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**Balancing Fundamental Rights, Innovation and the Public
Interest in Copyright Law: The Case of Generative AI
Models**

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Table of Abbreviations

AI	Artificial Intelligence
AGI	General AI
AI Act	European Union Artificial Intelligence Act (EU) 2024/1684
CDPA	UK Copyright, Designs and Patents Act 1988
CDSMD	Copyright in the Digital Single Market Directive (EU) 2019/790 or DSM Directive
CJEU	Court of Justice of the European Union
ECtHR	European Court of Human Rights
EDPS	European Data Protection Supervisor
ECL	Extended Collective Licensing
EU	European Union
EUDPR	European Union Data Protection Regulation
EU Charter	Charter of Fundamental Rights of the European Union
GDPR	General Data Protection Regulation (EU) 2016/679
GPAI	General-Purpose AI
ICESCR	International Covenant on Economic, Social and Cultural Rights 1966
InfoSoc Directive	Information Society Directive (2001/29/EC)
LLM	Large language model

TDM	Text and Data Mining
TPMs	Technical Protection Measures
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
UDHR	Universal Declaration of Human Rights 1948
UK	United Kingdom
US	United States
WIPO	World Intellectual Property Organization

Abstract

This thesis argues that generative artificial intelligence exposes a fundamental tension within the human-centric copyright framework, which is built around the anthropocentric standard of the “author’s own intellectual creation.” Under this framework, autonomously generated outputs are ineligible for protection as copyright requires a human creator capable of making ‘free and creative choices.

The legal uncertainty emerges both at the output and the input phase of AI. Notably, the thesis demonstrates that the text and data mining exceptions under the Copyright in the Digital Single Market Directive (CDSMD) struggle to accommodate the data-driven logic of machine learning. The conflict between ‘lawful source’ and ‘lawful conduct’ of the access requirement, alongside the shortcomings of the opt-out mechanism, reveals a constitutional challenge.

By situating the EU framework in a comparative perspective with the UK and US, the thesis shows that instruments such as the AI Act introduce procedural transparency obligations yet avoid addressing the substantive copyright questions of authorship, reproduction and most importantly, the absence of a harmonised remuneration model for authors whose works fuel AI development.

This thesis concludes that addressing these tensions does not require abandoning copyright’s anthropocentric foundations but reinforcing them. The path forward is therefore to conceptualise AI as an advanced tool that supports but never substitutes the human author. The analysis reveals the need to clarify the law, particularly by considering statutory remuneration systems that ensure fair and sustainable access to training data. The thesis also points out the limits of individual enforcement and calls for a shift toward collective licensing mechanisms.

Introduction

Artificial Intelligence (AI) influences everything from simple daily activities to critical decision-making processes. Its development represents both a profound technological promise and one of the most complex regulatory challenges of our time. A global race to regulate has commenced that is not merely about technical standards; it is a legal and philosophical turning point for the future of automated society. The European Union has positioned itself as a standard-bearer for a human-centric, *ex ante* regulatory model, exemplified by the AI Act, which is rooted in the protection of fundamental rights. This approach differs from the more liberty-focused posture of jurisdictions like the United States, which has traditionally favoured market-led solutions and targeted, *ex post* enforcement. This divergence raises a critical question of this entire thesis: does current regulations safeguard human creativity and autonomy or does it inadvertently stifle the innovation it seeks to govern?

The urgency of this question is amplified by the opaque and complex algorithmic systems make decisions with significant real-world consequences, from an automated invoice referred to the Court of Justice of the European Union in Bulgaria (Case C-806/24)¹ to the automated dismissal of workers by platforms like

¹ For example, in Bulgaria, a case has been referred to the CJEU, where an automated invoice for a telecommunications service customer was generated by artificial intelligence, raising questions about the opacity of algorithms. Case C-806/24, *Summary of the request for a preliminary ruling pursuant to Article 98(1) of the Rules of Procedure of the Court of Justice* (lodged 25 November 2024, Sofiyski rayonen sad, Bulgaria)

Uber, as challenged in the Amsterdam District Court.² The opacity of these systems undermines core principles of accountability, transparency and meaningful human oversight. Consequently, the regulation of AI aims at mediating the inherent trade-off between the efficiency promised by technology and the fundamental rights, including dignity, self-determination and the right to an effective remedy.

This thesis will navigate this complex landscape by focusing on the legal domain where these tensions are most acute and foundational: copyright law.

In this regard, generative AI poses a unique and profound jurisprudential challenge to the intellectual property framework, striking at the human-centric approach upon which copyright law has been built for centuries. This technology's capacity to produce sophisticated outputs that are often indistinguishable from human creations forces a direct confrontation with the legal system's most basic definitions of authorship and originality.

This thesis confronts this central problem by investigating the deep-seated tensions between rapid technological advancement and the enduring legal principles of copyright law.

The central argument of this thesis is that, despite the capabilities of generative AI, the human-centric principles underpinning copyright law that is normatively essential for maintaining a balanced and fair creative ecosystem. This research first

² For example, the District Court of Amsterdam ruled on 5 October 2023 that Uber had failed to comply with the Court of Appeal's ruling on 4 April 2023. Uber was supposed to provide meaningful information to ensure algorithmic transparency on the automated decisions to dismiss workers. See Amsterdam District Court (Rechtbank Amsterdam), Case C/13/738511 / KG ZA 23-780, 5 October 2023, ECLI:NL:RBAMS:2023:6293

demonstrates that autonomously generated AI outputs are unequivocally excluded from copyright protection under the current EU originality standard. It then deconstructs the existing EU framework governing AI training data, revealing it to be fraught with legal ambiguity and practical deficiencies that fail to adequately protect creators. Having established these doctrinal and practical failures, the thesis advances the statutory remuneration right. This mechanism is presented as the most pragmatic and rights-respecting resolution, designed to compensate human authors for the use of their works in AI training, thereby resolving the constitutional imbalance without stifling technological innovation.

This thesis has a multi-faceted research methodology, combining doctrinal legal analysis, comparative law and legal theory to construct its central argument. The core of the research is a doctrinal analysis of the European Union's legal framework, with a specific focus on key legislative instruments, including the Copyright in the Digital Single Market Directive, the Information Society Directive, the AI Act and the General Data Protection Regulation. This analysis is further informed by a critical examination of the evolving jurisprudence of the Court of Justice of the European Union.

The thesis follows a progressive structure: it begins by establishing the conceptual and doctrinal foundations of copyright in relation to AI, then examines the legal treatment of AI outputs and inputs under EU law, before broadening the analysis through comparative perspectives and finally situating copyright within the wider human rights and constitutional framework, culminating in a discussion on open access, cultural heritage and the role of the public domain in the age of generative AI.

Chapter I. Framing AI Creativity and Human-Centric Limits of Copyright Law

The central argument of this chapter is that despite AI's advanced capabilities, the foundational legal and philosophical concepts of intelligence, creativity and authorship remain inextricably linked to human agency and consciousness. This chapter critically analyse the challenges AI poses to copyright law, exploring the philosophical chasms in defining intelligence and creativity and arguing for the preservation of copyright's human-centric principles in an age of automation.

As a starting point, the analysis begins with a foundational understanding of artificial intelligence by defining key concepts, drawing the crucial distinction between "narrow AI" and "strong AI." It also introduces the limitations central to the subsequent legal analysis, moving beyond mere technical descriptions. The distinction between statistically recombining patterns and generating meaning is the philosophical vital point for assessing the creative and legal status of AI outputs.

Furthermore, the chapter examines the evolving intersection of artificial intelligence and creativity. It discusses how AI challenges traditional notions of creativity and authorship by producing works that mimic human art. From early computer-generated works created with mainframe computers to the digital tools that revolutionised creative fields, the law has repeatedly faced the need to evolve.

To provide a comprehensive background for navigating this terrain, the chapter explores four key areas: (1) the fundamental concepts of AI and its limitations, (2)

its impact on our understanding of creativity and authorship, (3) the evolution of legal responses to non-human creation and (4) the human-centric goals that underpin copyright law.

Finally, the chapter has an analysis of the three primary theoretical justifications for copyright: utilitarian, personality and labour theories. This examination demonstrates that all three doctrines, despite their different philosophical origins, are fundamentally rooted in human agency, intention and effort.

1.1. The problem of intelligence: a philosophical and regulatory gap

Before the legal status of AI-generated works can be meaningfully addressed, it is essential to deconstruct the very definition of “artificial intelligence.” A significant gap exists between the functional, output-oriented definitions used in technology and regulation and the deeper philosophical questions of semantics, understanding and consciousness that remain unresolved. The definition and inherent limitations of these technologies are central to the subsequent debates over their capacity for creativity and their place within the legal frameworks.

Formulating a single, universally accepted definition of artificial intelligence has long proven challenging. Since the 1950s, the ambiguity of core terms like “machine” and “think” has left the field with broad characterisations.³

³ Alan M Turing, ‘Computing Machinery and Intelligence’ (1950) 59 *Mind* 433, 433.

Artificial intelligence, at its core, is computer code capable of learning from datasets, optimising an AI system's learnable parameters to perform specific tasks.⁴ On the other hand, AI was described as "the science and engineering of making intelligent machines."⁵ In this context, "intelligence" refers to the capacity to choose actions for the expected outcome, rather than the semantic understanding. As was rightly argued, the main issue for AI is producing an output rather than demonstrating biological intelligence.⁶ This explains why current machine learning systems are considered as weak or narrow AI even though they look sophisticated. Whatever conceptualisation is used, it is still limited in its ability to perform a narrow task as they lack of self-awareness or consciousness.⁷ For example, self-driving cars cannot write an essay and a writing AI tool cannot drive a car, even if they do these actions even better than humans.⁸ Narrow nature of today's AI comes from the fact that it still needs training data and limited to its scope. In contrast General AI (AGI), sometimes called "strong AI," would be able to perform *any* intellectual task a human can, with flexible reasoning and contextual understanding with a common sense.⁹

Generative AI systems are a prime example of narrow AI. They generate text, images or audio by learning by detecting patterns in large data sets, including data

⁴ Daniel Gervais, 'AI Derivatives: The Application to the Derivative Work Right to Literary and Artistic Productions of AI Machines' (2022) 52 Seton Hall L Rev 1111, 114.

⁵ John McCarthy and others, *A Proposal for the Dartmouth Summer Research Project on Artificial Intelligence* (31 August 1955)

⁶ Luciano Floridi, *The Ethics of Artificial Intelligence: Principles, Challenges, and Opportunities* (Oxford University Press 2023) 23.

