to Ryan Abbott, Esq., Re: Second Request for Reconsideration for Refusal to Register a Recent Entrance to Paradise (Correspondence ID 1-3ZPC6C3; SR # 1-7100387071) (Feb. 14, 2022), at 2, 7 [hereinafter Letter to Ryan Abbott]; Letter from U.S. Copyright Rev. Bd. to Tamara Pester, Esq., Re: Second Request for Reconsideration for Refusal to Register Théâtre D’opéra Spatial (SR # 1-11743923581; Correspondence ID: 1-5T5320R) (Sept. 5, 2023), at 3 [hereinafter Letter to Tamara Pester].

⁷⁶ See, e.g., *Thaler*, 687 F. Supp. 3d.

⁷⁷ There have been a number of high-profile art competitions in which the extent of human versus machine contribution to the work has been unclear and has subsequently caused controversy. Cf. Paul Glynn, *Sony World Photography Award 2023: Winner Refuses Award after Revealing AI Creation*, BBC (Apr. 18, 2023), <https://www.bbc.com/news/entertainment-arts-65296763> [<https://perma.cc/AJU8-BTE2>]; Kevin Roose, *An A.I.-Generated Picture Won an Art Prize. Artists Aren’t Happy.*, N.Y. TIMES (Sept. 2, 2022), <https://www.nytimes.com/2022/09/02/technology/ai-artificial-intelligence-artists.html> [<https://perma.cc/5WNU-EZZU>].

⁷⁸ See generally U.S. COPYRIGHT OFFICE, COPYRIGHT AND ARTIFICIAL INTELLIGENCE PART 1: DIGITAL REPLICAS (2024) (largely focusing on infringement); REGISTER OF COPYRIGHTS, *supra* note 67, at 5 (largely focusing on authorship and copyright eligibility).

GenAI imposes on copyright's architecture. Copyright is, at its core, an industrial and commercial regulatory system—one designed to shape creative production markets by establishing incentives for human authors to generate new works.⁷⁹ As generative models become increasingly capable substitutes for human creators, the underlying market conditions that copyright law presupposes begin to shift.⁸⁰ A doctrinal focus on traditional infringement and authorship inquiries therefore risks treating symptoms rather than causes.

Responding effectively to GenAI requires attention to the broader commercial and sociotechnical reality in which expressive works are now produced, disseminated, and monetized. The challenges posed by artificial intelligence extend well beyond the proper classification of training-stage copying or the mechanics of human contribution. GenAI threatens to unmoor copyright from its utilitarian foundation by undermining the assumption that significant human labor is required to produce valuable expressive works.⁸¹ At the same time, it creates the potential for creative stagnation, as human creators are displaced in markets where their contributions are no longer economically viable, thereby diminishing the supply of new human-generated works that fuel both cultural evolution and future model development.⁸² These systemic pressures cannot be resolved simply by determining whether AI infringes or who counts as an author. They demand a more fundamental reassessment of copyright's threshold doctrines and incentive structure—an inquiry that Section III.B and Part IV take up directly.

B. GENAI FUNDAMENTALLY UPSETS THE COPYRIGHT SYSTEM

This section considers how generative AI poses challenges beyond questions of infringement or authorship by destabilizing the copyright system along two dimensions: it undermines the theoretical foundation on which copyright's utilitarian justification rests, and it interacts with the existing incentive structure in ways that frustrate the goal of promoting progress. Subsections III.B.1 and III.B.2 develop these problems sequentially.

⁷⁹ See generally, Michael Abramowicz, *An Industrial Organization Approach to Copyright Law*, 46 WM. & MARY L. REV. 33, 35, 110–11 (2004).

⁸⁰ See Acemoglu & Restrepo, *supra* note 14, at 198.

⁸¹ See *Infra* Part III.B.1.

⁸² *Infra* Part III.B.2.

1. *Zero Marginal Cost AI Creations Exacerbate Copyright's Theoretical Incoherency*

The introduction of GenAI threatens to unmoor copyright from its utilitarian foundation.⁸³ This foundation seeks to provide intellectual property rights on original copyright eligible subject matter to help incentivize the production of new information goods and thereby the “progress of science.”⁸⁴ Given the capabilities of generative models, these incentives are no longer necessary in all markets. In some creative domains—e.g., stock imagery, greeting card writing, etc.—GenAI can substitute for human creators and produce works at essentially zero marginal cost.⁸⁵ Under current law, those works are likely not eligible for copyright protection.⁸⁶ However, if they were instead created by human authors, they would be.⁸⁷ This is an incoherent way of incentivizing “progress” unless we believe that having human authors engage in labor intensive work that could more efficiently be done by a generative model is in some manner “progress.”

Consider applications for copyright registration in GenAI produced works that the copyright office has declined to register. The two example works depicted below were both created by users of generative models. Subsequently, each was denied copyright registration due to the Copyright Office’s requirement that only the human-authored components of a work are copyright eligible.⁸⁸

⁸³ *Supra* Part II.A.

⁸⁴ U.S. CONST. art I, § 8, cl. 8.

⁸⁵ *See, e.g.,* Nico Grant & Cade Metz, *The Push to Develop Generative A.I. Without All the Lawsuits*, N.Y. TIMES (July 19, 2024), <https://www.nytimes.com/2024/07/19/technology/generative-ai-getty-shutterstock.html> [<https://perma.cc/79AG-UR5M>] (detailing the adoption of custom image generators by major stock photography agencies).

⁸⁶ U.S. COPYRIGHT OFFICE, *supra* note 11; *see also Fair Use Defenses in Disruptive Technology Cases*, *supra* note 65; *Thaler v. Perlmutter*, 130 F. 4th 1039, 1040 (D.C. Cir. 2025) (“The Copyright Act of 1976 requires all eligible work to be authored in the first instance by a human being.”).

⁸⁷ COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES, *supra* note 11, § 313.2.

⁸⁸ These two examples differ somewhat in that the “Théâtre D’opéra Spatial” (Figure 1) was created by human prompting and so required some human contribution. However, the registrant refused to disclaim the AI-generated material and was therefore refused registration. *See* Letter to Tamara Pester, *supra* note 75. On the other hand, “A Recent Entrance to Paradise” was held to be “autonomously created by artificial intelligence without any creative

However, were these works human authored—or had their applicants *claimed* that they were human authored—they would have been granted copyright registration.⁸⁹ This is a distinction that does not further the goals of the copyright system.⁹⁰

By centering the copyright inquiry on authorship rather than on the substance of the work, current doctrine constructs a regime increasingly ill-suited to promote progress in a world of generative systems. The human-versus-machine distinction—now central to Copyright Office guidance and judicial reasoning—has no bearing on whether exclusive rights are needed to induce the creation of a given work, nor does it illuminate whether copyright allocates incentives efficiently. If we take “progress” to mean the creation and dissemination of information goods that otherwise would not have been produced or made available,⁹¹ the relevant question is not who pressed the button, but whether meaningful human creativity was necessary to bring the work into existence. When a work can be generated at essentially zero cost, no copyright incentive is needed—whether it is generated solely by a human or in collaboration with GenAI. Conversely, when the work cannot be trivially produced by AI and instead depends on sustained human judgment, revision, and creative decision-making, the utilitarian foundation of copyright justifies granting protection. A system that allocates exclusive rights based on the identity of the author rather than the creative effort required risks rewarding trivial human intervention while depriving meaningful human expression of protection. Over time, this misalignment threatens both the coherence of the doctrine and the future trajectory of human creative production.

contribution from a human actor” and therefore denied registration. *See* Letter to Ryan Abbott, *supra* note 75.

⁸⁹ COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES, *supra* note 11, § 313.2.

⁹⁰ *See supra* Section II.A.

⁹¹ *See id.*



Figure 1. “Théâtre D’opéra Spatial” produced using Midjourney text-to-image generation and denied copyright registration⁹²



Figure 2. “A Recent Entrance to Paradise” produced using Steven Thaler’s “Creativity Machine” and subsequently denied copyright registration⁹³

⁹² Letter to Tamara Pester, *supra* note 75.

