

Human Creative Control as a Legal Threshold for Copyright Protection in AI-Assisted Works

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Abstract

Artificial intelligence systems are increasingly embedded in creative processes across literature, music, visual arts, and software development, challenging long-standing assumptions about authorship and originality. At a broad level, this technological shift has prompted renewed legal debate over the foundations of copyright law, particularly the requirement that protected works reflect human intellectual effort rather than purely mechanical generation. Jurisdictions worldwide are grappling with how to accommodate AI-assisted creation without undermining core copyright principles or stifling innovation. This article examines human creative control as a defining legal threshold for copyright protection in AI-assisted works. It situates the discussion within traditional doctrines of originality, authorship, and fixation, tracing how courts and policymakers have historically linked copyright eligibility to demonstrable human choice, judgment, and expressive intent. Against this backdrop, the analysis explores emerging models of AI-assisted creativity, ranging from tools that merely enhance human expression to systems capable of autonomously generating expressive content. The article narrows its focus to the legal significance of creative control exercised before, during, and after the use of AI systems. It evaluates factors such as prompt design, parameter selection, curatorial decision-making, and post-generation modification as potential indicators of human authorship. By comparing evolving regulatory approaches and judicial reasoning, the article argues that copyright protection should hinge not on the presence of AI, but on whether a human meaningfully controls the creative process and bears responsibility for the expressive outcome. This framework offers a principled path for preserving copyright's human-centered foundation while adapting to AI-augmented creativity. It contributes to ongoing debates by proposing a balanced doctrinal standard capable of guiding courts, creators, and policymakers amid accelerating technological change globally today.

Keywords: Human authorship; Creative control; AI-assisted works; Copyright law; Originality; Intellectual property

1. Introduction to AI-assisted creativity and the crisis of authorship

1.1. Generative AI and the Transformation of Creative Production

Generative artificial intelligence has rapidly transformed creative production across literature, visual arts, music, design, and software development [1]. Systems capable of producing expressive content now operate at scales and speeds previously unattainable through human effort alone, reshaping how creative works are conceived, generated, and disseminated [2]. These developments challenge long-standing copyright assumptions that creative expression is the direct result of individual human intellect and labor.

Traditionally, copyright law presumes a causal link between a human author's creative choices and the resulting expressive work [3]. Generative AI disrupts this relationship by introducing algorithmic processes that can

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independently generate expressive elements once prompted or configured. As AI systems increasingly participate in content generation, the boundary between human authorship and machine output becomes less distinct [4].

This transformation raises fundamental legal questions. If expressive content emerges from probabilistic models trained on vast datasets, can it still be said to originate in human creativity? The issue is not merely technological but doctrinal, implicating originality, authorship, and ownership principles embedded within copyright law [5]. Courts and administrative bodies are therefore confronted with determining whether, and under what conditions, AI-assisted works merit copyright protection. These challenges underscore the need to reassess how creative agency is identified and evaluated in environments where human intention and machine autonomy increasingly intersect [6].

1.2. From Tool Use to Autonomous Generation: Why Control Matters

Historically, copyright law has accommodated technological tools that assist human creativity without questioning authorship. Cameras, musical instruments, and digital editing software have long been treated as neutral extensions of human expression [7]. In these contexts, tools amplify creative capacity but do not replace human judgment, selection, or expressive intent.

Generative AI represents a qualitative shift from traditional tools. Unlike deterministic instruments, AI systems can autonomously generate expressive outputs that are not directly traceable to specific human decisions [8]. This autonomy complicates attribution of authorship, as the human role may be limited to initiating or guiding a process rather than determining its expressive outcome.

Control therefore emerges as a critical concept. Legal systems must distinguish between human-directed creativity and machine-driven generation [9]. Where a human meaningfully controls the creative process by shaping inputs, constraining outputs, or selecting and modifying results the resulting work may still reflect human authorship. Conversely, where control is attenuated, copyright protection becomes difficult to justify [10].

This distinction is essential to preserving copyright's human-centered foundation while accommodating technological evolution [5]. Without a principled focus on creative control, copyright risks either overextending protection to machine-generated expression or unduly excluding legitimate human creativity enhanced by AI.

1.3. Objectives, Scope, and Structure of the Article

This article examines human creative control as a legal threshold for copyright protection in AI-assisted works. Its central objective is to articulate how control, rather than mere use of AI, should determine whether a work qualifies for copyright protection [1]. The analysis focuses on the degree to which human judgment, intention, and expressive decision-making shape the creative outcome.

The scope of the article is doctrinal and comparative. It examines copyright principles relating to authorship and originality, analyzes administrative and judicial treatment of AI-assisted works, and evaluates emerging legal standards across jurisdictions [11]. The article does not address technical implementation of AI systems but instead concentrates on legal interpretation and policy implications.