⁷ S Matthew Liao (ed), *Ethics of Artificial Intelligence* (Oxford University Press 2020) 3.

⁸ Nick Bostrom, *Superintelligence: Paths, Dangers, Strategies* (Oxford University Press 2014) 14.

⁹ Bostrom, *Superintelligence* (n 8) 17 and 19.

they have not encountered before.¹⁰ This differentiates them from traditional AI systems makes them different from traditional artificial intelligence systems, which usually perform tasks based on predefined rules or explicit programming.¹¹

In this context, the term ‘traditional AI’ is understood to refer to the symbolic AI, which was dominant until the 1980s, however its application was limited to revise the rules in the event of a non-programmed relation between input and output.¹² By contrast, the primary method behind many recent advances in AI is machine learning which relies on artificial neural networks that imitate brain activity, hence called the neural network algorithms.¹³

However, even the most advanced neural networks, differ fundamentally from human brains. As philosopher *Searle* argued against cognitivism, computation lacks semantics and intentionality, doing only syntactic manipulation.¹⁴ However the brain is not manipulating the symbols, it generates meaning and intentionality. In other words, running a programme is not the same as having a mind. Accordingly, generative AI’s outputs can resemble reasoned or creative content, yet they remain pattern-based simulations divorced from semantic understanding.

¹⁰ Mindy Nunez Duffourc, Sara Gerke and Konrad Kollnig, ‘Privacy of Personal Data in the Generative AI Data Lifecycle’ (2024) 13(2) *New York Univeristy Journal of Intellectual Property and Entertainment Law* 219, 223.

¹¹ Sandeep Singh Sengar, Affan Bin Hasan, Sanjay Kumar and Fiona Carroll, ‘Generative Artificial Intelligence: A Systematic Review and Applications’ (2024) *Multimedia Tools and Applications*, 2.; Nathalie A Smuha (ed), ‘AI, Ethics and Philosophy’ in *The Cambridge Handbook of the Law, Ethics and Policy of Artificial Intelligence* (Cambridge University Press 2025) 18.

¹² Liao (n 7) 3.

¹³ Liao (n 7) 4.

¹⁴ Cognitivism argues that brain is a digital computer. See John R Searle, ‘Is the Brain a Digital Computer?’ (1990) 64 *Proceedings and Addresses of the American Philosophical Association* 21, 22.

This absence of semantic understanding also raises questions about creativity and originality. Generative AI outputs result from statistical recombination of data rather than intentional authorship, which complicates their status under copyright law. These will be discussed in detail in the following chapters.¹⁵

In line with the arguments developed in this thesis, it may therefore be more accurate to conceive of AI as a novel form of agency rather than intelligence, particularly given that artificial systems process patterns rather than meaning.¹⁶

Beyond the absence of semantics and understanding, there are other limitations of current AI capabilities that make it ethically problematic. The opacity of their operations undermines the transparency. That said, even when the production of a particular outcome can be explained to humans in the most transparent manner possible, such an explanation merely describes computational manipulations of symbols rather than conveying real meaning. Moreover, AI systems rely on data that may be incomplete or unrepresentative, which can in turn lead to biased or discriminatory outcomes. In some cases, this raises even more critical challenges: if AI systems can only simulate legal reasoning without understanding it, the question is whether an AI system that “decides”, for instance, by denying asylum or dismissing an employee, can be said to be lawful reasoning at all.

Against this background, the functional definition of artificial intelligence provided in Article 3(1) of the AI Act appears somewhat detached from these conceptual and normative concerns. By defining it a system that infers how to generate outputs,

¹⁵ See Chapter II.

¹⁶ Floridi (n 6) preface.

such as predictions, content, recommendations or decisions, from inputs for explicit or implicit objectives, the definition captures technical features of AI systems.¹⁷ Council of Europe Convention on Artificial Intelligence and Human Rights, Democracy and the Rule of Law has a nearly identical definition under Article 2. This gap underscores the tension between regulatory pragmatism and the unresolved philosophical and legal questions surrounding AI. Nevertheless, the shift from “soft ethics” to “hard ethics” through binding legislation, such as the AI Act, is undeniable.¹⁸

The fundamental ambiguity surrounding AI’s “intelligence” particularly its lack of semantic understanding, directly inform the contentious debate over its capacity for genuine creativity, which will be examined next.

1.2. Changing understanding of creativity and authorship

The development of AI systems capable of producing outputs through machine learning models has significantly shifted creative practices, with these practices now being organised around generative processes.¹⁹

This thesis distinguishes between two categories of creation. The first, AI-assisted human creations, involves a human creator using AI as a sophisticated tool to realise their vision. The second, creations autonomously generated by AI, are those where human input is minimal or non-existent. It is important to note that,

¹⁷ Also see Recital 12 of the AI Act.

¹⁸ Floridi (n 6) 82.

¹⁹ Anne Ploin, Rebecca Eynon, Isis Hjorth, and Michael A Osborne, ‘AI and the Arts: How Machine Learning is Changing Artistic Work’ (Oxford Internet Institute, 2021) 20.

throughout this thesis, the term “AI-generated work” is used in general sense to refer to such outputs, without necessarily implying originality in sense of copyright or eligibility for copyright protection.

Works generated by artificial intelligence visually resemble human creations, with often aesthetic qualities. However, the classification of AI-generated outputs as “art” is debated, and it raises questions about the true nature of artificial intelligence. Some argue that AI lacks the intentionality and emotional depth that traditionally define human art, while others believe that AI art represents a new form of creativity that expands the boundaries of what can be considered art.²⁰ It is also argued that they lack the “aura” traditionally linked to an artwork’s unique presence, authenticity and historical significance, which stems from its physical existence and the artist’s personal touch.²¹ The fact that generative AI²² produces output by mimicking human creativity and performance, whether with or without direct human intervention, causes confusion due to the absence of an ‘aura’.

To illustrate the distinction between human creativity and AI-generated art, one can consider two contrasting examples. *Francesco Hayez’s* 19th-century masterpiece

²⁰ Plymouth University, ‘Is AI-generated art actually art?’ (Plymouth University, 2023) <https://www.plymouth.ac.uk/discover/is-ai-generated-art-actually-art> accessed 21 September 2025.

²¹ For further reading, see Sungjin Park, ‘The Work of Art in the Age of Generative AI: Aura, Liberation, and Democratization’ (2024) *AI & Society*.

²² See R Abbott and E Rothman, ‘Disrupting Creativity: Copyright Law in the Age of Generative Artificial Intelligence’ (2023) 75(6) *Fla L Rev* 1141, 1148 for the arguments that terms are not used consistently. “Generative art” is an industry term used without focus on authorship or copyright law, and it typically refers to a work made, in whole or part, using an autonomous system (i.e., a system automating a task).

“Melancholia”²³, exemplifies human creativity through its fine details, emotional depth, and historical context, showcasing the artist’s profound emotional and intellectual engagement. Hayez carefully crafted this painting to capture the essence of melancholy, showcasing not just technical skill but also profound emotional and intellectual engagement. By contrast, “Portrait of Edmond de Belamy,” an AI-generated painting was created by an AI system trained on thousands of historical portraits using a machine learning algorithm.²⁴ This AI-generated work, lacking an artist’s personal narrative or intent and created by machines without emotions or consciousness²⁵, initiated a global debate about authorship, copyright and the future of human creativity. This development highlights how AI systems are increasingly contributing to artistic production, with some even referred to as “artists.” For example, the humanoid robot artist *Ai-Da* creates drawings and paintings using cameras, AI algorithms and a robotic arm, while the AI artist *Botto* analyses millions of works to generate its own unique compositions.

Perspectives on AI’s creative role are divided across disciplines. A study involving interviews with computer scientists and new media artists revealed contrasting

²³ Pinacoteca di Brera, *Melancholy* (Pinacoteca di Brera) <https://pinotecabrera.org/en/collezioni/collezione-on-line/melancholy/> accessed 21 September 2025.

²⁴ Artnet News, ‘First-ever AI Portrait Painting Sells at Christie’s’ (Artnet News, 25 October 2018) <https://news.artnet.com/market/first-ever-artificial-intelligence-portrait-painting-sells-at-christies-1379902> accessed 21 September 2025. It was sold for \$432,500 in 2018.

²⁵ See Marian Mazzone and Ahmed Elgammal, ‘Art, Creativity, and the Potential of Artificial Intelligence’ (2019) 8(1) Arts 26. The authors discuss that AI lacks the lived experience of a human being and therefore cannot create art in the same way humans do (p 8).

views.²⁶ While sharing a general understanding of creativity, they hold differing views on AI's application in artistic processes. Computer scientists primarily view AI as a helpful but limited tool for achieving reliable and accurate results. In contrast, new media artists embrace AI as a playful, unpredictable collaborator that generates new and unexpected outputs, often describing their interaction as co-creative, learning from and adapting to machine-generated results rather than using AI as a passive tool. These diverging perspectives illustrate the evolving landscape of creativity in the age of AI, where different disciplines find ways to integrate and collaborate with AI.

As its core, creativity is a broad and multifaceted concept that extends beyond the boundaries of art. It includes the ability to create, whether through scientific invention, technological innovation, business problem solving or artistic expression such as painting, music and literature.²⁷ Art, a subset of creative endeavours, is typically associated with aesthetic and expressive works meant to evoke emotions or convey profound ideas. Therefore, while all art is a product of creativity, not all creativity necessarily results in art. This distinction raises questions about the essence of art: is it defined by the final product or does its true value lie in the creative process and the human experience? The primary motivations behind creating art and how AI-generated art fit into these motivations

²⁶ For detailed analysis, see Roosa Wingström, Johanna Hautala and Riina Lundman, 'Redefining Creativity in the Era of AI? Perspectives of Computer Scientists and New Media Artists' (2022) *Creativity Research Journal*.

²⁷ *Oxford English Dictionary* (Oxford University Press 2024) defines creativity as "ability or power to create".; Mihaly Csikszentmihalyi, *Creativity: Flow and the Psychology of Discovery and Invention* (HarperCollins 1996) provides an extensive analysis of creativity, defining it as the process by which a person brings into existence something genuinely new that is valued enough to be added to the culture.

become critical. If an AI-generated work like “Portrait of Edmond de Belamy” can evoke similar feelings to Hayez’s “Melancholia,” its qualification as art is debated. The process of giving prompts to AI, selecting the dataset and curating outputs can be seen as ‘creative’ because it requires decision-making and human intervention, which can be viewed as a form of creative authorship. However, it is argued that true art is intrinsically tied to the emotions, intentions and consciousness of the human creator. From this perspective, AI merely reproduces patterns rather than engaging in genuine creative thought.²⁸ Machine learning is therefore statistically creative, depending on statistical proximity rather than qualitative proximity.²⁹

Human exceptionalism, which means that creativity is a uniquely human attribute, plays a central role in this debate. From this viewpoint, Hayez’s “Melancholia” is not just a collection of pigments on canvas; it is an expression of the artist’s inner world, his reflections on melancholy and his historical context. It emphasises the irreplaceable value of human creativity, where knowing a person made the work is an important part of its artistic significance. Empirical research supports this, showing consumer perceptions of AI-generated art vary based on the level of AI involvement and the tangibility of the product.³⁰ It is argued that full automation can sometimes decrease perceived quality and emotional value and consumers often prefer human-made art due to perceived originality and emotional depth.