⁹³ Letter to Ryan Abbott, *supra* note 75.

One possible response to the argument that GenAI introduces a degree of incoherence to copyright's incentive system is to point out that copyright has long set inefficient incentives.⁹⁴ This is true. Since its inception copyright has been available for works that needed no incentive. Creators often have little to no care for or understanding of the copyright system.⁹⁵ Regardless of copyright's availability, many poets would continue to write poems, painters continue to paint, coders continue to code, etc. But these historical inefficiencies should not prevent us from attempting to remedy new and emerging destabilization of copyright's incentive system.

Historical over-inclusion in copyright eligibility has been driven in large part by the difficulty—often the impossibility—of drawing principled lines between works that would have been created absent copyright and those that would not.⁹⁶ Because courts and policymakers have never had access to a reliable, administrable method for determining which creative outputs genuinely required legal incentives, the system evolved toward broad, content-neutral protection.⁹⁷ Nearly any independently created work demonstrating even a “modicum” of creativity qualified, not because such works uniformly needed incentives, but because the alternative—sorting protected from unprotected works based on their incentive-dependence—seemed intractable.⁹⁸ This reluctance to engage in fine-grained line-drawing made sense in earlier technological eras, when most creative production required some nontrivial human labor and when the marginal cost of producing additional expressive works was usually far from zero.

Where courts previously lacked the tools to assess whether a particular output could have been produced without meaningful human creativity, we now have ways to model this: if a state-of-the-art GenAI system can generate substantively indistinguishable outputs using minimal prompting, that fact provides a technologically grounded basis for distinguishing low-effort works

⁹⁴ *Copyright and Creative Incentives*, *supra* note 39, at 451 (“[T]he link between copyright and creative incentives appears to be considerably less robust than theory may have led us to expect.”).

⁹⁵ Jessica Litman, *Copyright as Myth*, 53 U. PITT. L. REV. 235, 236 (1991).

⁹⁶ *See Copyright and the Rule of Reason*, *supra* note 4, at 318 fn.6 (describing the breakdown between copyright in theory and creativity in practice).

⁹⁷ VerSteeg, *supra* note 42, at 810 (arguing that copyrights low originality threshold helps prevent judges from having to make difficult subjective determinations about copyright eligibility).

⁹⁸ *See Feist*, 499 U.S. at 345–49 (clarifying the “modicum of creativity” standard and rejecting inquiry into labor or incentive dependence).

from genuinely creative ones. This capacity to delineate between trivially generable and meaningfully authored works makes more tailored copyright incentives not only possible, but necessary.

Taking advantage of this capability would allow copyright law to restore coherence to its incentive structure and respond to the deeper challenges GenAI poses. By withholding protection from works that can be cheaply and effortlessly generated by machines, the law would avoid offering monopolies where they are not required. And by reserving protection for works that demand genuine human creativity—works that machines cannot yet produce—this would reinforce incentives for human authors to continue engaging in creative labor. In doing so, the law can address not only the theoretical incoherence GenAI introduces, but also the emerging risk of *creative stagnation*, in which human creators are crowded out of key markets and the production of new human-authored works dwindles.

2. *Creative Stagnation Caused by AI Threatens to Impede Cultural Development*

Generative models are reflections of human creativity.⁹⁹ By training on large corpora of human-authored creations—whether those be images, videos, computer code, text, etc.—they learn to produce new outputs that mimic features of human creations.¹⁰⁰ Indeed, we often assess models by how well their output appears indistinguishable from output created by human authors.¹⁰¹ This means that if one wishes a model to learn something new about the way humans create, it will require sufficient training data that reflects those creative tendencies.¹⁰² As an example, imagine a new slang meaning of a word emerges in human conversation. Teaching that meaning to a generative model so that it can reflect it when generating new texts will require training the model on texts using the term in its slang context. In the context of language evolution, this need for training data is unlikely to pose a problem. Language will continue to evolve, and humans will continue to generate new text data that can be used to train future generative

⁹⁹ Epstein et al., *supra* note 16, at 1110 (“generative AI relies on training data made by people. The models ‘learn’ to generate art by extracting statistical patterns from existing artistic media.”).

¹⁰⁰ *Id.*

¹⁰¹ See, e.g., Dan Hendrycks et al., *Measuring Massive Multitask Language Understanding*, in PROCS. OF THE INT’L CONF. ON LEARNING REPRESENTATIONS, 1 (2021); David Rein et al., *GPQA: A Graduate-Level Google-Proof Q&A Benchmark*, in PROCS. OF THE CONF. ON LANGUAGE MODELING, 1 (2024).

¹⁰² See generally, Sengar et al., *supra* note 17, at 23662.

models. However, in some creative domains the rise of GenAI may lead human creators to opt out of the market resulting in a sort of “creative stagnation” as new training data production dwindles.¹⁰³

The risk of creative stagnation is most evident in markets where human creator participation is primarily motivated by pecuniary interests and where GenAI can closely substitute for human creators. Figure 3 helps demonstrate this point by modeling the incentive for humans to participate in a market as a function of the degree to which GenAI can substitute for human creators. As an example, consider the market for stock photography images. Photographers largely participate in these markets as creators whose works are licensed by stock photography firms to consumers, with the license fee being split between the photographer and firm in some agreed upon manner. Photographers are incentivized to produce new images with the prospect of future licensing fees or an up-front payment by the stock image firm.¹⁰⁴ While this has worked historically, GenAI has already begun to undermine these market dynamics.¹⁰⁵ As image generation models have become more able to produce bespoke photorealistic images, the need for consumers to license images made by human creators has decreased.¹⁰⁶ This in turn decreases the incentive for photographers to participate in the market—and indeed for stock photography agencies to contract with producers. While this is still a relatively new phenomenon, extrapolating this trend out into the future would leave the market with drastically fewer photographer participants in stock photography production. Those photographers who produce stock images to make a living will be motivated to shift focus to markets where GenAI is less able to substitute for humans, such as portrait and event photography.

¹⁰³ See Epstein et al., *supra* note 16, at 1110 (“As a suite of tools used by human creators, generative AI is positioned to upend many sectors of the creative industry and beyond—threatening existing jobs and labor models in the short term, while ultimately enabling new models of creative labor and reconfiguring the media ecosystem.”); Acemoglu & Restrepo, *supra* note 14.

¹⁰⁴ See Paul Frosh, *Inside the Image Factory: Stock Photography and Cultural Production*, 23 MEDIA, CULTURE & SOC’Y 625, 628 (2001).

¹⁰⁵ See Docket Entries, Getty Images (US), Inc. v. Stability AI, Inc., No. 1:23-cv-00135 (D. Del. Feb. 3, 2023); Getty Images (US) Inc. v. Stability AI Limited, [2025] EWHC 2863 (Ch), No. IL-2023-000007 [8] (Eng.) (ruling on allegations by a stock photography firm claiming a Gen AI firm had taken the “lifeblood” of their business).

¹⁰⁶ See Grant & Metz, *supra* note 85.

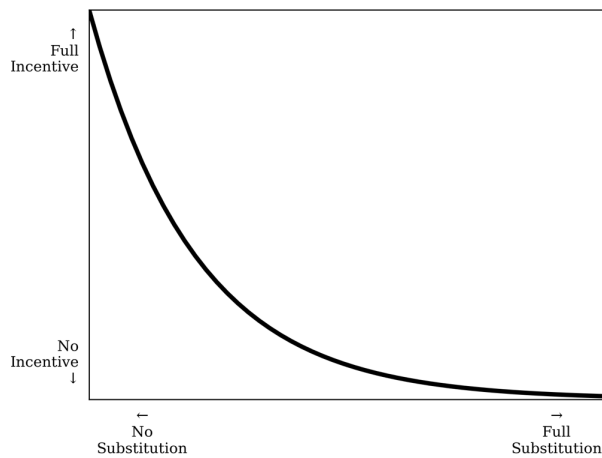


Figure 3. Incentive for creators to participate in market as a function of AI's ability to substitute for humans

Initially, a stock images market dominated by GenAI may seem of little concern. It might even reduce costs for consumers and make custom photorealistic imagery more widely accessible. However, in the long run, shifting incentives for photographers away from the production of stock photos will tend to reduce the production of new human-authored images. This will in turn leave generative model trainers with less new imagery to update their models—meaning a lack of new creative image styles, images incorporating new objects, images that reflect new modeling and clothing fashions, etc.¹⁰⁷ Taken to the extreme, this phenomenon would leave creative markets at risk of ossifying at the point in time where GenAI substantially replaces human authors.