The structure proceeds logically from foundational concepts to applied analysis. Following this introduction, subsequent sections explore copyright doctrine, categories of AI-assisted creation, and the emergence of control-based reasoning in legal decision-making. The article concludes by proposing a coherent framework for operationalizing human creative control in copyright law, offering guidance for courts, regulators, and creators navigating AI-augmented creativity [9].

2. Copyright foundations: authorship, originality, and human creativity

2.1. The Human Authorship Requirement in Copyright Law

The requirement of human authorship has long been a foundational principle of copyright law, rooted in the premise that protected works must originate from human intellectual activity. Historically, courts and legislatures have treated authorship as inseparable from human agency, reflecting the view that copyright exists to reward and encourage human creativity [9]. This assumption is embedded in statutory language, judicial interpretation, and administrative practice, even where statutes do not explicitly define "author."

Normatively, the human authorship requirement is justified by copyright's instrumental goals. Copyright seeks to incentivize creative labor, promote cultural development, and recognize the moral and economic interests of creators [12]. These objectives presuppose a human subject capable of intention, judgment, and responsibility. Without a human author, the rationale for granting exclusive rights becomes conceptually unstable.

Judicial decisions have reinforced this position by rejecting claims to copyright protection for works produced without meaningful human involvement [7]. Such refusals underscore the idea that authorship entails more than causal contribution; it requires creative agency. Administrative bodies have similarly emphasized that copyright subsists only where a human exercises creative control over the expressive elements of a work [14].

As generative technologies evolve, the persistence of the human authorship requirement serves as a doctrinal anchor. It provides a normative boundary that distinguishes protected expression from purely mechanical or autonomous production, ensuring that copyright remains centered on human creativity rather than technological output [10].

2.2. Originality, Creative Choice, and Intellectual Effort

Originality functions as the doctrinal mechanism through which human authorship is assessed in copyright law. Courts have consistently defined originality as requiring independent creation and a minimal degree of creativity, both of which presuppose human intellectual effort [8]. This standard does not demand artistic merit but does require that a work reflect creative choices attributable to a human author.

Judicial analysis of originality frequently focuses on evidence of selection, coordination, and arrangement, viewing these acts as manifestations of human judgment [13]. Where expressive elements result from deliberate choice rather than automatic or random processes, originality is more readily established. Conversely, outputs generated through purely mechanical or predetermined processes are often denied protection due to lack of creative discretion.

Intellectual effort plays a central role in this analysis. Courts examine whether the author exercised control over expressive outcomes, rather than merely triggering a process that produced them [15]. This distinction is critical in cases involving automated systems, where the presence of effort alone may be insufficient absent demonstrable creative judgment.

Originality doctrine thus operates as a proxy for human creativity. By linking protection to expressive choice, copyright law filters out works lacking meaningful human input. As AI-assisted creation becomes more prevalent, the originality requirement increasingly serves as a doctrinal lens through which courts assess whether human creative agency remains present in the production process [11].

2.3. Tools, Automation, and the Limits of Copyright Protection

Copyright law has historically accommodated the use of tools and technologies in the creative process without undermining authorship. Mechanical devices such as cameras, printing presses, and digital editing software have been treated as instruments through which human creativity is expressed [7]. In these contexts, the tool does not diminish authorship because the human retains control over expressive decisions.

However, courts have drawn limits where automation supplants creative judgment. Early cases involving mechanical reproduction and algorithmic processes illustrate judicial reluctance to extend protection to outputs generated without human discretion [14]. The key distinction lies in whether technology executes human choices or independently determines expressive form.

Automated systems that operate deterministically within parameters set by humans have generally been viewed as permissible tools [10]. By contrast, systems that generate expressive content through autonomous processes challenge this framework. As automation increases, the causal link between human intention and expressive outcome weakens, raising doubts about authorship.

This historical treatment reveals a continuum rather than a binary distinction. At one end lies direct human control, where technology merely facilitates expression. At the other lies autonomous generation, where human involvement is attenuated or absent [12]. Copyright protection has traditionally receded as one moves toward the latter.

Understanding this continuum is essential for evaluating AI-assisted works. It provides doctrinal grounding for assessing when automation crosses a threshold beyond which copyright protection is no longer justified, reinforcing the importance of human creative control as a limiting principle [15].



Figure 1 Continuum of creative production from human control to machine autonomy

3. AI-assisted creation and emerging legal uncertainty

3.1. Categories of AI Involvement in Creative Processes

AI involvement in creative processes can be analytically grouped into three broad categories: assistance, augmentation, and autonomous generation. These categories reflect increasing degrees of machine agency and decreasing levels of direct human control, providing a useful framework for legal analysis [15].