²⁸ Wingström, Hautala and Lundman (n 26) 11. The authors argue that AI can create outcomes that the audience deems creative; however, it cannot give meaning to such work, thus acting consciously is an essential requirement that AI does not meet.

²⁹ Ploin and others (n 19) 74.

³⁰ Francisco Tigre Moura, Chiara Castrucci, and Clare Hindley, ‘Artificial Intelligence Creates Art? An Experimental Investigation of Value and Creativity Perceptions’ (2023) 10(4) *Journal of Creative Behavior* 534, 537.

However, this notion of human exceptionalism is challenged by the argument that, given the lack of consensus on the nature of creativity, one cannot legally argue that only human creativity should be considered creative.³¹

Beyond the philosophical debate on whether AI-generated works qualify as art, a more immediate and practical question arises: should all creative outputs, whether human or AI-generated, have copyright protection? Copyright law is a legal mechanism designed to protect the original works of creators by granting them exclusive rights to reproduce, distribute and communicate their works. However, not all works automatically qualify for copyright protection, which often depends on factors such as originality, which will not be discussed in any great detail here.

Moreover, as AI-generated content becomes more sophisticated and widespread, distinguishing between human and machine-made works is increasingly difficult. For instance, a reader might be unable to tell whether a news article was written by a journalist or generated by an AI algorithm. The same dilemma extends to visual art, music and literature, where machine-generated works are becoming indistinguishable from those produced by humans. Since the famous Turing test in 1950, machines seem to convince people that they have indistinguishable skills from humans.³²

This growing complexity fuels the debate about AI's role in creativity: is it merely a tool, or does it possess the capacity to create original works? As AI-generated content becomes more prevalent and advanced, this debate gains urgency,

³¹ Abbott and Rothman, *Disrupting Creativity* (n 22) 1185.

³² Turing (n 3) 433.

prompting a re-evaluation of what it means to create and who, or what, can be considered an author. Both the “AI as a tool” and “AI as an autonomous creator” perspectives offer compelling arguments rooted in distinct understandings of creativity.

While scholars debate the essence of art, it is important that the legal system address the concrete outputs of artificial intelligence, forcing an examination of how copyright law, a historically human-centric domain, has adapted to technological disruptions.

1.3. The evolving legal challenges of non-human creation

Concerns about the impact of technology on human creativity are not a recent phenomenon. Decades ago, the emergence of computer-generated works sparked debates that closely mirror today’s discussions on AI-generated art.³³ Early computer artists and programmers created algorithmic art using mainframe computers and basic software. The 1980s and 1990s saw the rise of personal computing and digital tools revolutionise fields such as graphic design, music production, and literature. These advancements enabled artists and musicians to combine traditional techniques with digital technology, expanding creative possibilities.

³³ Such as Harold Cohen’s AARON, the first computer program that used artificial intelligence to make art, in the 1960-70s. ‘Harold Cohen and AARON: The Pioneers of Computer Art’ (Kate Vass Galerie, 2021) <https://www.katevassgalerie.com/blog/harold-cohen-aaron-computer-art> accessed 8 September 2025.

Just as these early developments prompted questions about machines replicating human artistry, they also necessitated legal adaptations. The development of computer-generated works prompted copyright law to evolve, accommodating the unpredictable nature of technological innovation. It is argued that there is the need for flexible legal standards like the US fair use doctrine to accommodate the unpredictable nature of technological innovation.³⁴ This flexibility has been crucial in addressing challenges posed by video cassette recording technology, digital content creation tools and now, AI-generated works. However, this necessary flexibility has also introduced uncertainty, potentially creating a chilling effect on innovation by making creators hesitant to explore new technologies due to legal ambiguity.³⁵

In response to these challenges, copyright laws have historically adapted to balance the protection of human creativity with technological advancements. A significant legal development is the UK's Copyright, Designs and Patents Act 1988 (CDPA).³⁶ Section 9(3) of the CDPA designates the individual who inputs instructions or prompts into an AI system as the author,³⁷ ensuring that the essential human input driving the AI's creative process is recognised. This human-centred

³⁴ Ben Depoorter, 'The Economics of Copyright Exemptions: A Comparative Analysis' in Shyamkrishna Balganesh, Wee Loon Ng-Loy, and Haochen Sun (eds), *The Cambridge Handbook of Copyright Limitations and Exceptions* (CUP 2021) 8.

³⁵ Depoorter, (n 34) 10.

³⁶ Söğüt Atilla, 'Dealing with AI-generated works: lessons from the CDPA section 9(3)' (2024) 19(1) *JiPLP* 43, 44.

³⁷ Section 9(3) of the CDPA 1988: "In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken."

approach reinforces the broader historical emphasis on human creativity, even as new technologies redefine artistic production.

For AI-generated works to qualify for copyright protection under the CDPA, they must meet the same standards of originality as human-generated works. This requirement underscores the ongoing importance of human involvement in defining creative authorship, as originality is evaluated based on the complexity and detail of the instructions provided by the user. Additionally, copyright protection remains contingent on the work being fixed in a tangible medium.

These historical foundations offer critical insights into contemporary legal challenges posed by AI-generated creativity. A central concern is maintaining the integrity of its core principles, particularly the requirement of human involvement for a work to receive protection.³⁸

The UK's pragmatic solution, grounding authorship in the human 'arrangements' behind the machine's operation, directly forces a return to first principles. It compels an analysis of the theories of copyright to determine if such a solution aligns with the law's ultimate purpose.

1.4. Copyright system goals: human-centric approach

To properly address the challenges posed by generative AI, it is necessary to return to the fundamental theories that justify the existence of copyright law itself. These principles help clarify the central question now facing legislators and courts: should

³⁸ Daniel J Gervais, 'Artificial Intellectual Property' (2025) 100 Chi-Kent L Rev 265, 266.

copyright law exclusively protect human creators or should it extend protection to AI-generated works to incentivise creation in markets where imitation is cheaper than innovation?³⁹

Historically, copyright law has focused on protecting human creativity and incentivising human creators. This human-centric approach is also evident in the AI Act, which aims to promote human-centred and trustworthy artificial intelligence, although it does not directly regulate copyright.⁴⁰ Copyright serves as a mechanism to protect creators by granting them exclusive rights, ensuring financial benefits and preventing unauthorised use. However, sophisticated AI systems capable of independently generating creative works challenge these long-standing principles. Key questions arise regarding authorship: if an AI system independently creates a work, who should be considered the author—the developer, the operator or the AI itself?

There are three primary theoretical justifications for copyright, each of which is challenged by the prospect of AI-generated works. These justifications consistently demonstrate that the concept of authorship in copyright law is closely tied to human agency, seen as a uniquely human attribute.⁴¹ This understanding is further reinforced by the idea that creativity is inherently linked to human spirituality and the human mind, establishing the foundation for moral rights.⁴²

³⁹ Depoorter (n 34) 3.

⁴⁰ Recitals 1 and 176 of the AI Act.

⁴¹ For more discussions on human and creativity, see Chapter I.

⁴² Anthoula Papadopoulou, 'Creativity in Crisis: Are the Creations of Artificial Intelligence Worth Protecting?' (2021) 12 JIPITEC 408, 3.

- (i) **Utilitarian Theory:** Originating from historical efforts to address censorship and monopolies that restricted knowledge, this theory views copyright as a tool to maximise creative production through economic rights.⁴³ The 18th-century Statute of Anne, which aimed to balance public interest with incentives for creation⁴⁴ and encouraged “men of learning to compose and write useful books,” exemplifies this perspective.⁴⁵ It influenced global copyright laws, including the U.S. Constitution’s Copyright Clause, which also aims to “promote the Progress of Science and useful Arts”.⁴⁶ The utilitarian perspective ties authorship to human agency, arguing that financial rewards motivate individuals to create new works that benefit society. The challenge AI poses to this theory is whether granting protection to AI-generated works would actually serve this goal of promoting creative production for society’s benefit.
- (ii) **Personality Theory:** Prevalent in civil law jurisdictions, such as those in continental Europe, this theory justifies copyright protection by emphasising the connection between an author and their work, viewing creative works as an extension of the creator’s personality.⁴⁷ This perspective is reflected in moral rights, which ensure respect for an

⁴³ Christophe Geiger, ‘Freedom of Artistic Creativity and Copyright Law: A Compatible Combination?’ (2018) 8(3) UC Irvine L Rev 413, 426.

⁴⁴ Paul Edward Geller, ‘International Copyright: The Introduction’ in Lionel Bently (ed), *International Copyright Law and Practice* (LexisNexis 2018), §2[1][b].

⁴⁵ Christophe Geiger, ‘The Influence (Past and Present) of the Statute of Anne in France’ in L Bently, U Suthersanen and P Torremans (eds), *Global Copyright: Three Hundred Years since the Statute of Anne* (Edward Elgar Publishing 2010) 129-130.

⁴⁶ U.S. Const. art. I, § 8, cl. 8.

⁴⁷ Cyrill P Rigamonti, ‘Deconstructing Moral Rights’ (2006) 47(2) Harvard International Law Journal 353, 355.

author's identity, integrity and reputation and are considered essential for preserving the author's dignity.⁴⁸ Civil law systems strongly protect these non-economic interests, reinforcing the idea that a work cannot be separated from its creator. The primary challenge is that an AI lacks the personhood that moral rights are designed to protect. While traditional personality theory might seem limited in this context, some argue that the theory could still apply by focusing on the human user whose process of interacting with an AI to create a work may contribute to their self-actualisation.⁴⁹ If the user's interaction with the AI art generation process contributes to their self-actualisation and personality development and the AI merely functions as a tool to materialise the user's vision, then its lack of self-expression may not be a barrier to applying personhood theory, provided the user is meaningfully engaged in the creative process.