A progress-oriented copyright system—particularly one that understands “progress” to encompass not only the production of new works but also the continual evolution of aesthetic forms—cannot ignore the mounting risk of creative stagnation.¹⁰⁸ If generative models increasingly dominate markets where

¹⁰⁷ Absent human innovation and creativity, there is the possibility that machines may gain the capacity to become what we consider “creative” and continue cultural evolution in this manner, but query whether this is a desirable solution to creative stagnation. There is also the possibility that private firms may step in to pay creators to produce new content as training fodder they could then license to AI firms, or use in house for their own training. This would in some ways mirror the historical artist/patron dynamic where private actors bankroll the creative marketplace.

¹⁰⁸ See Beebe, *supra* note 32, at 334 (arguing that the IP Clause’s notion of “Progress” plausibly encompasses aesthetic development); Fromer, *supra*

human creators once found meaningful footholds, the long-term supply of novel human expression will contract, and with it the cultural and informational resources on which both society and future AI systems depend. A copyright regime committed to fostering creative advancement must therefore take seriously the possibility that unadjusted incentives will hasten the withdrawal of human authors from entire sectors of creative production.¹⁰⁹ Addressing this threat requires more than resolving discrete questions about infringement or authorship; it demands a reconceptualization of how copyright identifies and rewards the kinds of contributions that genuinely advance the arts.

The next section develops such a recalibration. It argues that by re-thinking and re-orienting the creativity threshold for copyright eligibility—shifting it from a minimalistic, historically technologically-neutral creativity standard to one responsive to the capabilities of contemporary generative technologies—copyright law can realign its incentives with its constitutional purpose.¹¹⁰ A tailored creativity standard serves three goals. First, it helps ensure that human participation remains economically and creatively viable. Second, it allows the cultural ecosystem to continue to benefit from human-driven experimentation and innovation. Finally, it directs the law’s incentives where they matter most: in the domains of expression that machines cannot yet replicate.

IV. UPDATING COPYRIGHT LAW

When technological developments unmoor an area of law from its theoretical foundation, incremental adjustments are insufficient; reform must re-anchor the system to its normative foundations. Generative AI presents precisely this kind of destabilizing moment for copyright.¹¹¹ Although GenAI raises a variety of familiar legal questions—about infringement, authorship, ownership, and the status of machine-generated works—resolving those

note 7, at 1373 (arguing that “Progress” requires encouraging the advancement of “cultural knowledge”).

¹⁰⁹ See generally, Stuart Bender, *Generative-AI, the Media Industries, and the Disappearance of Human Creative Labour*, 26 MEDIA PRAC. & EDUC. 200, 201 (2025); Joseph Amankwah-Amoah et al., *The Impending Disruption of Creative Industries by Generative AI: Opportunities, Challenges, and Research Agenda*, 79 INT’L J. INFO. MGMT. 102759 (2024).

¹¹⁰ See *Burrow-Giles*, 111 U.S. at 58–59 (imputing existing copyright eligibility standards to the relatively new technology of photography); see also *Feist*, 499 U.S. at 345 (reiterating that originality is the “sine qua non” of copyright).

¹¹¹ See *supra* Part III.

questions will not correct the deeper distortions GenAI introduces into the creative ecosystem.¹¹² The transformative shift brought about by generative systems is not merely that they can copy or mimic; it is that they fundamentally alter the market conditions and incentive structures upon which copyright's utilitarian purpose depends.¹¹³ When machines can produce expressive works cheaply, abundantly, and with minimal human direction, the assumptions that previously justified granting exclusive rights no longer hold in the same way.

Confronting these changed dynamics requires returning to first principles: why do we grant copyright at all, what kinds of creative contributions merit exclusive rights, and under what conditions do those rights meaningfully promote the progress of science and the useful arts? If one takes copyright's utilitarian foundation seriously, the introduction of GenAI compels a recalibration of the law's incentive mechanism. Traditional doctrine presumes that copyright-eligible works require some human creative labor.¹¹⁴ But GenAI erodes that presumption by enabling the production of many works that no longer need such incentives. In this environment, the existing "modicum of creativity" threshold—designed for a pre-AI world—becomes both overinclusive and conceptually untenable.¹¹⁵ One way to restore coherence is to revisit and reinterpret this threshold, aligning copyright eligibility with the contemporary reality that incentives should attach only to works requiring meaningful human creative input. This Part develops and defends that approach.

A. REDEFINING COPYRIGHT'S CREATIVITY STANDARD

Although GenAI poses major challenges for the copyright status quo, these challenges are not insurmountable. Updating the creativity threshold for copyright eligibility would establish more accurate and efficient incentives that would help ensure copyright continues to promote progress. The "modicum of creativity" standard has long served as a threshold requirement for copyright eligibility in the United States, reflecting the constitutional mandate that copyright protection be reserved for "original works of authorship."¹¹⁶ Historically, the originality requirement was understood primarily as a safeguard against the protection of mere copies or commonplace expressions, rather than as a robust

¹¹² *Supra* Part III.B.

¹¹³ *Id.*

¹¹⁴ *Feist*, 499 U.S. at 346–47.

¹¹⁵ *Id.* at 362.

¹¹⁶ *Id.* at 346–47.

inquiry into the qualitative merits of a work.¹¹⁷ Early cases emphasized that copyright should not extend to facts, ideas, or utilitarian elements, but only to the particular expression chosen by the author.¹¹⁸ This approach served to limit the scope of copyright protection, ensuring that only works reflecting some degree of personal authorship—however slight—would qualify for legal protection.¹¹⁹ Over time, however, courts were called upon to clarify the minimum amount of creative input required to satisfy this threshold, especially as new forms of expression and novel technological means of creation emerged.¹²⁰

The Supreme Court's landmark decision in *Feist Publications, Inc. v. Rural Telephone Service Co.*, provides the most authoritative articulation of the "modicum of creativity" standard.¹²¹ In *Feist*, the Court confronted the question of whether a telephone directory's listings constituted copyrightable subject matter.¹²² The Court held that, although originality is a constitutional prerequisite for copyright, the requisite level of creativity is "extremely low; even a slight amount will suffice."¹²³ However, the Court was equally clear that some creative spark—"no matter how crude, humble or obvious"—must be present.¹²⁴ The mere labor or "sweat of the brow" invested in compiling facts, absent any minimal creative judgment or expression, would not meet this threshold.¹²⁵ By rejecting copyright protection for purely mechanical arrangements, but setting the creativity standard

¹¹⁷ See, e.g., *Alfred Bell & Co. v. Catalda Fine Arts*, 191 F.2d 99, 103 (2d Cir. 1951) (originality "means little more than a prohibition of actual copying."); *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239, 251 (1903) ("it would be a dangerous undertaking for persons trained only to the law to constitute themselves final judges of the worth of" artistic expressions.).

¹¹⁸ See *Baker v. Selden*, 101 U.S. 99, 102 (1879); see also Jessica Silbey, *A Matter of Facts: The Evolution of Copyright's Fact-Exclusion and Its Implications for Disinformation and Democracy*, 70 J. COPYRIGHT SOC'Y 365, 393 (2024).

¹¹⁹ See *Feist*, 499 U.S. at 358–59 (clarifying the requirement that eligible works require a "minimal degree of creativity"); see also Chris Buccafusco, *A Theory of Copyright Authorship*, 102 VA. L. REV. 1229, 1245 (2016).