AI assistance refers to systems that support human creativity without determining expressive outcomes. Examples include grammar correction tools, image enhancement software, and generative suggestions that remain subordinate to human choice [18]. In these cases, AI functions as a facilitative instrument, and the human author retains decisive control over content selection, modification, and final expression.

AI augmentation occupies a middle ground. Here, systems generate expressive material based on human prompts or parameters, but the outputs are shaped through iterative interaction, curation, and post-generation editing [13]. The human role is less direct than in traditional tool use, yet still influential in determining the final work. This category poses the greatest doctrinal difficulty, as creative agency is distributed across human and machine contributions.

Autonomous generation describes systems capable of producing expressive works with minimal or no ongoing human involvement once activated [20]. In such cases, outputs may not be traceable to specific human creative decisions beyond initial system deployment. From a legal perspective, this model most strongly challenges the human authorship requirement.

Distinguishing among these categories clarifies the degree of human creative control present in AI-assisted works. Rather than treating AI involvement as a binary condition, this typology highlights gradations of agency that are central to evaluating copyright eligibility [16].

3.2. Judicial and Administrative Responses to AI-Generated Works

Judicial and administrative bodies have responded to AI-generated works with cautious and often fragmented approaches. Courts have generally reaffirmed the necessity of human authorship, denying protection where works lack demonstrable human creative input [19]. These decisions emphasize that copyright subsists in expression resulting from human intellectual effort, not merely from causal involvement in a generative process.

Administrative practice, particularly in registration decisions, has further refined this stance. Registration authorities have rejected applications for works identified as entirely AI-generated, citing absence of human authorship [14]. At the same time, they have allowed partial protection where applicants can identify and disclaim machine-generated elements while claiming authorship over human-created components.

This practice reflects an attempt to accommodate hybrid works without abandoning foundational doctrine. Applicants are increasingly required to disclose AI use and specify the scope of human contribution [17]. Such disclosure operates as both evidentiary requirement and regulatory mechanism, shaping how creators structure claims to protection.

Despite these efforts, responses remain inconsistent. Similar factual scenarios have produced divergent outcomes depending on how human involvement is characterized or documented [13]. Judicial reasoning often lacks a standardized test for assessing creative control, leading to uncertainty for creators and developers.

Overall, current responses reveal a system adapting incrementally to technological change while relying on traditional authorship concepts. This adaptive but uneven approach underscores the need for clearer doctrinal articulation of how AI-assisted creativity fits within copyright law [20].

3.3. Doctrinal Gaps and Inconsistencies in Current Approaches

The prevailing legal treatment of AI-assisted works exposes significant doctrinal gaps rooted in binary conceptions of authorship. Copyright law has historically distinguished between human-authored and non-human-authored works, leaving little room to address distributed or collaborative creative processes involving intelligent systems [16]. AI challenges this binary by introducing degrees of autonomy that do not neatly map onto existing categories.

One inconsistency arises from outcome-focused analysis. Some decisions emphasize whether the final output appears machine-generated, rather than examining the creative process that produced it [18]. This approach risks overlooking substantial human involvement that shapes expression indirectly, such as iterative prompting or selective curation.

Another gap concerns evidentiary standards. Courts and administrative bodies vary in how they assess proof of human contribution, creating uncertainty about what constitutes sufficient creative control [14]. Without clear benchmarks, similarly situated creators may receive different legal treatment.

Additionally, existing doctrine struggles to address evolving AI systems whose behavior changes over time through training and adaptation [19]. Static authorship tests fail to capture dynamic interactions between human intention and machine generation.

These inconsistencies suggest that current frameworks are ill-equipped to handle nuanced forms of AI-assisted creativity. A control-based approach, focusing on the locus and degree of human creative decision-making, offers a more coherent alternative to rigid human/non-human distinctions [20]. By addressing these doctrinal gaps, copyright law can better align with contemporary creative practices while preserving its human-centered foundations.

Table 1 Typology of AI Involvement and Corresponding Copyright Treatment

Category of AI Involvement	Description of Human-AI Interaction	Degree of Human Creative Control	Typical Examples	Likely Copyright Treatment
AI as a Creative Tool (Assistance)	AI supports or enhances human creativity without determining expressive outcomes	High – human selects, edits, and directs expression	Spell-checkers, image enhancement, music mastering tools	Full copyright protection for the human author
AI-Augmented Creation	AI generates expressive material based on human prompts, parameters, and iterative guidance	Moderate to High – human curates, refines, and integrates outputs	Text-to-image systems with prompt iteration; AI-assisted music composition	Copyright protection limited to human-controlled elements; AI output may be disclaimed
Human-Curated AI Output	AI generates multiple outputs; human selects	Moderate – control exercised mainly	Choosing images or passages from AI-	Partial copyright protection based on

	and arranges content into a final work	through selection and arrangement	generated alternatives	selection and arrangement
AI-Led Generation with Minimal Human Input	Human initiates process but exercises little or no creative judgment over results	Low – minimal influence on expressive form	Single-prompt AI-generated artwork with no modification	Generally not eligible for copyright protection
Fully Autonomous AI Generation	AI independently generates expressive works without meaningful human involvement	None – no human creative agency	Autonomous generative systems producing content without guidance	No copyright protection under human authorship doctrine