- (iii) **Labour Theory:** Rooted in John Locke's philosophy, this theory suggests that property rights are justified when someone invests their labour into something, thereby creating something new. If a person dedicates effort, creativity, and time to producing a work, they should own it because their labour has imbued the work with a part of themselves. This reinforces human agency as essential to copyright protection, viewing

⁴⁸ Moral rights are primarily right of attribution (the right to be recognized as the creator of the work) and the right of integrity (the right to object to derogatory modifications of their work). These rights are not merely economic but are seen as essential to preserving the dignity and identity of the author. For further information on moral rights, see Rigamonti (n 45) 356.

⁴⁹ Christopher S Yoo, 'Self-Actualization and the Need to Create As a Limit on Copyright' in Shyamkrishna Balganesh, Wee Loon Ng-Loy and Haochen Sun (eds), *The Cambridge Handbook of Copyright Limitations and Exceptions* (CUP 2021) 15.

creativity as a product of conscious, intentional effort and a distinctly human endeavour. This aligns with civil law goals of protecting the personal connection between creator and work. From this perspective, copyright recognises and honours the creator's contributions beyond just financial incentives. The challenge from AI is whether the output of a machine, even if prompted by a user, qualifies as the product of labour in this meaningful, Lockean sense.

Given the human-centric nature of copyright systems in both continental and common law legal traditions, the principle that intellectual works must stem from the human mind was reinforced in the *Monkey Selfie* case.⁵⁰ A U.S. district court ruled that copyright cannot be granted to non-humans, stating that a monkey, despite taking photographs, cannot be recognised as an author. This case provides a strong analogy for AI-generated works: if a monkey cannot be considered an author, can an AI be considered the author of an autonomously generated work? The implications of this case could extend to AI-generated content, further supporting the argument that copyright should remain tied to human authorship, a point that will be discussed in Chapter II, Section 2.2.

As AI becomes increasingly capable of generating creative works, the role of human creativity diminishes. In civil law systems, where the human element is central to the copyright, the reduced significance of human involvement in AI-generated

⁵⁰ *Naruto v Slater* [2018] USCA9 15469 (9th Cir) <https://law.justia.com/cases/federal/appellate-courts/ca9/16-15469/16-15469-2018-04-23.html> accessed 4 May 2025.

works creates legal and philosophical dilemmas about whether such works can be attributed to a human author at all.⁵¹

Beyond these theoretical considerations, a significant practical challenge is the increasing difficulty of distinguishing between human and machine-made works. This, in turn, creates two primary challenges for copyright law:

- (i) Detecting originality in works where humans may not have played a significant role.
- (ii) Determining authorship as technology continues to reshape the creative process.

If copyright law is primarily intended to reward and incentivise human creativity, granting copyright protection to AI-generated works might seem inconsistent with its foundational goals. However, if copyright is seen as a tool to encourage the production of creative works regardless of their source, there may be a case for extending some form of protection to AI-generated content. As the law continues to adapt to these new technological realities, it must find a way to balance the encouragement of innovation with the fundamental, human-centric principles that have long formed its core.

⁵¹ This problem also comes up with 3D printing, which creates new challenges for copyright law. The key legal issue is whether the current copyright laws are enough to address the unique challenges posed by 3D printing, especially when it comes to figuring out who the author is and what counts as original when both digital designs and physical objects can be made with little or no human involvement. See Eylül Erva Akin, '3D Printing and Copyright: A Critical Analysis of Authorship and Control' in Anindya Sircar (ed), *Emerging Interfaces of Intellectual Property and Technology* (Bloomsbury 2024) 71.

Chapter II. Output: The Legal Status of AI-Generated Works

This chapter examines the legal challenges and implications of AI-generated works within copyright law, focusing on the concept of originality and human authorship. It argues that, under EU legal frameworks and international agreements, copyright protection typically requires a human author's "own intellectual creation" demonstrating free and creative choices. Consequently, works autonomously generated by AI are generally not considered copyrightable due to the AI's lack of legal personhood and intentionality, which are crucial for authorship. The chapter further explores how human involvement, such as designing models, curating data or crafting prompts, can transform AI outputs into protectable works, positioning AI as a tool rather than an independent creator. It also discusses alternative protection mechanisms like neighbouring rights and *sui generis* rights for AI-generated content that lacks human authorship, acknowledging the ongoing debate and criticisms surrounding these approaches. Ultimately, the human-centric bias of current copyright systems and the need for a nuanced understanding of human contribution in the age of generative AI is discussed.

2.1. Copyright's human-centric crisis

2.1.1. A foundational challenge to copyright law

The emergence of generative artificial intelligence represents more than a mere technological advancement; it poses a profound jurisprudential challenge to the very foundations of intellectual property. For centuries, copyright law has been built upon a human-centric bedrock, presuming a natural person as the wellspring of creative expression. The capacity of modern AI to produce sophisticated literary and artistic works directly confronts this core assumption, forcing a re-examination of the most basic legal and philosophical definitions of creativity and authorship. This analysis dissects the central question of our time: what is the legal status of AI-generated creations, and who, if anyone, can be called their author?

The central argument of this analysis is that under the current EU legal framework, works generated autonomously by AI are unequivocally excluded from copyright protection. This exclusion is not a judgment on the quality or complexity of the output, but a direct consequence of a fundamental legal reality: AI systems lack the legal personhood and human authorship and a demonstrable “author’s own intellectual creation” in a way of ‘free and creative choices’ that are indispensable prerequisites for authorship and copyright protection.

Consequently, the primary legal and intellectual battleground for resolving this conflict is the doctrine of originality, the very standard by which the law measures and recognises the human contribution essential for copyright protection.

2.1.2. Deconstructing originality: The EU's legal standard

Within EU copyright law, “originality”⁵² is not merely a technical requirement for copyright protection of an ‘artistic and literary’ work⁵³; it is the strategic heart of the debate over AI-generated works. It serves as the primary legal standard for assessing the copyrightability of any creation and its specific formulation provides the clearest lens through which to analyse the challenge posed by AI.

Although the doctrine of ‘originality’ is not uniformly codified across all categories of works in EU legislation, it has been progressively shaped through both directive provisions and the interpretive guidance of the Court of Justice of the European Union (CJEU). Certain directives set out specific originality requirements for types of works. For example, under Article 3(1) of the Software Directive, computer programs must be the author’s own intellectual creation to qualify for protection.⁵⁴ Similarly, Article 3(1) of the Database Directive adopts the same standard, applying it to the selection or arrangement of a database’s contents.⁵⁵ This standard also applies to photographs, as clarified in Article 6 of the Term Directive.⁵⁶ The CJEU

⁵² Judgment of 16 July 2009, *Infopaq international*, C-5/08, EU:C:2009:465, paragraph 35, 37 and 38

⁵³ Article 2(1) of the Berne Convention for the Protection of Artistic and Literary Works 1886.

⁵⁴ Directive 2009/24/EC of the European Parliament and of the Council of 23 April 2009 on the legal protection of computer programs, OJ L 111, 5 May 2009.

⁵⁵ Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, OJ L 77, 27 March 1996.

⁵⁶ Directive 2006/116/EC of the European Parliament and of the Council of 12 December 2006 on the term of protection of copyright and certain related rights (codified version), OJ L 372, 27 December 2006.

has since extended this “author’s own intellectual creation” standard as the general originality threshold within EU copyright law.

In line with criteria already present in several directives,⁵⁷ the CJEU’s *Infopaq* decision in 2009⁵⁸ defined originality as the “author’s own intellectual creation.” Subsequent to *Infopaq*, the *Painer* judgment in 2011 provided a more substantive articulation for the precise meaning of this criterion. In that judgment, the CJEU linked originality to the exercise of ‘free and creative choices’.⁵⁹ The CJEU’s reasoning in *Painer* case illustrates how the requirement of originality is satisfied when the author exercises free and creative choices⁶⁰, thereby imprinting the work with a personal touch.⁶¹ Thus, the analysis of authorship is indispensably -sine qua non- depends on originality.

It is important to note that ‘creativity’ itself is not a direct legal term for determining copyrightability in EU copyright law. Creativity as a concept is mentioned in two major pieces of copyright legislation in the EU, the CDSMD and the InfoSoc Directive, only as a policy objective that ensures these laws aim to promote creativity. While creativity informs the articulation of ‘free and creative choices’, it

⁵⁷ It was only with the *Cofemel* decision in 2019 that the Court definitively established that “the author’s own intellectual creation” constitutes the sole criterion for copyright protection under EU law, thereby precluding Member States from imposing any additional requirements across different categories of works. Case C-683/17 *Cofemel*, paras. 29, 38, 56.

⁵⁸ Case C-5/08 *Infopaq*, para. 37. According to the CJEU, copyright under Article 2(a) of Directive 2001/29 applies only to works that are original, meaning they reflect the author’s own intellectual creation.

⁵⁹ Case C-145/10 *Painer*, para. 88-89.

⁶⁰ See also the following judgment on the formulation of ‘free and creative choices’ 7 August 2018, *Renckhoff*, C-161/17, EU:C:2018:634, para. 14.

⁶¹ Case C-145/10 *Painer*, para. 90-92.

is not assessed separately. By contrast, Japanese copyright law requires creativity as the criterion for copyright protection.⁶² However, despite the terminological difference, in Japanese copyright law, creativity is understood in a manner closely aligned with the EU's originality threshold: a work must reflect the author's individuality, but a high level of creative achievement is not demanded.⁶³ The emphasis in both legislations, therefore, remains on the personal imprint left by the author, rather than on the creative value or novelty of the work itself.

On the other hand, while the threshold of originality is the same for all categories of work, what demonstrates an 'author's own intellectual creation' and 'free and creative choices' can vary depending on the type of work. The CJEU case law establishes that the resulting subject matter plays a significant role in determining originality, however, it also emphasises that the standard of originality also derives from the creative process.⁶⁴ The Brompton judgement of CJEU in 2020 underscores that originality may still be present in works with functional constraints, such as a folding bicycle, provided that the author makes free and creative choices that reflect their personality. In this context, it is argued that while the legal assessment is not solely based on the creation, examining the creative process and the specific creative choices offers meaningful insight into whether a creation has the

⁶² Copyright Act of Japan, Article 2(1)(i). <https://www.wipo.int/wipolex/en/legislation/details/22612> accessed 7 April 2025

⁶³ Masabumi Suzuki, 'Originality and Creativity Under Japanese Copyright Law' in Indranath Gupta (ed), *Handbook on Originality in Copyright* (Springer Nature Singapore Pte Ltd 2024) 3–4.