¹²⁰ See *Burrow-Giles*, 111 U.S. at 58–59; *Bleistein*, 188 U.S. at 239.

¹²¹ *Feist*, 499 U.S. at 340.

¹²² *Id.* at 342.

¹²³ *Id.* at 345.

¹²⁴ *Id.*

¹²⁵ *Id.* at 353.

at a mere “modicum,” the Court in *Feist* makes it clear that copyright’s domain is vast and ranges from high art to minimally creative content.¹²⁶

In the wake of *Feist*, the “modicum of creativity” standard has been consistently applied by both courts and the U.S. Copyright Office as the baseline for determining copyright eligibility.¹²⁷ The prevailing doctrine requires that a work be independently created by the author and possess at least some minimal degree of creativity.¹²⁸ This low threshold has facilitated the broad protection of a wide array of works, from short poems and simple sketches to complex software code and architectural designs. Yet, the standard has also generated ongoing debates about its precise contours, especially as technological advances, such as generative AI, have rendered the production of superficially original works increasingly trivial.¹²⁹ Nevertheless, under current law, so long as a work is not copied and demonstrates even the slightest creative expression, it will generally be deemed sufficiently original to merit copyright protection under the principles set forth in *Feist*.¹³⁰

Despite the enduring influence of *Feist* and the continued application of the “modicum of creativity” standard, the emergence of generative artificial intelligence (GenAI) technologies raises questions about the adequacy of this threshold in the contemporary creative landscape.¹³¹ GenAI’s capacity to produce works that easily satisfy the current originality bar—often at virtually zero marginal cost and with minimal human input—has exposed the limitations of a doctrine crafted for a pre-AI era. As generative systems become increasingly adept at mimicking human expression, the distinction between works deserving of copyright protection and those that merely reflect algorithmic reproduction has

¹²⁶ *Id.* at 362.

¹²⁷ COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES, *supra* note 11, at § 308.

¹²⁸ *Id.*

¹²⁹ See Lavik & Gompel, *supra* note 21; Robert Kirk Walker & Ben Depoorter, *Unavoidable Aesthetic Judgments in Copyright Law: A Community of Practice Standard*, 109 NW. U. L. REV. 343 (2014); Hughes, *supra* note 5; Gervais, *supra* note 70.

¹³⁰ *Feist*, 499 U.S. at 345. (“Original, as the term is used in copyright, means only that the work was independently created by the author (as opposed to copied from other works), and that it possesses at least some minimal degree of creativity.”).

¹³¹ *Id.* at 345–51; see *supra* Part III.

become blurred.¹³² This development challenges the underlying utilitarian rationale of copyright law, which is to incentivize and reward genuine creative contributions that promote the progress of science and the useful arts.¹³³

The persistence of a low originality threshold in the face of GenAI's capabilities risks both theoretical incoherency and practical inadequacy.¹³⁴ On one hand, it is incoherent to reward human authorship of works that could be effortlessly replicated by machines, as neither the labor involved nor the resulting public benefit justifies the grant of exclusive rights.¹³⁵ On the other hand, as GenAI substitutes for human creators in certain markets, the incentive for meaningful human contribution is diminished, potentially leading to creative stagnation due to a decline in the production of innovative works.¹³⁶ The continued application of the *Feist* standard, without adjustment for the realities of generative technology, threatens to undermine the constitutional objective of copyright law by failing to set incentives that meaningfully distinguish between trivial and substantial creative effort.

To meet the challenges posed by generative AI, copyright's eligibility threshold should be updated so that protection extends only to works whose creation genuinely requires more than de minimis human creativity. This can be achieved by instituting a *human-required* copyright eligibility standard, which reconceptualizes the longstanding "modicum of creativity" requirement as a dynamic, content-focused inquiry aligned with modern technological realities. Rather than asking who authored a work, the standard asks whether its creation demanded meaningful human expressive contribution—that is, creativity that a state-of-the-art generative model could not have supplied with minimal prompting at the time of authorship or registration.

Under this approach, works that GenAI can readily replicate with little to no substantive human involvement would fall outside the scope of copyright, regardless of whether a human or a machine produced them. Conversely, works that depend on human judgment, iteration, and creative constraint-setting—whether generated entirely by human hand or developed through human-directed use of GenAI tools—would continue to qualify for protection.

¹³² See, e.g., Cameron R. Jones & Benjamin K. Bergen, *Large Language Models Pass the Turing Test* (Mar. 31, 2025), <https://arxiv.org/pdf/2503.23674> [<https://perma.cc/C7B7-T73A>].

¹³³ *Supra* Part II.A.

¹³⁴ *Supra* Part III.

¹³⁵ *Supra* Part III.A.

¹³⁶ *Supra* Part III.B.

The economic rationale underpinning copyright law helps clarify how a heightened creativity threshold would improve copyright's theoretical coherence. According to this rationale, copyright's purpose is to address the classic market failure associated with the production of public goods, particularly information goods such as literary, artistic, and musical works.¹³⁷ Information goods are characterized by their non-rivalrous and non-excludable nature—once created, they can be consumed by many individuals without depletion and, absent legal intervention, are difficult to restrict from unauthorized use.¹³⁸ This dynamic leads to the so-called “free rider” problem, in which creators may lack sufficient incentive to invest time and resources into producing new works, knowing that others can copy and exploit their creations without compensation.¹³⁹ In response, copyright law grants a limited monopoly over original works, thereby ensuring that creators can capture enough value from their efforts to offset the costs of creation.¹⁴⁰ In this way, copyright operates as a policy lever to correct the underproduction of creative works that would otherwise result from their public goods characteristics, aligning private incentives with broader social welfare.

However, this market failure rationale dissolves in domains where generative AI enables the production of creative works at negligible marginal cost and with minimal human effort.¹⁴¹ When a generative model can effortlessly produce content that is functionally equivalent to human-authored works, the traditional justification for copyright's exclusive rights—ensuring adequate incentives for creation—no longer applies.¹⁴² In these contexts, there is no risk of the underproduction that copyright is meant to remedy; the supply of these works

¹³⁷ LANDES & POSNER, *supra* note 4.

¹³⁸ Julian Reiss, *Public Goods*, in THE STAN. ENCYCLOPEDIA OF PHIL. (Edward N. Zalta ed., Spring 2022 ed.), <https://plato.stanford.edu/archives/spr2022/entries/public-goods/> [<https://perma.cc/7N37-Q8ZB>].

¹³⁹ Mark A. Lemley, *Property, Intellectual Property, and Free Riding*, 83 TEX. L. REV. 1031, 1039 (2004).

¹⁴⁰ LANDES & POSNER, *supra* note 4, at 333–39.

¹⁴¹ This upsets the traditional economic model of copyright, which assumes high fixed costs of creation, but low marginal costs of reproduction. See *An Economic Analysis of Copyright Law*, *supra* note 10.

¹⁴² *Copyright and Creative Incentives*, *supra* note 39, at 451 (“The dominant justification for copyright in the United States is consequentialist.”).

is, in effect, infinite and unconstrained by resource-intensive creation.¹⁴³ Consequently, extending copyright protection to works that could be trivially generated by AI would not serve its utilitarian purpose, but instead risk introducing unnecessary monopolies and impeding, rather than promoting, the progress of science and the useful arts. Updating copyright standards to exclude such easily produced works would therefore restore doctrinal coherence, ensuring that legal protection is reserved for instances where it is necessary to remedy genuine market failures and to incentivize meaningful creative effort.