4. Human creative control as a legal threshold

4.1. Defining Creative Control in AI-Assisted Contexts

Creative control in AI-assisted contexts refers to the extent to which a human intentionally directs, shapes, and determines the expressive character of a work. Unlike mere causal involvement, creative control encompasses deliberate selection, evaluative judgment, and expressive intent exercised throughout the creative process [21]. This concept aligns with copyright law’s emphasis on human intellectual effort as the source of protected expression.

Intentional selection is a core component of creative control. A human author must make meaningful choices about subject matter, style, composition, or expressive objectives, rather than simply activating an automated system [18]. Judgment further distinguishes creative control from mechanical operation. Where a human evaluates alternatives, refines outputs, or rejects undesired results, the resulting expression more plausibly reflects human creativity.

Expressive direction captures the author’s role in steering the work toward a particular aesthetic or communicative outcome [23]. In AI-assisted creation, expressive direction may be exercised indirectly, through constraints imposed on the system or criteria applied to generated material. This indirect control does not negate authorship so long as it meaningfully influences the expressive form of the final work.

Defining creative control in this manner allows copyright doctrine to move beyond simplistic assessments of technological involvement. Rather than asking whether AI was used, the inquiry focuses on whether the human exercised sufficient creative agency to justify protection [17]. This framing preserves copyright’s human-centered rationale while accommodating technologically mediated creativity.

4.2. Control Before, During, and After AI Generation

Human creative control in AI-assisted works can be exercised at multiple stages of the creative workflow: before, during, and after AI generation. Control before generation includes decisions about conceptual framing, prompt design, parameter selection, and system configuration [22]. These choices establish the creative boundaries within which the AI operates and can significantly influence the expressive character of outputs.

During generation, control may be exercised through iterative interaction with the system. Adjusting prompts, refining parameters, or guiding successive outputs reflects ongoing human judgment rather than passive observation [19]. This interactive engagement distinguishes AI-assisted creation from autonomous generation, as the human remains actively involved in shaping the work.

Post-generation control involves curation, selection, modification, and integration of AI-generated material into a final expressive whole [24]. Selecting among multiple outputs, editing content, or combining machine-generated elements with human-authored material demonstrates evaluative discretion. Courts have historically recognized selection and arrangement as hallmarks of originality, reinforcing the legal relevance of post-generation control.

Assessing creative control across these stages enables a nuanced evaluation of authorship. A work may qualify for protection even if control is concentrated in one stage, provided it meaningfully shapes expression [17]. Conversely, minimal involvement across all stages suggests insufficient human agency. This staged analysis provides a practical framework for identifying human authorship within AI-assisted creative processes.

4.3. Control versus Attribution: Why Output Alone Is Insufficient

Focusing solely on the appearance or origin of an output risks obscuring the creative process that produced it. Attribution-based approaches that ask whether a work is “AI-generated” oversimplify complex interactions between human intention and machine execution [20]. Such approaches may deny protection to works that reflect substantial human creativity merely because AI played a visible role.

Process-based evaluation offers a more coherent alternative. By examining how a work was created rather than who or what produced the output courts can assess whether human creative control was present [18]. This approach aligns with existing copyright doctrine, which emphasizes creative choice over mechanical causation.

Output-focused tests also struggle with evidentiary consistency. Identical outputs may result from vastly different creative processes, ranging from autonomous generation to intensive human curation [23]. Treating these outcomes equivalently ignores meaningful differences in authorship. A control-based analysis accounts for these distinctions by anchoring protection in human agency.

Moreover, reliance on attribution risks future-proofing failures as AI systems evolve. As generative models become more sophisticated, outputs will increasingly resemble human-authored works, rendering surface-level assessment unreliable [21]. Process-based evaluation remains adaptable regardless of technological advancement.

By prioritizing creative control over attribution, copyright law can maintain doctrinal coherence while accommodating AI-assisted creation. This shift reinforces the principle that copyright protects human creativity, not the mere existence of expressive output [24].