⁶⁴ Heidi Härkönen, 'A Narrative Approach to the Standard of Originality in EU Copyright Law: The Story of a Dress' (2025) 56 *IIC – International Review of Intellectual Property and Competition Law* 289, 298.

intellectual human imprint required for copyright protection.⁶⁵ This approach similarly applies to databases, where the originality lies in the selection and arrangement of data, rather than the data itself.⁶⁶

2.1.3. International copyright instruments

International agreements significantly influence the legal understanding of originality by establishing baseline protections that shape national laws. These instruments further reinforce the human-centric approach to copyright. The Berne Convention for the Protection of Literary and Artistic Works (1886), for example, established minimum standards for the protection of copyright. Its historical context of the Berne Convention suggests that authorship pertains to the natural person who created the work.⁶⁷ This principle underpins the “creator doctrine” which is widely upheld in both civil law and common law traditions, where the original author is the natural person who conceived and executed the work. A century later, the WIPO Copyright Treaty (1996) reaffirmed these Berne principles while expanding the scope of copyright protection to new forms of digital expression and transmission.⁶⁸ Although neither legal instrument codifies a

⁶⁵ Case C-833/18 Brompton, para. 38. “(...) its author expresses his creative ability in an original manner by making free and creative choices in such a way that that shape reflects his personality (...)”

⁶⁶ Iana Kazeeva, *Sui Generis Intellectual Property Protection: Comparison of EU and U.S. Regulatory Approaches* (Perspectives in Law, Business and Innovation series, Springer 2024) 13.

⁶⁷ Paul Goldstein and P Bernt Hugenholtz, *International Copyright: Principles, Law, and Practice* (4th edn, Oxford University Press 2019) 228.

⁶⁸ Samuel Samiai Andrews, *Copyright Originality in the Digital Space: The Kingdom of Saudi Arabia's Creatives* in Indranath Gupta (ed), *Handbook on Originality in Copyright* (Springer Nature Singapore Pte Ltd 2023) 10.

uniform definition of originality, both instruments continue to influence national laws on originality, reinforcing the notion of human creativity as a prerequisite.

Moreover, the WIPO has highlighted the policy tension surrounding AI and copyright law, noting that the attribution of copyright to non-human outputs implicates deeper questions about the fundamental purpose of the copyright system itself.⁶⁹ WIPO presents two divergent orientations: one that centres on the dignity and recognition of human creativity and another that focuses on expanding creative works, regardless of their source. This dilemma underscores the foundational human-centric bias within international copyright discourse.

On the other hand, national approaches offer practical insights into how this human-centric originality is interpreted. For instance, in Italian copyright law, the notion of “transcendence of reality” informs the assessment of photographic originality, where elements such as framing, lighting and the ability to evoke emotion distinguish creative photographs from purely documentary ones.⁷⁰ Likewise, Turkish law requires a minimum degree of intellectual creativity for literary and scientific works, excluding generic expressions or commonplace information without personal input.⁷¹

⁶⁹ In its discussion paper on intellectual property and artificial intelligence, WIPO outlines the policy dilemma surrounding the authorship and ownership of AI-generated works. See World Intellectual Property Organization (WIPO), *Revised Issues Paper on Intellectual Property Policy and Artificial Intelligence* (Second Session, May 2020) WIPO/IP/AI/2/GE/20/1 Rev, 7.

⁷⁰ Enrico Bonadio and Nicoletta De Mucci, ‘Originality in Italian Copyright Law: An Overview of the Case Law’ in Indranath Gupta (ed), *Handbook on Originality in Copyright* (Springer 2023) 9.

⁷¹ In several cases, the Court of Cassation found the creations unoriginal and unprotectable as literary and scientific works. See Hasan Kadir Yılmaztekin and Alara Naçar Seçkin, ‘Theorizing the

Legal uncertainty surrounding AI-generated works is also evident in jurisdictions such as China. For example, in *Beijing Feilin v. Baidu* (2018), the court denied copyright protection to works solely created by machines for lack of originality.⁷² However, in *Li v. Liu* (2023), the Beijing Internet Court recognised that an AI-generated image could be eligible for protection where sufficient human input and originality were demonstrated.⁷³ It is important to note that as a first-instance ruling without precedential effect, other courts may potentially rule differently.⁷⁴ Such cases exemplify the practical application of the human-centric principle in diverse legal contexts.

Having established the human-centric nature of originality, the subsequent sections explore further the specific question of human authorship in the context of AI-generated works.

Untheorized: Originality Under Turkish Copyright Case Law' in Indranath Gupta (ed), *Handbook on Originality in Copyright* (Springer 2023) 10.

⁷² The court found that the plaintiff demonstrated intellectual achievement through the selection and arrangement of over 150 prompts, the ordering of these prompts and the setting and adjustment of specific parameters in Stable Diffusion until the final image aligned with their conception. Furthermore, originality was manifested in the plaintiff's personalized choices and aesthetic judgment throughout the generation process. See Ming Chen, 'Beijing Internet Court denies copyright to works created solely by artificial intelligence' (2019) 14(8) *Journal of Intellectual Property Law & Practice* 593.

⁷³ Yuqian Wang and Jessie Zhang, 'Beijing Internet Court Grants Copyright to AI-Generated Image for the First Time' (Kluwer Copyright Blog, 2 February 2024) <https://copyrightblog.kluweriplaw.com/2024/02/02/beijing-internet-court-grants-copyright-to-ai-generated-image-for-the-first-time/> accessed 12 April 2025.

⁷⁴ Wang and Zhang (n 73).

2.2. Can AI be author? The requirement of human authorship

Building on the understanding that originality demands an ‘author’s own intellectual creation’ we now address whether AI systems themselves can fulfil the requirement of authorship. The question of copyright protection for AI-generated works is not solely about the technical or cognitive capabilities of generative models. It is a deeper inquiry into the legal and conceptual boundaries of authorship. The analysis primarily focuses on the human actors involved –those who design, implement or creatively use these systems– and the extent to which their input satisfies the authorial claims in copyright law.⁷⁵ This approach is consistent with the established understanding that AI itself cannot be an author due to its fundamental lack of legal personhood, consciousness, emotional depth, and intentionality, all of which are prerequisites for authorship under existing, human-centric copyright frameworks.⁷⁶

Authorial claim can be understood through two interrelated components: ‘conception’ and ‘execution’.⁷⁷ Conception refers to the origination of an idea, including the mental process of formulating, organising and intending to realise a

⁷⁵ Jane C Ginsburg and Luke Ali Budiardjo, ‘Authors and Machines’ (2019) 34(3) *Berkeley Technology Law Journal* 343, 350.

⁷⁶ An insightful observation was made by the prominent Turkish mathematician, Ord. Prof. Dr. Cahit Arf, in a lecture delivered in 1959. Arf argued that even if a machine were capable of solving many problems, it could not be regarded as a “kind of artificial brain” if it merely resolved problems that its creators had already solved. In his view, such machines lack independent thought or initiative. He emphasised that the essential distinction between the human brain and a machine lies in the human ability to make aesthetic judgments and to exercise freedom in choosing whether or not to undertake a given task. See Cahit Arf, *Makine Düşünebilir mi? – Can Machine Think?* (Atatürk Üniversitesi Halk Konferansları Serisi No. 1, Erzurum 1959) 99, 103.

⁷⁷ Ginsburg and Budiardjo (n 75) 354.

creative expression. This conceptual phase then leads to execution, which is understood as the act of translating that idea into a fixed, concrete form – a necessary condition for copyright protection in many jurisdictions.⁷⁸ The EU framework, for example, protects only the expression of an idea, not the mere idea itself.⁷⁹

AI systems may appear to engage in processes that resemble human conceptualisation: they select inputs, identify patterns and generate outputs through complex computational procedures. However, it has been argued that these outputs are more accurately characterised as functionally constrained ideas – akin to mathematical operations or formulae – rather than creatively conceived expressions.⁸⁰ Crucially, the notion of intention remains central to conception. Human creators act with purpose, whether to express an idea, evoke emotion or convey meaning. In contrast, current AI systems lack consciousness, self-awareness and purposive agency. They do not initiate creative acts but operate strictly within parameters set by human designers.

Conception alone, however, is not sufficient for authorship. Execution refers to the act of giving concrete form to a creative idea, and this is equally important and shaped and constrained by human input. AI systems function as extensions of the human user, enacting rather than initiating the creative process. They respond to

⁷⁸ Certain categories of works must be in a tangible form to qualify for copyright protection. For instance, choreography is protected only if it is written or recorded. It is a principle that reaffirms the need for the conceptual and expressive process.

⁷⁹ Article 2 of the WIPO Copyright Treaty; Article 9(2) of the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS).

⁸⁰ Daniel J Gervais, 'The Machine as Author' (2020) 105(5) *Iowa Law Review* 2053, 2088–2093.

prompts, meaning any resulting work reflects the decisions and creative direction of the human author. Therefore, the human remains central to both the conceptual and executional dimensions of authorship.

Consequently, if a human can be identified as having contributed to both the conception and execution of a work, then an argument can be made for human authorship behind the AI-generated creation. The critical question is not whether the AI's capability for creativity, but whether human creative input and decisions are reflected in the result. In such cases, the work may be protected by copyright – not because of the AI deserves it, but because the human does, given the demonstrable human contribution.

2.3. The role of human involvement in copyright protection

Building upon the framework of conception and execution, this section explores how human involvement operationalises and demonstrates these authorial claims in the context of AI-generated works. The prevailing view regarding copyright protection for works involving artificial intelligence is that AI functions primarily as a tool or instrument in the hands of human creators, rather than as an independent creative agent. This perspective aligns AI with traditional creative tools like brushes, cameras or musical instruments, which enhance human creativity. AI systems are considered advanced computational aids that enhance or mimic human capabilities.⁸¹ From this standpoint, AI-generated works generally do not qualify for copyright protection without significant human involvement,

⁸¹ Papadopoulou (n 42) 2. *“Through machine learning, an artificial intelligence system develops an output/solution on its own, (...) and whose function mimics that of the human brain.”*

reinforcing the view of AI as a mere instrument.⁸² The presence of human-directed creative control is what transforms the AI's output into a protectable work, embodying the elements of conception and execution.

Human contribution in the creation of AI-generated work can take various forms, including:

- (i) designing and structuring the generative model
- (ii) selecting and curating training data
- (iii) crafting of prompts or parameters that shape the output
- (iv) creatively selecting, refining or editing the AI-generated result.