B. IMPLEMENTING A NEW CREATIVITY STANDARD

Reforming the copyright eligibility standard to establish a human-required threshold entails several procedural adjustments to the existing system. Because the standard is dynamic—keyed to the capabilities of generative models at a particular moment—the law must specify when that comparison is made and how the resulting determination fits within the registration and enforcement framework.¹⁴⁴ Two foundational changes are therefore required. First, the system must identify a clear eligibility date at which courts and litigants assess whether a work could have been generated with only *de minimis* human input by a state-of-the-art model. Second, to maintain administrative feasibility and to avoid introducing new formalities, the system should adopt a rebuttable presumption of copyright eligibility for newly created works.¹⁴⁵ This presumption preserves the longstanding principle of automatic protection, while allowing alleged infringers—when disputes arise—to demonstrate that a work falls below the human-required threshold.¹⁴⁶ These adjustments do not transform copyright into an examined or registration-dependent right. Instead, they structure the evidentiary lens through which the human-required standard can be applied in a manner compatible with existing domestic and international constraints.¹⁴⁷

¹⁴³ See Lucy Colback, *Will Generative AI Transform Business?*, FIN. TIMES, (Oct. 26, 2023), <https://www.ft.com/content/647fdf88-d757-45e4-a640-9654673b7ece> [<https://perma.cc/MJ2U-GAXR>] (Observing that AI appears “able to create entirely original work an infinite number of times”).

¹⁴⁴ *Infra* Part IV.B.1.

¹⁴⁵ *Infra* Part IV.B.2.

¹⁴⁶ See Berne Convention, *supra* note 25, § 5(2).

¹⁴⁷ See, e.g., Berne Convention, *supra* note 25; Berne Convention Implementation Act of 1988, Pub. L. No. 100-568, 102 Stat. 2853 (1988).

1. *Eligibility Dates*

Because the human-required standard is inherently dynamic, its implementation necessarily depends on identifying a clear eligibility date at which the comparative analysis is performed. This temporal anchor is essential because the capabilities of generative models are not fixed; they evolve rapidly and in a non-linear fashion as developers refine architectures, expand training datasets, and integrate new prompting and control mechanisms.¹⁴⁸ Since their emergence, state-of-the-art generative systems have progressed at a rapid pace—producing outputs of increasing fidelity, stylistic range, and semantic coherence, and doing so across a widening array of expressive domains.¹⁴⁹ A work that may require substantial human creativity today may, within a short period, be reproducible through trivial prompting as models advance. Conversely, a work that is trivially generable now may not have been so only months earlier.¹⁵⁰

For a copyright system attempting to allocate incentives rationally, these fluctuations matter. A static standard—one that asks only whether a work meets an abstract “modicum of creativity”—cannot account for the fact that what counts as “creative” depends in part on what machines can already do easily. Thus, any assessment of whether a work required meaningful human input must be tied to the technological capabilities at the moment of authorship or registration.¹⁵¹ Evaluating new works against the state of generative technology as it existed at the relevant eligibility date ensures that copyright incentives remain aligned with the actual creative landscape in which authors operate. It also avoids granting exclusive rights based on technological limitations that no longer exist. In this way, a dynamic standard not only reflects contemporary creative realities but also

¹⁴⁸ See Jason Wei et al., *Emergent Abilities of Large Language Models*, TRANSACTIONS ON MACH. LEARNING RSCH. (Aug. 2022) (describing the emergence of complex LLM capabilities as models scale up).

¹⁴⁹ See, e.g., *OpenAI Platform*, OPENAI, <https://platform.openai.com> [<https://perma.cc/H7AD-VJTF>]; *Models Overview*, CLAUDE API DOCS, <https://docs.anthropic.com/en/docs/about-claude/models/overview> [<https://perma.cc/4ZFE-YYTT>]; see also Epstein et al., *supra* note 16.

¹⁵⁰ For details on the rapid pace of AI development, see AI INDEX STEERING COMM., THE AI INDEX 2025 ANN. REP. (Stan. Univ. 2025), <https://arxiv.org/abs/2504.07139> [<https://perma.cc/W2FH-EBKX>].

¹⁵¹ Under current doctrine, copyright subsists at the moment of fixation. 17 U.S.C. § 102(a). Seeking to protect copyright via civil action currently requires registration or pre-registration. 17 U.S.C. § 411.

ensures that copyright remains responsive as generative systems continue to improve.

There are two obvious candidate dates at which to perform the eligibility analysis. The first would see copyright eligibility assessed as of the date on which a work was authored or “fixed in any tangible medium of expression.”¹⁵² Using the date-authored standard would be most accurate in terms of establishing the degree to which human input was required during the authorship process. However, it also raises challenging factual questions not unlike those raised in classic copyright litigation. The administratively simpler alternative would be to assess eligibility as at the date on which a work is registered at the copyright office.¹⁵³ Doing so would avoid difficult factual questions about when a work was authored. It would also provide an incentive for creators to register their works as quickly as possible after creation as the standard for copyright eligibility would only grow stricter as generative models continue to advance in the interim.

2. *A Presumption of Eligibility*

While conditioning copyright eligibility on the degree of human creative contribution would better align incentives with copyright’s utilitarian purpose,¹⁵⁴ it would also introduce a new layer of uncertainty into a system that has long treated eligibility as largely automatic and uncontroversial.¹⁵⁵ Under the status quo, originality is rarely litigated, and the threshold question of whether a work constitutes copyrightable subject matter rarely determines the outcome of a dispute.¹⁵⁶ A dynamic, technology-responsive eligibility standard—one that requires comparing the human contribution to the capabilities of generative models at a particular point in time—necessarily demands more factual analysis than the traditional “modicum of creativity” test. This shift, while normatively desirable, risks reducing the predictability and administrative simplicity that copyright owners have come to expect.

To prevent that uncertainty from imposing undue burdens on creators or chilling legitimate creative activity, the system should incorporate a rebuttable

¹⁵² 17 U.S.C. § 102(a).

¹⁵³ See, e.g., *id.* § 408.

¹⁵⁴ *Supra* Part II.A.

¹⁵⁵ 17 U.S.C. § 102(a) (copyright currently subsists automatically upon fixation).

¹⁵⁶ Mark A. Lemley, *Our Bizarre System for Proving Copyright Infringement*, 57 J. COPYRIGHT SOC’Y USA 719 (2009) (demonstrating the central importance of substantial similarity in copyright litigation rather than subject matter or originality).

presumption of copyright eligibility. This presumption, triggered upon registration with the Copyright Office, preserves the longstanding principle of automatic protection while allowing courts to apply the human-required standard only when the question is meaningfully contested.¹⁵⁷ Under this approach, creators need not prove at the moment of creation or registration that their work exceeds the de minimis threshold of human input. Instead, eligibility would be presumed unless and until an alleged infringer raises the issue in litigation, at which point the presumption can be overcome with evidence that the work could have been produced by a state-of-the-art generative model with minimal human effort at the relevant date. Evidence could include: (a) archived model snapshots and prompts if used in the creative process; (b) expert testimony reproducing the work's salient expressive features and the degree to which they could or could not be replicated with minimal human creativity;¹⁵⁸ and (c) information about contemporaneous model capabilities.¹⁵⁹ Doing so would establish an affirmative defense and negate claims to copyright protection in the allegedly infringed work. This structure maintains administrative ease for most works, while ensuring that the legal system retains the capacity to withhold protection from works that do not genuinely require copyright's incentives.

C. CHALLENGES TO IMPLEMENTATION

There are practical and technical challenges that would need to be overcome to institute a *human required* copyright eligibility standard. These include practical challenges in obtaining access to generative models in a manner that would allow estimating the amount of human input required to generate a given work, as well as technical challenges in determining the appropriate method

¹⁵⁷ This analogizes to copyright law's current approach to registration which allows for registration within 5 years to serve as "prima facie evidence of the validity of . . . copyright." 17 U.S.C. § 410(c).

¹⁵⁸ Expert testimony currently figures prominently in many copyright disputes. *See generally*, Edward Lee & Andrew Moshirnia, *Do Experts Matter? A Study of the Effect of Musicologist Testimony in Music Cases*, 2022 U. ILL. L. REV. 707 (2022) (documenting the routine use of musicologist expert testimony in music copyright litigation, even while questioning its influence on jury outcomes); *see generally*, Lemley, *supra* note 156.