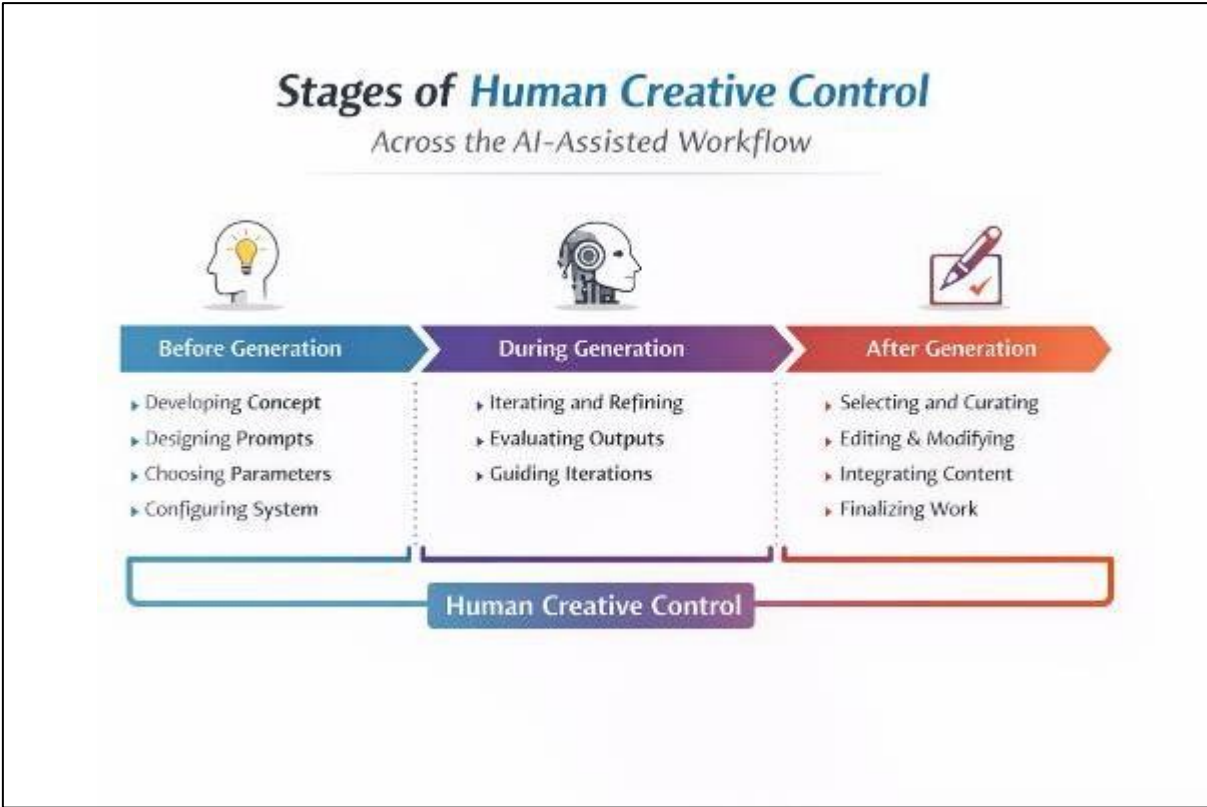


Figure 2 Stages of human creative control across the AI-assisted workflow

5. Operationalizing creative control in copyright doctrine

5.1. Evidentiary Indicators of Human Creative Control

Operationalizing human creative control requires identifiable evidentiary indicators that courts and administrative bodies can evaluate consistently. Copyright law has traditionally inferred authorship from observable creative conduct

rather than subjective intent alone [24]. In AI-assisted contexts, similar inference remains possible if legally relevant signals are articulated with clarity.

One key indicator is expressive intent, demonstrated through documented conceptual planning, thematic direction, or articulated creative objectives [29]. Evidence that a human author sought to convey a particular message, aesthetic, or narrative supports attribution of creative agency. Intent alone, however, is insufficient without corresponding action.

Selection and judgment provide stronger evidentiary weight. Choosing among multiple alternatives whether prompts, outputs, or compositional elements reflects evaluative discretion central to originality doctrine [21]. Courts have long treated selection and arrangement as hallmarks of authorship, making these indicators especially salient.

Revision and modification further reinforce creative control. Editing AI-generated material, restructuring content, or integrating outputs into a broader human-authored work demonstrates intellectual effort beyond mechanical generation [27]. Such revisions show that the human author shaped the expressive form rather than merely accepting it.

Additional indicators include iterative interaction with the system, rejection of unsuitable outputs, and consistency between creative intent and final expression [30]. Collectively, these signals allow adjudicators to assess control without requiring technical expertise in AI systems. By focusing on observable creative conduct, copyright doctrine can evaluate human authorship in AI-assisted works using familiar evidentiary principles [22].