Where such human input is present and demonstrably influences the final output, the work may be considered copyrightable. However, if the output is generated autonomously by the AI system with minimal or no meaningful human intervention, it is often argued that it fails to meet the originality threshold required for protection. The U.S. Copyright Office, for instance, has indicated that prompts alone might not provide sufficient control for copyrightability if they do not give specific instructions for a particular expressive result.⁸³ Without significant human involvement, the resulting work that does not qualify for copyright protection falls into the public domain.⁸⁴

⁸² Christophe Geiger, 'Elaborating a Human Rights-Friendly Copyright Framework for Generative AI' (2024) 55(4) IIC 789, 2.

⁸³ U.S. Copyright Office, *Copyright and Artificial Intelligence, Part 2: Copyrightability* (January 2025) 14.

⁸⁴ Martin Senftleben and Laurens Buijelaar, 'Robot Creativity: An Incentive-Based Neighbouring Rights Approach' (2020) 42(12) *European Intellectual Property Review* 797, 3.; Christina Varytimidou, 'The New A(I)rt Movement and Its Copyright Protection: Immoral or E-Moral?' (2023) *GRUR International* 1, 4.

Many argue that AI is simply a tool under human control, with human agency remaining central to creation.⁸⁵ This stance is supported by the philosophical understanding that AI systems fundamentally lack the psychological capacities required for true collaboration,⁸⁶ such as shared intentions, commitments, understanding and evaluative abilities.⁸⁷ Instead, AI is more accurately described as “pattern recognition software” or “iterative statistical optimisation systems” that mindlessly generate outputs resembling their human-provided training data and instructions.⁸⁸ Unlike human creativity, which often seeks novel solutions, generative AI systems rely on data conformity.⁸⁹ Therefore, creativity in its full philosophical sense, associated with lifetime experiences like memory, context, cultural embeddedness and personal development, is inherently lacking in AI.

Conversely, generative AI is regarded as autonomous in its creative processes, resulting in the production of *original* works.⁹⁰ Accordingly, with advanced learning and data processing, AI can transcend programmed boundaries to produce novel, unexpected or “surprising” outputs, potentially meeting the originality requirement. The AI-generated portrait of Edmond de Belamy, which

⁸⁵ Kateryna Militsyna, ‘Human Creative Contribution to AI-Based Output—One Just Can(’t) Get Enough’ (2023) 72(10) GRUR Int 939, 940. Johannes Fritz, ‘Understanding Authorship in Artificial Intelligence-Assisted Works’ (2025) *Journal of Intellectual Property Law & Practice* 1, 5–7.

⁸⁶ Wingström, Hautala and Lundman (n 26) 6.

⁸⁷ Anscomb proposes the term “AI-assisted production” highlighting that although AI contributes generatively through statistical processes, creative responsibility and authorship remain exclusively human. Claire Anscomb, ‘AI: Artistic Collaborator?’ (2024) *AI & Society* 1.

⁸⁸ Dan L. Burk, ‘Cheap Creativity and What It Will Do’ (2023) 57(6) Ga L Rev 1669, 1672 and 1681.

⁸⁹ Moura, Castrucci, Hindley (n 30) 535.

⁹⁰ Ryan Abbott and Elizabeth Rothman, ‘Creative Machines: Generative Artificial Intelligence and Copyright Law’ (2025) 100 *Chicago-Kent Law Review* 221, 222.

showed significant improvement in later versions, is an example illustrating AI's perceived ability to refine and enhance outputs, blurring the line between tool and creator.⁹¹

However, this perceived autonomy is largely considered an illusion, stemming from the complexity and opacity of AI's sophisticated automation processes,⁹² often referred to as the 'black box' problem.⁹³ While these complex processes can lead to outcomes that appear to reflect independent thought, AI systems lack true independence.⁹⁴ It is also important to note that novelty is not a criterion for originality in EU copyright law.

A distinction is sometimes made between 'AI-assisted' works, where humans play a dominant role (e.g., manual editing or iterative prompting), and 'AI-generated' content, produced autonomously with minimal human intervention. These terms are often used interchangeably. However, the critical question, regardless of terminology, remains whether the human involvement in each case is sufficient to meet the copyright threshold of originality. If significant human involvement is absent, such outputs may fail to meet the originality requirement foundational to

⁹¹ Dennis Layton, 'AI Art and the Portrait of Edmond de Belamy' (Medium, 22 February 2023) <https://medium.com/@dlaytonj2/ai-art-and-the-portrait-of-edmond-de-belamy-43f318882c09> accessed 12 April 2025.

⁹² Militsyna (n 85) 940.

⁹³ Several commentators to the U.S. Copyright Office's 2023 AI inquiry have highlighted these concerns. See, e.g., Professional Photographers of America, Comments Submitted in Response to U.S. Copyright Office's Aug. 30, 2023, Notice of Inquiry at 7 (Oct. 30, 2023); and others highlighting concerns about the opacity and unpredictability of AI outputs.

⁹⁴ Militsyna (n 85) 940.

copyright law, being understood not as an expression of human creative will, but as the outcome of statistical pattern recognition and data processing.

Ultimately, the debate over whether AI is a mere tool or an autonomous creative agent may be misplaced. Instead, the emphasis should be on the degree of human contribution in AI-generated outputs.⁹⁵ What appears to be autonomous behaviour in AI is, in fact, the result of highly automated processes driven by human design choices and decisions. The U.S. Copyright Office reflects this by framing generative AI as a continuation of computer-assisted creative tools, asserting that copyright protection may extend to AI-generated works only where human contribution is evident, such as through expressive prompts, significant editing or creative selection, with creations autonomously generated by AI falling outside the scope of protection due to the absence of human input.⁹⁶

⁹⁵ Militsyna (n 85) 941.

⁹⁶ U.S. Copyright Office, *Copyrightability* (n 83) 3.

2.4. Post-humanist critique: challenging anthropomorphising and anthropocentric assumptions on originality and authorship debates

Before analysing proposed alternatives, it is essential to adopt a post-humanist lens. This critique actively resists the anthropomorphism of AI, the attribution of human qualities to non-human systems,⁹⁷ which often muddles legal debate by creating a false equivalence between machine output and human creation.⁹⁸ This confusion partly stems from the unclear meaning of “intelligence” and popular depictions⁹⁹, such as describing AI as “learning”.¹⁰⁰ It is considered unreasonable and conceptually misguided to ask whether AI can be creative “like a human,” as such a question overestimates AI’s capabilities.¹⁰¹ This misattribution not only confuses the debate but also serves to avoid responsibility, shifting accountability to the machine rather than the people behind the models.¹⁰² In light of this, arguments for deromanticising AI have been put forward, emphasising that despite the sophistication of its output, AI remains a tool driven by human intention and

⁹⁷ Oxford Reference, ‘Anthropomorphism’ (Oxford University Press, no date) <https://www.oxfordreference.com/display/10.1093/oi/authority.20110803095416392> accessed 9 April 2025.

⁹⁸ P D König, T D Krafft, W Schulz and K A Zweig, ‘Essence of AI: What Is AI?’ in Larry A DiMatteo, Cristina Poncibò and Michel Cannarsa (eds), *The Cambridge Handbook of Artificial Intelligence: Global Perspectives on Law and Ethics* (CUP 2022) 23.

⁹⁹ Jonas Schuett, ‘Defining the Scope of AI Regulations’ (2023) 15(1) *Law, Innovation and Technology* 60, 69.

¹⁰⁰ Ploin and others (n 19) 67.

¹⁰¹ Irina Carnat, ‘Addressing the Risks of Generative AI for the Judiciary: The Accountability Framework(s) under the EU AI Act’ (2024) 55 *Computer Law & Security Review* 106067, 9.

¹⁰² Carnat (n 101) 7.

creativity.¹⁰³ Its outputs are the result of human-provided data, algorithms and objectives.

The concept of anthropocentrism, a human-centred approach, is required in copyright law, including for generative AI and its future implications, as necessitated by instruments like the Berne Convention and EU directives.¹⁰⁴ However, the practical weight of anthropocentrism appears to be diminishing with the development of generative AI, as human input becomes increasingly indirect and obscured.¹⁰⁵

Given these debates, some argue for a redefinition of originality in the context of AI-generated works. The concept of statistical creativity has been proposed to describe the outputs of machine learning processes, which, despite lacking human intentionality, display a form of creativity based on the recombination and processing of vast data sets.¹⁰⁶ Given the anthropocentric foundations of copyright law, acknowledging AI's incapacity for authorship inevitably leads to the conclusion that AI-generated outputs or often termed "robot creations," would be ineligible for copyright protection and would immediately fall into the public domain. This situation raises concerns about the legal and economic treatment of

¹⁰³ Milityna (n 85) 940-941. *"The functionalities of AI systems are based on design choices made by humans and the conditions of systems' deployment. Humans continue to define areas of application and objectives for AI, and 'pave the way' to achieving the set goals."*

¹⁰⁴ Giancarlo Frosio, 'Generative AI in Court' in Nikos Koutras and Niloufer Selvadurai (eds), *Recreating Creativity, Reinventing Inventiveness: AI and Intellectual Property Law* (Routledge 2024)16.; Geiger, *Human Rights-Friendly Copyright* (n 82) 2.

¹⁰⁵ Reto M Hilty, Jörg Hoffmann and Stefan Scheuerer, *Intellectual Property Justification for Artificial Intelligence* (Max Planck Institute for Innovation and Competition Research Paper No 20-02, 2020) 3.

¹⁰⁶ Ploin and others (n 19) 74.

valuable AI outputs across sectors, such as audio recordings, broadcasting, film, news and databases.¹⁰⁷

To address the problem of AI-generated content lacking human authorship, one must ask whether human users, those who develop, operate and instruct AI systems, could be recognised as the beneficiaries of any newly created rights. Shifting the focus from the machine to the human actor helps preserve the fundamental anthropocentric structure of copyright while adapting it to new technological realities.

By refusing to anthropomorphise AI, we can assess frameworks like neighbouring and *sui generis* rights not based on a machine's perceived creativity but on their actual legal and economic justifications, exposing their fundamental flaws when applied to robot creations. Given that purely AI-generated works fall outside the protective scope of traditional copyright, this analysis of the two primary alternatives is necessary.

2.4.1. Neighbouring rights

Neighbouring rights, also known as related rights, protect intellectual contributions that may not qualify as original works, such as performances, sound recordings and broadcasts.¹⁰⁸ These rights, typically for a shorter duration than copyright, are recognised as deserving protection because they reward economic and entrepreneurial investment rather than human creativity. It is argued that

¹⁰⁷ Senftleben and Buijtelaar, *Robot Creativity* (n 84) 3.