¹⁵⁹ For an example of how models capabilities are currently measured, *see* Percy Liang et al., *Holistic Evaluation of Language Models*, TRANSACTIONS ON MACH. LEARNING RSCH. (Aug. 23, 2023), <https://openreview.net/forum?id=iO4LZibEqW> [<https://perma.cc/5HFG-KAL4>].

to estimate required human input. There are also difficult legal questions and challenges that would need to be addressed, including establishing just where the line is between de minimis and substantial human effort, as well as international agreements that constrain legal authority to limit copyright eligible subject matter.

1. *Evidentiary Challenges*

Access to models necessary to determine the degree of human input required could be legislatively mandated or left to the market. In a mandated scenario, the Copyright Act could be revised to require that model owners desiring eligibility for content created using their model must provide access necessary to estimate the degree of human input in generated works. This, though, is perhaps overly complicated, and a market-based solution may just as effectively solve the need for model access.

Under a market-based model access framework, the copyright system would rely on the demand produced by copyright owners and alleged infringers for evidence to either support copyright claims or defend against infringement suits. The demand produced by actors on both sides of the copyright ledger would provide a market for model access and insight. In some ways, this approach would parallel the current copyright infringement suit dynamic, in which expert testimony is often required to provide evidence as to whether a particular work infringes or not.¹⁶⁰

The implementation of a copyright eligibility standard based on whether a work could be produced with de minimis human effort would incentivize the development of a new market to provide archives and access to generative AI models. As the determination of copyright eligibility under this standard would hinge on the capabilities of state-of-the-art generative models at a given point in time, both creators and alleged infringers would require reliable, retrospective evidence of what content could be generated with minimal prompting or input at a given point in time. This evidentiary demand would incentivize the emergence of firms dedicated to archiving generative models and maintaining records of their capacities, version histories, and output parameters. Such firms could offer fee-based access to their archives, enabling litigants, copyright registrants, and courts to empirically assess whether a particular work meets the *human required* creativity threshold. In this way, the market for model archiving and access would serve as a practical infrastructure for instituting the proposed standard.

¹⁶⁰ See Lemley, *supra* note 156; see also Pamela Samuelson, *A Fresh Look at Tests for Nonliteral Copyright Infringement*, 107 Nw. U.L. REV. 1821 (2012).

2. *International Treaties as Constraints on a Human-Required Creativity Standard*

Recalibrating copyright eligibility to require more-than-de minimis human creativity must be considered within the international framework that binds U.S. law. Since adherence to the Berne Convention and the World Trade Organization, U.S. copyright operates under the combined “Berne/TRIPS” architecture, which sets minimum standards, forbids formalities as a condition of protection, and incorporates key Berne provisions into WTO obligations.¹⁶¹ These commitments complicate any reform that appears to condition the subsistence of rights on evidentiary showings about process, provenance, or the comparative capabilities of generative systems. Nevertheless, when carefully designed as a substantive limitation on protected subject matter—rather than as a procedural precondition—the proposed human-creativity threshold can be reconciled with treaty obligations.

Article 5(2) of the Berne Convention states that copyright protection “shall not be subject to any formality,” and that authors enjoy protection independent of compliance with procedures in the country where protection is claimed.¹⁶² As WIPO guidance explains, the prohibition targets conditions precedent to the existence of rights—such as registration, deposit, or notice—rather than substantive limits on what constitutes a protected “work”.¹⁶³ Thus, member states may define originality or authorship standards without contravening Article 5(2), provided protection, where available, vests automatically upon fixation.

A dynamic standard that asks whether a work could have been produced by state-of-the-art AI at the relevant date might, if implemented as an examination or registration requirement, be cast as a de facto formality. But Berne does not forbid litigation-stage doctrines that negate protection for works failing to satisfy originality, authorship, or merger/scènes à faire limits.¹⁶⁴ If the human-creativity inquiry functions analogously, as an affirmative defense or substantive element adjudicated in infringement actions, Article 5(2) poses no categorical bar.

¹⁶¹ See generally Berne Convention, *supra* note 25; Agreement on Trade-Related Aspects of Intellectual Property Rights art. 9(1), Apr. 15, 1994, Annex 1C, 1869 U.N.T.S. 1197, 1199 [hereinafter TRIPS].

¹⁶² Berne Convention, *supra* note 25.

¹⁶³ WORLD INTELL. PROP. ORG., GUIDE TO THE BERNE CONVENTION FOR THE PROTECTION OF LITERARY AND ARTISTIC WORKS (PARIS ACT, 1971) 33 (1978).

¹⁶⁴ *Id.*; see also PAUL GOLDSTEIN & P. BERNT HUGENHOLTZ, INTERNATIONAL COPYRIGHT: PRINCIPLES, LAW, AND PRACTICE 217 (2d ed. 2010).

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) incorporates Berne Articles 1–21 (except the moral rights provisions) into WTO obligations,¹⁶⁵ and requires protection for expressions while guaranteeing national treatment and most-favored-nation status.¹⁶⁶ TRIPS sets floors, not ceilings: it does not mandate protection for low-creativity works, nor does it preclude member states from adopting a more demanding originality threshold, so long as such standards are applied even-handedly and do not reintroduce prohibited formalities.¹⁶⁷

Crucially, TRIPS leaves the definition of “author” and “work” to domestic law, consistent with Berne’s long-standing practice.¹⁶⁸ As a result, a U.S. interpretation of “original works of authorship” that excludes outputs trivially generable with minimal human input would fit within the leeway preserved by TRIPS, provided protection vests automatically for eligible works and foreign authors receive equal treatment.¹⁶⁹

International copyright instruments neither define “originality” nor require a particular quantum of creativity. Civil-law jurisdictions often employ the “author’s own intellectual creation” test; common-law systems often apply variants of “skill and judgment” or “modicum of creativity.”¹⁷⁰ The heterogeneity of domestic standards underscores the systemic tolerance for national calibration of protected subject matter. Moreover, domestic courts already apply context-sensitive, technology-aware analyses in highly constrained domains (e.g.,

¹⁶⁵ TRIPS, *supra* note 161, at 1201 (incorporating Berne arts. 1–21, except art. 6bis).

¹⁶⁶ *Id.* at 1199–1201.

¹⁶⁷ See Paul Vandoren, *The Implementation of the TRIPS Agreement*, 2 J. WORLD INTELL. PROP. 25, 27–28 (1999) (detailing the “minimum standards” nature of TRIPS.); MIHÁLY FICSOR, GUIDE TO THE COPYRIGHT AND RELATED RIGHTS TREATIES ADMINISTERED BY WIPO AND GLOSSARY OF COPYRIGHT AND RELATED RIGHTS AND TERMS 23 (2003) (describing the international variation in originality standards).

¹⁶⁸ See Berne Convention, *supra* note 25 (incorporating no definition of “author”); TRIPS, *supra* note 161, at 1201 (incorporating no definition of “author” or “originality”).

¹⁶⁹ See TRIPS, *supra* note 161, at 1201 (requiring even-handed application).

¹⁷⁰ See, e.g., Case C-5/08, *Infopaq Int’l A/S v. Danske Dagblades Forening*, ECLI:EU:C:2009:465, ¶ 35 (July 16, 2009) (describing author’s own intellectual creation standard in EU law); *CCH Canadian Ltd. v. Law Soc’y of Upper Canada*, [2004] 1 S.C.R. 339, 341 (Can.) (describing the skill and judgment standard).

software interfaces, architectural works, and compilations), without raising Berne/TRIPS concerns.¹⁷¹

The novelty of the human-required creativity threshold proposal lies in its dynamic character: it asks whether, at a given eligibility date, state-of-the-art models could trivially produce the work with de minimis human input. International law does not bar adaptive tests.¹⁷² What it disfavors are mechanisms that condition vesting on administrative vetting.¹⁷³ Implemented as a substantive rule adjudicated ex post, akin to originality or merger, this fits within the international paradigm.¹⁷⁴ Three design choices of the human-required standard enable compliance with international law. First, the human-creativity inquiry should be treated as a litigation-stage doctrine. U.S. law already presumes subsistence upon fixation and allows defendants to contest originality or authorship; a no-human-required defense operates in the same manner.¹⁷⁵ Second, the rule should be articulated as an interpretation of “original works of authorship” under domestic law, rather than as a registration filter; Congress has repeatedly adjusted subject-matter contours while remaining within Berne/TRIPS bounds.¹⁷⁶ Third, policymakers should pursue multilateral clarification through WIPO/WTO fora, to help effect widespread adoption of AI-responsive originality standards and to establish international consistency on this point.¹⁷⁷

¹⁷¹ See, e.g., *Comput. Assocs. Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 706–12 (2d Cir. 1992) (explaining copyright infringement in the context of software structure, sequence, and organization); *Meshwerks, Inc. v. Toyota Motor Sales U.S.A., Inc.*, 528 F.3d 1258, 1263–67 (10th Cir. 2008) (explaining originality in the context of digitalizations).