5.2. Partial Protection, Disclaimers, and Hybrid Works

AI-assisted creation frequently results in hybrid works combining human-authored and machine-generated elements. Copyright law has increasingly addressed this reality through mechanisms of partial protection and express disclaimers, rather than all-or-nothing determinations [25]. This approach reflects doctrinal flexibility while preserving the human authorship requirement.

Partial protection allows copyright to subsist in those portions of a work attributable to human creative control, while excluding elements generated autonomously by AI systems [28]. This disaggregation aligns with longstanding copyright principles that protect original expression without extending protection to unoriginal or unprotectable material.

Disclaimers play a critical role in this process. Applicants may be required to identify and disclaim AI-generated components, thereby clarifying the scope of claimed authorship [20]. Such disclosure does not penalize AI use but instead enables accurate attribution and legal certainty. It also mitigates overclaiming, which could otherwise undermine the legitimacy of copyright protection.

Hybrid works raise practical challenges, particularly where human and AI contributions are tightly interwoven [26]. In these cases, the focus shifts to whether the human author exercised sufficient control over the integration and final expressive form. Where AI-generated elements are substantially transformed or curated, they may fall within the scope of protected human expression.

By embracing partial protection and disclaimers, copyright law accommodates AI-assisted creativity without abandoning doctrinal coherence. This approach reinforces the principle that protection follows human creative agency, not the mere presence of expressive content [23].

5.3. Registration, Disclosure, and Administrative Enforcement

Registration practice has emerged as a primary site for operationalizing creative control in AI-assisted works. Administrative bodies increasingly require applicants to disclose the use of AI tools and describe the nature of human contribution [30]. This disclosure functions both as an evidentiary mechanism and as a form of regulatory oversight.

Through registration examination, administrators assess whether claimed authorship reflects human creative control rather than autonomous generation [22]. Where applications fail to demonstrate sufficient control, protection may be denied or limited to human-authored elements. This case-by-case evaluation allows doctrine to evolve incrementally without formal rulemaking.

Administrative enforcement also shapes creative behavior. Disclosure requirements encourage creators to document their creative processes, reinforcing transparency and accountability [27]. Over time, consistent registration practice can crystallize standards that guide courts and creators alike.

However, reliance on administrative assessment raises concerns regarding consistency and predictability [25]. Without clear guidance, applicants may struggle to anticipate how much control is sufficient. Nonetheless, registration-based enforcement provides a pragmatic mechanism for implementing control-based thresholds while broader doctrinal debates continue.

By embedding evaluation of creative control within registration systems, copyright law translates abstract principles into operational criteria. This approach strengthens doctrinal integrity while offering adaptable governance in response to rapidly evolving AI-assisted creative practices [24].

Table 2 Indicators of Human Creative Control and Legal Consequences

Indicator of Human Creative Control	Description	Evidentiary Significance	Typical Examples	Likely Legal Consequence
Expressive Intent	Human defines the creative objective, theme, or message of the work	Demonstrates purposive authorship rather than mechanical generation	Concept notes, story outlines, artistic briefs	Supports attribution of human authorship
Prompt Design & Parameter Selection	Human structures prompts, constraints, or system settings guiding output	Shows pre-generation direction and constraint of expressive outcomes	Detailed prompts, style parameters, model constraints	Weights in favor of copyright eligibility
Iterative Interaction	Human refines outputs through repeated guidance and adjustment	Indicates ongoing creative judgment during generation	Multiple prompt refinements, output comparison	Strengthens claim of creative control
Selection & Curation	Human chooses among alternative AI-generated outputs	Reflects evaluative discretion central to originality doctrine	Selecting one image or passage from many	May justify partial copyright protection
Revision & Modification	Human edits, rearranges, or transforms AI-generated material	Shows intellectual effort shaping final expression	Editing text, altering composition, combining elements	Supports protection for modified elements
Integration into a Larger Work	Human combines AI output with original human-created content	Demonstrates authorship through arrangement and synthesis	Incorporating AI images into a narrative work	Protection extends to overall structure and arrangement
Documentation & Disclosure	Human documents AI use and creative decisions	Enhances transparency and credibility of authorship claim	Process logs, disclosure statements	Facilitates registration and enforcement
Autonomous Acceptance of Output	Human accepts AI output without meaningful review or change	Indicates absence of creative control	Single-step generation with no edits	Likely denial of copyright protection

6. Comparative and international perspectives

6.1. Human Authorship Standards across Jurisdictions

Across jurisdictions, copyright law has largely maintained a commitment to human authorship, though the articulation of this requirement varies between common law and civil law systems. In common law jurisdictions, courts have emphasized originality grounded in human intellectual effort, often linking authorship to demonstrable creative

judgment and discretion [31]. This approach allows some flexibility in accommodating technologically assisted creation while preserving human agency as the source of protection.