¹⁰⁸ Morten Rosenmeier, Sanna Wolk and Kacper Szkalej, *EU Copyright Law: Subsistence, Exploitation and Protection of Rights* (Wolters Kluwer 2019) 41.

existing EU neighbouring rights provide a suitable model for recognising the contributions of human users in the AI context in a way that mandating an exclusive neighbouring right for AI users in their AI-generated output through international conventions would incentivise human involvement in the training, production and dissemination of AI outputs, rather than mistakenly attributing rights to the AI itself.¹⁰⁹

However, not necessarily for AI-generated content, but in general, the suitability of neighbouring rights is countered by criticisms. It is argued that their initial justification for phonogram producers and broadcasters, based on significant investment in recording and broadcasting technology at the time of the Rome Convention (1961), is no longer valid.¹¹⁰ It is highlighted that digitisation has significantly reduced traditional production and distribution costs in the music, broadcasting, and film sectors, thereby weakening the original investment rationale. Furthermore, the absence of a clear threshold for protection under neighbouring rights has led to risks of overprotection.¹¹¹ Extending neighbouring rights protection to AI-generated content, particularly where human authorship or originality is absent, would likely encounter the same criticisms: a lack of a defined threshold for substantial investment and the risk of disproportionate legal protection.

¹⁰⁹ Senftleben and Buijtelaar, *Robot Creativity* (n 84) 1.

¹¹⁰ P Bernt Hugenholtz, 'Neighbouring Rights are Obsolete' (2019) 50 *IIC – International Review of Intellectual Property and Competition Law* 1006, 1007.

¹¹¹ Hugenholtz, *Neighbouring Rights* (n 110) 1008-1009.

Moreover another interpretation of Article 14 of the CDSMD establishes that reproductions of public domain works are only eligible for copyright protection if they qualify as original works and that protection under other rights regimes, including neighbouring rights, “shall not be available *tout court*.”¹¹² By analogy, this suggests that AI-generated content, when lacking human authorship or originality should similarly be excluded from neighbouring rights protection, regardless of the investment involved.

2.4.2. Sui generis rights

In the current discourse, sui generis rights (“of its own kind”) also play an instrumental role in protecting generative AI outputs.¹¹³ These rights emerge when existing intellectual property rights like copyright, trademarks, patents and trade secrets are inadequate to effectively safeguard certain categories of subject matter.¹¹⁴ It is argued that databases, designs and plant varieties are other subjects that standard intellectual property protection could not adequately protect.¹¹⁵ Sui generis regimes aim to balance the public’s access to creations with the rightsholders’ interests.¹¹⁶ For instance, EU copyright law provides property-like protection to data not covered by traditional copyright through a sui generis right for databases. This regime offers exclusive rights over substantial investments in

¹¹² Eleonora Rosati, *Copyright in the Digital Single Market: Article-by-Article Commentary to the Provisions of Directive 2019/790* (Oxford University Press 2021) 244 and 247.

¹¹³ Kazeeva (n 66) 65.; Intellectual Property Owners Association, *Sui Generis Right for Trained AI Models* (2 November 2020).; Gervais, *AI Derivatives* (n 4) 1132.

¹¹⁴ Kazeeva (n 66) 4.

¹¹⁵ Kazeeva (n 66) 4.

¹¹⁶ Kazeeva (n 66) 5.

the obtaining, verification, or presentation of database contents, even in the absence of originality, a move motivated by the perceived inadequacy of existing copyright laws.¹¹⁷

Similarly, proposals to create a *sui generis* right for AI-generated content reflect a desire to fill gaps left by copyright law, focusing on the investment in the AI systems.¹¹⁸ Some legal scholars propose such framework to govern AI-generated outputs, recognising their economic and functional value.¹¹⁹ These proposals reinforce the interpretation of AI as a tool within the creative process rather than as an autonomous agent deserving of authorship rights. However, criticisms exist for applying *sui generis* rights to AI outputs: it is argued that giving AI-generated output the same status as human-generated works could lead to the devaluation of human creativity and minimal remuneration for human creators.¹²⁰ Furthermore, there must be clear evidence of a market failure or an urgent need to provide incentives for the creation of *sui generis* rights for authorless works.¹²¹ It is important to note that the EU's *sui generis* database right has faced criticism, with the European Commission's own assessment stating¹²² it has had no proven impact

¹¹⁷ Article 7 of the EU Database Rights Directive.

¹¹⁸ Kazeeva (n 66) 77.; Liubov Maidanyk, 'Artificial Intelligence and Sui Generis Right: A Perspective for Copyright in Ukraine?' (2021) 3(11) *Access to Justice in Eastern Europe* 144, 151.

¹¹⁹ Papadopoulou (n 42) 5.

¹²⁰ Papadopoulou (n 42) 5.

¹²¹ Gervais, *AI Derivatives* (n 4) 1134.

¹²² European Commission, *Executive Summary of the Evaluation of Directive 96/9/EC on the Legal Protection of Databases* SWD(2018) 147 final, 25 April 2018 <https://data.consilium.europa.eu/doc/document/ST-8467-2018-INIT/en/pdf> accessed 8 September 2025.

on the overall production of databases in Europe nor on the competitiveness of the EU database industry.¹²³

Chapter III. Input: Legal Conditions for AI

Training in the EU Copyright Law

This chapter advances the thesis that the text and data mining (TDM) exceptions within the Copyright in the Digital Single Market Directive (CDSMD), while intended to foster innovation, establish a framework fraught with legal ambiguities and practical barriers. The chapter focuses on the distinction between the TDM exceptions under Article 3 (for research and cultural heritage institutions) and Article 4 (general TDM with opt-out), the requirement of lawful access, the interaction with technical protection measures and the conditions for storing copies made for TDM purposes. This framework fails to strike a sustainable balance between protecting the rights of creators and enabling meaningful technological progress in the EU. To substantiate this argument, this analysis deconstructs the key areas of legal debate currently shaping the landscape. These include the contested definitional scope of TDM in relation to AI training, the viability of proposed remuneration and licensing models, the legally unprotected status of artistic style against AI imitation and the significant practical limitations inherent in the CDSMD's exceptions for lawful access, reproduction rights and data storage.

¹²³ Thomas Margoni and Martin Kretschmer, 'A Deeper Look into the EU Text and Data Mining Exceptions: Harmonisation, Data Ownership, and the Future of Technology' (2022) 71(8) *GRUR International* 685, 699.

3.1. Relationship between AI training and text and data mining

The legal classification of AI training is a matter of critical importance within the EU copyright framework. The determination of whether AI training constitute the legal definition of text and data mining is critical as it can be the legal gateway for AI developers. It dictates whether they can leverage the specific copyright exceptions provided by the CDSMD, thereby shaping the economic and innovative landscape for AI development across the EU.¹²⁴

At the heart of the debate lies the distinction between the technical processes and ultimate purposes of TDM and AI training. While the two are closely related, with TDM often serving as a tool in machine learning, a compelling argument suggests they are fundamentally different in nature.¹²⁵

Text and data mining is defined under Article 2 of the CDSMD as automated analytical techniques for exploring large digital datasets to identify patterns and generate knowledge. TDM is frequently considered an essential tool in machine learning¹²⁶, particularly for AI model training, including generative AI, by facilitating insights from extensive, unstructured datasets.¹²⁷

¹²⁴ Rosati, *Commentary* (n 112) 38.

¹²⁵ Tim W Dornis, 'The Training of Generative AI Is Not Text and Data Mining' (2024) *forthcoming* GRUR International, 1.

¹²⁶ Ethem Alpaydın, *Introduction to Machine Learning* (3rd edn, MIT Press 2014) 2.

¹²⁷ João Pedro Quintais, 'Generative AI, Copyright and the AI Act' (2025) 56 *Computer Law & Security Review* 106107, 2.; Margoni and Kretschmer, *A Deeper Look* (n 123) 686.; Adam Buick, 'Copyright and

When it comes to AI training, the primary purpose is producing new or creative output that is similar to the data on which the model was trained.¹²⁸ AI activities rely on training data, which the AI Act defines the *input* in Article 3(29) as data used for [the] optimisation of an AI system's learnable parameters, though it does not provide a single, direct definition for the training process itself.

Therefore it is argued that, the purpose of generative AI, to produce new data that mimics its training inputs, fundamentally distinguishes it from TDM's analytical goal of extracting knowledge from the data.¹²⁹ From this perspective, while TDM may occur during initial data retrieval or analysis, it does not accurately describe the entire AI training process, which is oriented towards production rather than analysis.¹³⁰

Despite this definitional debate, the AI Act arguably supports the application of the TDM exceptions to the development of general-purpose AI models. Nevertheless, the AI Act does not explicitly equate TDM with AI training. Instead, the AI Act's framework suggests that TDM is just one step in a broader, multi-stage AI development process.¹³¹ Thus, even within regulatory interpretations that

AI Training Data—Transparency to the Rescue?' (2025) 20(3) *Journal of Intellectual Property Law & Practice* 182, 187.

¹²⁸ Maryna Manteghi, 'Can text and data mining exceptions and synthetic data training mitigate copyright-related concerns in generative AI?' (2024) 16(2) *Law, Innovation and Technology* 663, 664-665-669.

¹²⁹ Dornis (n 125) 9. He argues that there is no mention of generative AI's purpose, which is to produce data that is similar to the training data.

¹³⁰ Dornis (n 125) 26.

¹³¹ Eleonora Rosati, 'Infringing AI: Liability for AI-Generated Outputs under International, EU, and UK Copyright Law' (2024) *European Journal of Risk Regulation* 1, 7.

accommodate AI model development under TDM exceptions, they might not cover every aspect of the complex process involved in training a generative model.

As a result, the definitional uncertainty surrounding the relationship between AI training and TDM creates a precarious legal foundation for AI developers in the EU. This ambiguity directly increases the copyright conflicts that arise when vast and protected datasets are used to train new models. This conflict is centred on one of copyright's most fundamental tenets: the right of reproduction.

3.2. Copyright barriers to AI training in the EU

The right of reproduction, which grants creators exclusive control over the copying of their work, stands as a cornerstone of copyright law, regulated under Article 2 of the InfoSoc Directive.¹³² It includes any act of copying. The CJEU has interpreted right to reproduction to extend to ephemeral and invisible copies made during technological processes.¹³³ Similarly, the CJEU has ruled in the Football Association Premier League case (2011) that the reproduction right covers transient fragments of works on devices like satellite decoders and TV screens.¹³⁴

The very nature of generative AI training creates a direct conflict with this right. The process inherently requires making copies of immense datasets, which often

¹³² Thomas Margoni, *Artificial Intelligence, Machine Learning and EU Copyright Law: Who Owns AI?* (CREATE Working Paper 2018/12, University of Glasgow, December 2018) 15.