¹⁷² See Berne Convention, *supra* note 25.

¹⁷³ See *id.* (barring formalities, but allowing for variation between member states in the extent of protection).

¹⁷⁴ WORLD INTELL. PROP. ORG., *supra* note 163, at 33–34.

¹⁷⁵ See 17 U.S.C. § 102(a) (requiring subsistence upon fixation); *cf. Feist*, 499 U.S. at 346–51 (explaining originality is a constitutional prerequisite to obtain copyright protection).

¹⁷⁶ See Berne Convention Implementation Act of 1988, Pub. L. No. 100-568, 102 Stat. 2853; *cf.* 17 U.S.C. § 104(c) (explaining effects of Berne on US copyright).

¹⁷⁷ See WIPO Standing Comm. on Copyright & Related Rights (SCCR), Statements prepared by the Secretariat, SCCR/44/INF/STATEMENTS (Nov. 6–8, 2023) (noting increasing AI discussions and illustrating multilateral fora for guidance).

In sum, Berne and TRIPS constrain the means of reform more than its ends. They bar formalities that condition vesting and require equal treatment of foreign authors, but they leave ample space to define what counts as a protected “work.”¹⁷⁸ A dynamic, content-focused human-creativity threshold—implemented as a substantive rule and adjudicated *ex post*—falls within that space and offers a treaty-compliant path to re-anchoring copyright’s incentive mechanism in a post-GenAI creative economy.

3. *Authenticity vs. Copyright*

The adoption of a copyright eligibility standard focused on the degree of human creativity or effort raises an important question for artistic practices in which authorship is understood less as a sequence of deliberate expressive choices and more as a process, performance, or methodology.¹⁷⁹ Certain forms of modern and contemporary art—exemplified by Jackson Pollock’s drip paintings,¹⁸⁰ works of chance-based composition in the lineage of John Cage,¹⁸¹ and various strands of conceptual or procedural art—challenge the assumption that creativity must be reflected in discernible, intentional expressive decisions embedded in the final work. In these traditions, artistic value often resides in the act or system of creation rather than in the discrete expressive features of the resulting object.¹⁸² A surface-level application of the human-required standard might therefore raise concerns that such works, which incorporate degrees of indeterminacy or automatism, could be deemed to embody only *de minimis* human creativity and thereby fall outside the ambit of copyright protection.

However, a closer examination suggests that these concerns are overstated and, ultimately, that the incentives supporting such artistic practices are largely orthogonal to copyright’s economic logic. Even where chance-based or process-driven works lack conventionally traceable expressive decisions, they are

¹⁷⁸ See Berne Convention, *supra* note 25 (requiring national treatment and barring formalities); Thomas Dreier & Gunnar W. G. Karnell, *Originality of the Copyrighted Work: A European Perspective*, 39 J. COPYRIGHT SOC’Y USA 289 (1992) (noting the silence of Berne on providing a definition of “original”).

¹⁷⁹ See Harold Rosenberg, *The American Action Painters*, 51 ART NEWS 22 (1952).

¹⁸⁰ See generally, DEBORAH SOLOMON, JACKSON POLLOCK: A BIOGRAPHY 178–79 (CSP-Cooper Square Press 2001).

¹⁸¹ See JAMES PRITCHETT, THE MUSIC OF JOHN CAGE 70 (Cambridge Univ. Press 1996).

¹⁸² See Amy Adler, *Why Art Does Not Need Copyright*, 86 GEO. WASH. L. REV. 313, 324 (2018).

rarely valued—or monetized—based on exclusive rights to reproduce the resulting output. Instead, the primary sources of their value lie in authenticity, provenance, artistic identity, and the ontological status of the work as part of a recognized artistic practice.¹⁸³ The art market has long rewarded the originality of method even when the resulting artifacts display limited expressive distinctiveness.¹⁸⁴ A Pollock drip painting, for example, is valuable not because it is protected by copyright or because it contains highly deliberate compositional choices, but because it is a Pollock: an authenticated version of a distinctive artistic gesture, imbued with cultural, historical, and market significance.¹⁸⁵ Neither collectors nor institutions primarily derive value from the exclusionary rights guaranteed by copyright; rather, value flows from the piece's status as the product of Pollock's hand and practice, a status that copyright cannot meaningfully replicate or replace.

Ultimately, while the human-required standard may alter the formal copyright status of certain process-driven or chance-based works, it does not meaningfully undermine the incentives that motivate their creation. These practices do not depend on copyright to flourish, and their economics remain largely independent of copyright's incentive mechanisms.¹⁸⁶ As a result, concerns that a heightened creativity threshold would distort or suppress such artistic modes are largely unfounded. The standard primarily narrows protection where copyright's incentives are unnecessary, while leaving unaffected artistic traditions whose creative vitality rests on forms of value—authenticity, identity, and interpretive resonance—that copyright is not intended to supply.

4. *Line Drawing*

A central challenge of any heightened creativity standard is the inevitable line-drawing problem: distinguishing works that reflect substantial human authorship from those requiring only minimal human effort because generative systems can produce functionally equivalent outputs. Copyright law has long

¹⁸³ *Id.*

¹⁸⁴ *Id.* fn. 10.

¹⁸⁵ See Annie Ochmanek, *Jackson Pollock*, MUSEUM OF MODERN ART (2016), <https://www.moma.org/artists/4675-jackson-pollock> [<https://perma.cc/D6KK-U9EV>].

¹⁸⁶ Adler, *supra* note 182, at 330.

drawn analogous lines—between ideas and expression,¹⁸⁷ between scènes à faire or merged elements and protectable expression,¹⁸⁸ and between faithful reproductions and creative interpretations.¹⁸⁹ The proposed human-required standard relocates these familiar inquiries to a new factual context shaped by the capacities of generative models. As with originality generally, the question is not whether the author labored, but whether the resulting work embodies a meaningful degree of creative choice,¹⁹⁰ while courts remain mindful of aesthetic neutrality.¹⁹¹

One principled way to draw the line is to distinguish creatively contingent expression from mechanically inevitable expression. “Creative contingency” refers to expressive features that emerge from choices among genuinely available alternatives—choices a human author exercises intentionally to produce particular effects. “Mechanical inevitability” encompasses features that any actor—human or machine—would produce when given the same generic prompt, constraints, or instructions. Existing doctrine already embodies this distinction: courts withhold protection from elements dictated by efficiency, convention, or function (merger and scènes à faire),¹⁹² and from outputs that are mere faithful reproductions of underlying subject matter.¹⁹³ Applied to GenAI, outputs that contemporaneous state-of-the-art models predictably yield from generic prompts should fall on the “mechanically inevitable” side of the line; by contrast, outputs reflecting human

¹⁸⁷ See *Baker v. Selden*, 101 U.S. 99, 103–04 (1879) (ideas, methods, systems not protected; only expression); TRIPS, *supra* note 161, art. 9(2) (protecting expressions, not ideas).

¹⁸⁸ See, e.g., *Comput. Assocs. Int’l*, 982 F.2d at 706–12 (abstraction–filtration–comparison); *Satava v. Lowry*, 323 F.3d 805, 812–13 (9th Cir. 2003) (elements dictated by nature or convention are not copyright eligible).