Civil law systems, by contrast, tend to embed authorship more explicitly within personality-based theories of creativity [34]. These frameworks emphasize the personal imprint of the author, reinforcing resistance to recognizing non-human creators. As a result, autonomous AI-generated works are generally excluded from protection, while AI-assisted works are assessed based on the extent of human involvement.

Despite doctrinal differences, convergence exists around the rejection of purely machine-authored works. Administrative guidance and judicial reasoning across jurisdictions consistently require evidence of human creative contribution [29]. However, the absence of harmonized standards for evaluating mixed human–AI creation produces uncertainty for cross-border creative markets. This divergence highlights the need for a shared evaluative principle capable of accommodating technological variation without undermining foundational copyright values [35].

6.2. Alternative Models: AI Authorship, Ownership, and Sui Generis Rights

In response to AI-generated creativity, some commentators and policymakers have proposed alternative legal models that depart from traditional human authorship requirements. One proposal is to recognize AI systems as authors or to attribute authorship to system owners or developers [33]. While this approach offers administrative clarity, it conflicts with copyright's normative foundations by disconnecting protection from human creative agency.

Another proposal advocates for sui generis rights tailored specifically to AI-generated works. Such regimes could provide limited protection without invoking authorship doctrines, addressing concerns of investment and market value [30]. However, creating parallel rights risks fragmenting intellectual property systems and complicating enforcement.

Critics argue that these alternatives introduce doctrinal inconsistency and undermine the incentive rationale of copyright [32]. Assigning rights to non-creative actors may dilute recognition of human labor and distort creative markets. Moreover, sui generis regimes may struggle to define scope, duration, and eligibility in rapidly evolving technological environments.

These proposals illustrate the difficulty of reconciling AI innovation with established legal principles. While alternative models offer short-term solutions, they raise significant conceptual and policy challenges that limit their long-term viability [29].

6.3. Convergence around Control-Based Thresholds

Against competing models, a control-based threshold for copyright protection offers a harmonizing principle capable of bridging doctrinal differences. By focusing on the degree of human creative control rather than the presence of AI, this approach aligns with both common law originality standards and civil law personality-based theories [35].

Control-based evaluation accommodates technological diversity by assessing creative processes rather than specific tools. It allows jurisdictions to preserve existing authorship doctrines while adapting their application to AI-assisted contexts [31]. Importantly, it avoids the conceptual difficulties associated with recognizing AI authorship or creating parallel rights.

Emerging administrative practices already reflect movement toward this convergence. Disclosure requirements, partial protection mechanisms, and process-focused analysis signal growing acceptance of control as the decisive factor [30]. While implementation details vary, the underlying principle remains consistent.

By adopting creative control as a shared evaluative standard, jurisdictions can reduce fragmentation and enhance legal predictability for creators operating across borders. This convergence supports international coherence without necessitating wholesale doctrinal reform, positioning control-based thresholds as a pragmatic foundation for future copyright governance [34].

7. Normative and policy implications

7.1. Incentives, Innovation, and Creative Labor Protection

A control-based threshold for copyright protection preserves the incentive structure at the core of copyright law. By tying protection to demonstrable human creative agency, the framework ensures that rewards accrue to individuals who contribute intellectual effort and expressive judgment [33]. This approach discourages over-extension of protection to machine-generated outputs while safeguarding legitimate human creativity enhanced by AI tools.

Innovation is not impeded under this model. AI developers remain free to design and deploy generative systems, while creators retain incentives to engage creatively with technology [29]. By clarifying eligibility criteria, a control-based threshold reduces uncertainty and encourages responsible adoption of AI in creative industries.

Importantly, this framework reinforces recognition of creative labor in an era of automation. It affirms that copyright exists to support human expression, even as tools evolve [35].

7.2. Risks, Objections, and Future Challenges

Despite its advantages, a control-based approach raises practical challenges. Determining the sufficiency of creative control may introduce evidentiary burdens and subjective judgment [30]. Courts and administrative bodies must develop consistent benchmarks to avoid unpredictability.

Technological evolution further complicates assessment. As AI systems become more interactive and adaptive, distinguishing human direction from machine autonomy may become increasingly complex [32]. There is also risk that sophisticated creators could strategically frame processes to satisfy control criteria without meaningful creativity.

These challenges underscore the need for clear guidance, procedural safeguards, and ongoing doctrinal refinement. Nevertheless, the risks associated with control-based thresholds are more manageable than those posed by abandoning human authorship altogether. With careful implementation, the framework can remain resilient amid continued technological change [31].

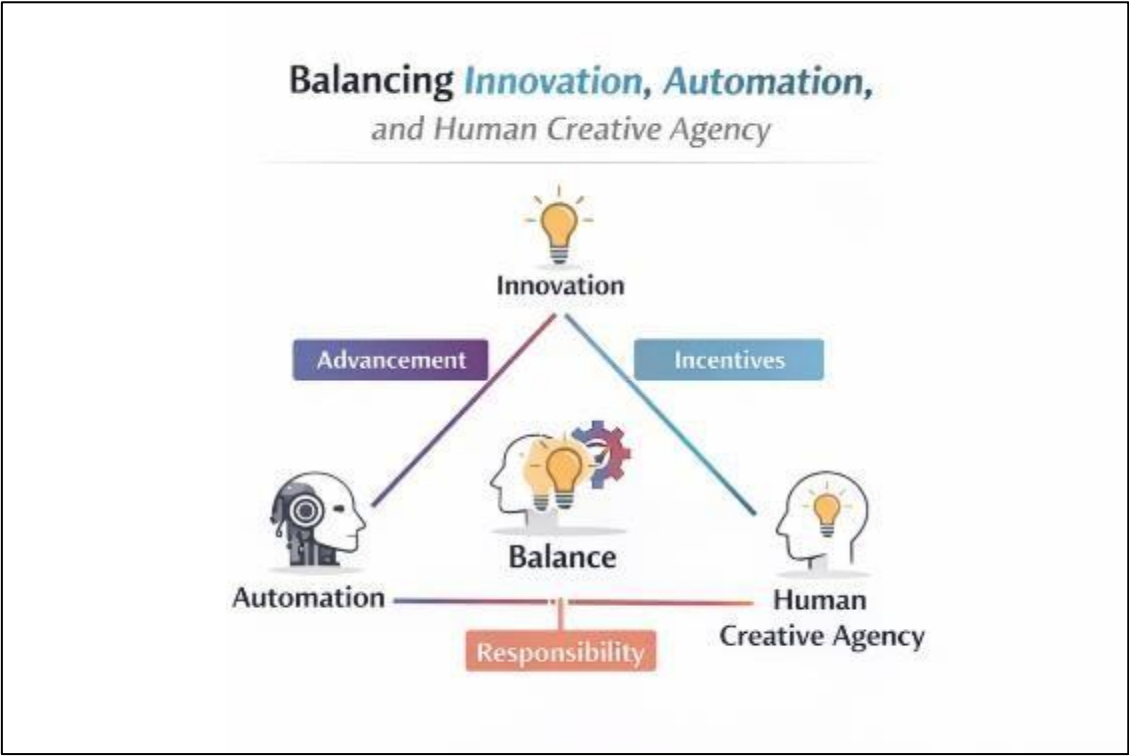


Figure 3 Balancing innovation, automation, and human creative agency

8. Conclusion: re-centering copyright on human creative agency

The rapid integration of generative artificial intelligence into creative practices has exposed structural tensions within copyright law, particularly around authorship, originality, and the justification for exclusive rights. This article has argued that these tensions cannot be resolved through binary distinctions between human and machine creation, nor through technology-specific rules that risk obsolescence. Instead, a focus on **human creative control** offers a principled and adaptable threshold for determining copyright protection in AI-assisted works.

From a doctrinal perspective, human creative control aligns closely with longstanding copyright foundations. Copyright has never protected effort in the abstract, but rather human judgment, selection, and expressive intent manifested in creative choices. By emphasizing control over the creative process—before, during, and after AI generation—the proposed framework preserves continuity with originality doctrine while accommodating new modes of technologically mediated creativity. It allows copyright law to recognize genuine human authorship even when expressive elements are produced with advanced computational assistance.

Practically, a control-based threshold provides workable criteria for courts, registration authorities, and creators. Observable indicators such as intent, curation, revision, and integration offer administrable signals of authorship without requiring technical expertise in AI systems. Mechanisms such as partial protection, disclaimers, and disclosure further operationalize this approach, enabling nuanced treatment of hybrid works rather than all-or-nothing outcomes. This flexibility is essential in creative environments where human and machine contributions are increasingly intertwined.

Normatively, grounding copyright protection in human creative control safeguards the incentive structure and moral logic of the copyright system. It ensures that legal recognition and economic rewards continue to flow to human creators, even as they adopt powerful new tools. At the same time, it avoids extending protection to purely autonomous machine output, which would undermine copyright's human-centered rationale and risk distorting creative markets. By clarifying the conditions under which AI-assisted works qualify for protection, the framework reduces uncertainty and supports responsible innovation.

Ultimately, human creative control offers a durable organizing principle for copyright law in the age of generative AI. It reframes the legal inquiry away from the novelty of the technology and toward the enduring question of creative agency. By doing so, it enables copyright law to evolve without losing its conceptual coherence, ensuring that protection remains tied to human creativity even as the tools of creation continue to transform.

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