¹⁸⁹ See *Bridgeman Art Libr., Ltd. v. Corel Corp.*, 36 F. Supp. 2d 191, 197–200 (S.D.N.Y. 1999) (slavish photographic reproductions of public-domain works lack originality); *Meshwerks*, 528 F.3d at 1267 (digitizations that lack creative choices are not copyright eligible).

¹⁹⁰ *Feist*, 499 U.S. at 340 (originality requires independent creation and a degree of creativity).

¹⁹¹ *Bleistein v. Donaldson Lithographing Co.*, 188 U.S. 239, 251 (1903) (courts should not be art critics; aesthetic neutrality).

¹⁹² See *Comput. Assocs. Int’l*, 982 F.2d at 706–12; *Satava*, 323 F.3d at 812–13.

¹⁹³ *Bridgeman Art Libr.*, 36 F. Supp. 2d at 197–200; *Meshwerks*, 528 F.3d at 1265–67.

constraint-setting, selection, and transformation belong on the “creative contingency” side.¹⁹⁴

This reframing clarifies “how much is enough.” A heightened threshold should not reward the mere presence of human involvement (e.g., typing a verbose prompt). Rather, the inquiry should ask whether the human contribution meaningfully shapes, steers, or constrains the expressive qualities of the output in ways models would not trivially replicate without substantial human intervention. That standard follows from the constitutional originality requirement—protection extends to the author’s own intellectual conception, not to sweat-of-the-brow labor,¹⁹⁵ and it is consistent with longstanding recognition of authorship where human choices under constraint create expression (as in photography).¹⁹⁶ Administrative practice likewise directs attention to the human-authored portions of hybrid works and the disclosure of unprotectable machine-generated material.¹⁹⁷

Operationally, the line should be drawn around the locus of expressive control: a human author contributes when they impose constraints, select among divergent expressive trajectories, and revise outputs according to a creative vision—rather than merely accepting or minimally tweaking default suggestions. The analogy to photography is instructive: creative decisions about composition, light, pose, timing, and angle transform a mechanically captured scene into authored expression,¹⁹⁸ whereas slavish duplication or neutral digitization does not.¹⁹⁹

Finally, line-drawing should be dynamically calibrated rather than reduced to rigid categories. Because generative models improve, what counts as

¹⁹⁴ *Feist*, 499 U.S. at 341 (selection and arrangement reflect creativity); *see also* Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence, 88 Fed. Reg. 16190, 16191 (2023) (Mar. 16, 2023) (copyright extends to human-authored contributions).

¹⁹⁵ *Feist*, 499 U.S. at 352–54 (rejecting sweat-of-the-brow).

¹⁹⁶ *Burrow-Giles*, 111 U.S. at 60–61 (photograph protectable due to photographer’s choices); *see also* *Bleistein*, 188 U.S. at 250.

¹⁹⁷ Copyright Registration Guidance: Works Containing Material Generated by Artificial Intelligence, 88 Fed. Reg. at 16191 (requiring disclosure of AI-generated material and identifying human contributions for registration); COMPENDIUM OF U.S. COPYRIGHT OFFICE PRACTICES, *supra* note 11 § 313.2.

¹⁹⁸ *Burrow-Giles*, 111 U.S. at 60–61.

¹⁹⁹ *Bridgeman*, 36 F. Supp. 2d at 197–200 (slavish copies); *Meshwerks*, 528 F.3d at 1265–67 (neutral digitization).

“trivially generable” will expand over time. Courts need not fix exhaustive lists of protected or unprotected genres *ex ante*; instead, they should apply a flexible, fact-sensitive inquiry centered on (1) the expressive significance of the human contribution and (2) the comparative ease with which similar outputs could be generated at the relevant eligibility date with minimal effort. That approach is analogous with the case-by-case evaluation of originality and derivative-work authorship in other domains,²⁰⁰ and it keeps incentives targeted to the margin where they do work—encouraging new human creative expression rather than conferring exclusive rights over default, easily automated outputs.

V. CONCLUSION

The emergence of generative artificial intelligence confronts copyright law with a challenge more profound than those posed by past technological developments. Unlike photography, broadcasting, or digital distribution—each of which required adjustments at the doctrinal margins—GenAI strikes at the core of copyright’s utilitarian foundation by enabling the production of high-quality expressive works at effectively zero marginal cost and with minimal human input. This transformational shift destabilizes two pillars of the existing system: the coherence of originality doctrine and the incentive structure that has long justified copyright’s grant of exclusive rights. The current low “modicum of creativity” threshold, developed for a pre-AI world in which human labor was a necessary component of creative output, no longer reliably distinguishes between works that require incentives to be produced and those that do not. Without reform, copyright law risks collapsing into a regime that inconsistently rewards human effort, inefficiently allocates monopolies, and inadvertently accelerates the stagnation of human creative participation in key markets.

This Article has argued that the most consequential risk posed by GenAI is not simply unauthorized copying during training or the authorship status of AI-generated works, but the structural misalignment that arises when human- and machine-produced works are treated differently despite being substantively indistinguishable. The resulting incoherence undermines the constitutional objective of promoting progress. The law simultaneously withholds protection from AI-generated works on the ground that no incentive is needed for their production yet continues to extend protection to materially identical human-generated works, even where human authorship has contributed little beyond trivial prompting. As the gap between human and machine expressive

²⁰⁰ See, e.g., *Feist*, 499 U.S. at 348–51 (fact-specific originality); *Gracen v. Bradford Exchange*, 698 F.2d 300, 304–05 (7th Cir. 1983) (derivative work must contain sufficient incremental originality).

capacity narrows, this identity-based distinction becomes increasingly untenable. A copyright system centered on utilitarian aims must instead turn its attention to the nature of the work, not the identity of its creator.

The analysis further demonstrates that GenAI threatens dynamic harms that compound over time. As generative systems increasingly supply high-volume, commoditized creative outputs, human creators face shrinking rents in markets traditionally sustained by copyright incentives. When human participation becomes economically irrational in these markets, production of new human-created works diminishes—reducing the supply of fresh, high-signal training data to be used in future model development. In the long run, this dynamic risks trapping creative markets in a state of aesthetic stasis, where the future evolution of expressive forms depends not on ongoing human experimentation but on the iterative recombination of a fixed historical dataset. Copyright—historically slow to intervene in questions of artistic direction—suddenly occupies a pivotal position in shaping whether creative markets continue to evolve.

To address both the doctrinal and economic problems posed by GenAI, this Article has proposed a recalibration of the originality standard: a human-required creativity threshold. Under this standard, copyright protection would attach only to works that, at the relevant eligibility date, could not have been produced by state-of-the-art generative models with *de minimis* human input. Works that are trivially generable—whether produced by a human or a machine—would fall outside the scope of protection. Those that require nontrivial human creativity, even when GenAI is used as a tool, would remain eligible. This approach restores theoretical coherence by ensuring that copyright serves its intended purpose: incentivizing the creation of works that would not exist without legal protection.

Operationalizing this standard requires careful attention to implementation. A rebuttable presumption of copyright eligibility maintains consistency with Berne/TRIPS by avoiding formalities, while an affirmative defense of trivial generability—adjudicated *ex post* in litigation—targets protection where it is needed most. Line-drawing is admittedly complex, but not conceptually novel. Courts routinely distinguish protectable expression from unprotectable ideas, conventions, and constraints; they assess creative contributions in derivative works; they parse human authorship in photography, software, choreography, and other hybrid forms. The proposed standard extends these familiar inquiries into a new technological environment, guided by evidence of expressive control, iterative decision-making, and the comparative capacities of generative models at the time of creation.

Ultimately, the human-required standard offers a path to preserving the essential function of copyright in a post-GenAI world. It protects incentives where they matter, avoids monopolizing content that markets can supply efficiently without protection, and helps sustain human participation in creative labor markets crucial for cultural evolution. By anchoring copyright in the realities of contemporary creative production, the proposal ensures that the law continues to promote—not merely memorialize—the progress of science and the useful arts. GenAI will continue to reshape creative industries, but with a more finely tuned originality threshold, copyright law can remain a meaningful, rational, and future-oriented component of that evolving landscape.