¹³³ For instance, the creation of a TIFF file by scanning and its conversion into a searchable text file during a data capture process have been considered acts of reproduction. See European Commission, *Study on copyright and New Technologies: Copyright Data Management and Artificial Intelligence* (Publications Office of the European Union 2022) 177.

¹³⁴ European Commission, *Study on copyright* (n 133) 178.

include copyrighted works.¹³⁵ This act of mass copying places the operational needs of AI developers in direct opposition to the fundamental rights of creators.

This operational necessity results in a strong clash of legal interests. On one side, AI developers argue that restricting training data to “vintage” or openly licensed material would severely impede innovation, limiting the diversity and comprehensiveness necessary for building effective models.¹³⁶ On the other, rightsholders contend that training AI on their copyrighted works without consent or compensation constitutes unlawful infringement.¹³⁷ This conflict is not merely theoretical; it is actively being tested in courts, with high-profile litigation such as *Getty Images versus Stability AI* serving as a prime example of the legal battles shaping the field.¹³⁸ This conflict is underscored by recent technical findings showing that identifiable text sequences from copyrighted works can be retrieved from training data, lending empirical weight to claims of direct reproduction.¹³⁹

¹³⁵ See Nicola Lucchi, ‘ChatGPT: A Case Study on Copyright Challenges for Generative Artificial Intelligence Systems’ (2024) 15 *European Journal of Risk Regulation* 602, 612.; Martin Kretschmer, Thomas Margoni and Pinar Oruç, ‘Copyright Law and the Lifecycle of Machine Learning Models’ (2024) *IIC – International Review of Intellectual Property and Competition Law*.

¹³⁶ Christophe Geiger and Vincenzo Iaia, ‘Towards an Independent EU Regulator for Copyright Issues of Generative AI: What Role for the AI Office (But More Importantly: What’s Next)?’ (2024) *Auteurs & Media* II, 185, 2.

¹³⁷ Sarah Hopton, John Enser and Ben Hitchens, ‘Copyright and AI: How Is the UK Government Proposing to Strike a Balance Between the Creative Industries and AI Sector?’ (CMS Law-Now, 14 January 2025) 1 <https://cms-lawnow.com/en/ealerts/2025/01/copyright-and-ai-how-is-the-uk-government-proposing-to-strike-a-balance-between-the-creative-industries-and-ai-sector> accessed 20 April 2025.

¹³⁸ Matthew Coulter, ‘Aiming for Fairness: An Exploration into Getty Images v. Stability AI and its Importance in the Landscape of Modern Copyright Law’ (2024) 34(1) *DePaul J Art Tech & Intell Prop L* 124, 128.

¹³⁹ Rosati, *Infringing AI* (n 131) 14.

These situations highlight conflicts between protecting works and the need for data access for research and development. Generative AI is a dual-use technology that has a clear potential to infringe copyright but simultaneously offers significant non-infringing benefits in fields like healthcare, education, creativity and research. Therefore, this dual nature demands that regulatory decisions should involve a careful cost-benefit analysis, weighing potential harm to authors against the risk of stifling innovation.¹⁴⁰

Consequently, the conflict between technological necessity and legal protection raises a critical question for policymakers: how can regulatory frameworks resolve this in a way that is both fair and forward-looking? The search for an answer inevitably leads to a complex debate over licensing frameworks and remuneration schemes.

3.3. The search for equilibrium: remuneration and licensing models

The debate over compensation models for AI training data strikes at the heart of the EU's policy challenge. The core task for legislators is to devise a system that ensures copyright rightsholders receive fair remuneration for the value their works contribute to AI innovation, without simultaneously imposing crippling economic

¹⁴⁰ Giancarlo Frosio, 'Should We Ban Generative AI, Incentivise it or Make it a Medium for Inclusive Creativity?' in Enrico Bonadio and Caterina Sganga (eds), *A Research Agenda for EU Copyright Law* (Edward Elgar 2025) 67.

burdens that would stifle that innovation.¹⁴¹ This requires navigating significant economic and legal stakes for both rightsholders and AI developers.

3.3.1. The CDSMD opt-out: a flawed mechanism?

Article 4(3) of the CDSMD provides copyright rightsholders an ‘opt-out’ mechanism to reserve their rights and prevent the use of their works for TDM. The efficacy of this mechanism as a tool for author empowerment is, however, a subject of legal and economic debate.¹⁴² Proponents argue that it empowers authors by giving them greater control and creating a legal basis for negotiating compensation, particularly when managed through collective rights management.¹⁴³ However, critics argue that a widespread move towards licensing training data could severely limit data availability and quality, increase costs, reduce market competition and ultimately slow the pace of innovation across the EU.¹⁴⁴

The practical implementation of the opt-out mechanism has sparked considerable debate. Technical approaches such as Robots Exclusion Protocol (robots.txt files) are frequently addressed, but critics argue their limited effectiveness, especially for

¹⁴¹ Rosati, *Commentary* (n 112) 420.

¹⁴² Quintais, *Generative AI* (n 127) 13.

¹⁴³ Paul Keller, ‘Protecting Creatives or Impeding Progress? Machine Learning and the EU Copyright Framework’ (Kluwer Copyright Blog, 20 February 2023) <https://copyrightblog.kluweriplaw.com/2023/02/20/protecting-creatives-or-impeding-progress-machine-learning-and-the-eu-copyright-framework/> accessed 21 April 2025.

¹⁴⁴ Bertin Martens, *Economic Arguments in Favour of Reducing Copyright Protection for Generative AI Inputs and Outputs* (Bruegel Working Paper 09/2024, 4 April 2024) https://www.bruegel.org/system/files/2024-04/WP%2009%20040424%20Copyright%20final_0.pdf accessed 21 April 2025.

generative AI training, as they require detailed, resource-specific instructions.¹⁴⁵ Copyright metadata is also significant, as fragmented or unreliable data can hinder rightsholders' tracking and compensation for their material.¹⁴⁶ Without binding legal obligation or consistent industry guidelines, reliance solely on these technical measures may inadequately protect rightsholders' interests.

Furthermore, the AI Act (Article 53(1)(c)) obliges providers of general-purpose AI models to respect copyright law, which includes respecting TDM exceptions and opt-outs under Article 4(3) of the CDSMD. General-purpose AI providers placing models on the EU market must comply with EU copyright obligations, regardless of where the training took place, to discourage operations from moving to jurisdictions with fewer regulatory burdens.¹⁴⁷ This is intended to discourage general-purpose AI developers from moving their operations to jurisdictions with fewer regulatory burdens.¹⁴⁸

3.3.2. Remuneration right

In response to the perceived flaws of the opt-out model, an alternative approach gaining traction is the implementation of a remuneration right for authors whose works are used in AI training.¹⁴⁹ This argument is often grounded in a human rights-based perspective on copyright law, which aims to protect the legitimate

¹⁴⁵ Manteghi (n 128) 676.

¹⁴⁶ European Commission, *Study on copyright* (n 133) 102.

¹⁴⁷ Recital 106 of the AI Act.

¹⁴⁸ Thomas Margoni, 'TDM and Generative AI: Lawful Access and Opt-Outs' (forthcoming in *Auteurs & Media* 2024) 7.

¹⁴⁹ Christophe Geiger and Elena Izyumenko, 'Towards a European "Fair Use" Grounded in Freedom of Expression' (2019) 35(1) *Am U Int'l L Rev* 1, 57

interests of creators while serving the public good.¹⁵⁰ Its justification is rooted in fundamental international principles, specifically Article 27(2) of the Universal Declaration of Human Rights (UDHR), which affirms every author's right to *"the protection of the moral and material interests resulting from any scientific, literary or artistic production of which he is the author."*

3.3.3. Economic burdens and competitive disadvantage

The cumulative financial and legal burdens imposed on AI developers in the EU are a significant concern. These pressures risk creating a competitive disadvantage on the global stage¹⁵¹ often causing delays or withdrawals of AI products from the European market.¹⁵² The primary cost drivers include:

- Licensing fees required to secure lawful access to copyrighted training data.
- Compliance costs associated with monitoring and adhering to rightsholders opt-outs and other data usage restrictions.
- Transparency obligations under Article 53(1)(d) of the AI Act, which mandate detailed public summaries of training data, requiring substantial time, technical resources and legal oversight.¹⁵³

¹⁵⁰ Geiger, *Human Rights-Friendly Copyright* (n 82) 2.

¹⁵¹ Martin Senftleben and others, 'Ensuring the Visibility and Accessibility of European Creative Content on the World Market: The Need for Copyright Data Improvement in the Light of New Technologies and the Opportunity Arising from Article 17 of the CDSM Directive' (2022) 13(1) *JIPITEC* 67, 72.

¹⁵² Nir Kshetri, 'Navigating EU Regulations: Challenges for U.S. Technology Firms and the Rise of Europe's Generative AI Ecosystem' (2024) *IEEE Computer* 112

¹⁵³ Buick (n 127) 191.; Recital 107 of the AI Act.

The cumulative effect of these costs is particularly acute for small and medium-sized enterprises. Notably, Article 3 of the CDSMD has been criticised for limiting the TDM exception to scientific research by research organisations and cultural heritage institutions, thereby excluding them.¹⁵⁴ This may push small and medium-sized enterprises towards using cheaper, potentially less reliable or biased datasets.¹⁵⁵ Another risk is that small and medium-sized enterprises, unable to afford TDM licenses or comply with transparency requirements, may relocate to jurisdictions with more affordable regulatory conditions.¹⁵⁶

While these economic and legal frameworks grapple with the tangible act of *copying* data, generative AI introduces a far more abstract and legally challenging problem: the imitation of an artist's unique *style*.

3.4. Beyond copying: the unprotected domain of artistic style

Generative AI's ability to learn from an author's body of work and then produce new outputs in that specific style presents a novel and complex challenge¹⁵⁷ that falls largely outside the scope of traditional copyright protection.¹⁵⁸ This capability creates a conflict not over the reproduction of a specific work, but over the

¹⁵⁴ Margoni and Kretschmer, *A Deeper Look* (n 123) 695.

¹⁵⁵ Margoni and Kretschmer, *A Deeper Look* (n 123) 700.

¹⁵⁶ European Commission, *Study on copyright* (n 133) 209.

¹⁵⁷ Matthew Sag, Copyright Safety for Generative AI (2023) 61 *Houston Law Review* 295.

¹⁵⁸ Frosio, *Generative AI in Court* (n 104) 8.; Abbott and Rothman, *Disrupting Creativity* (n 22) 1194.

appropriation of an artistic identity, pitting technological mimicry against the foundational principles of creative inspiration.¹⁵⁹

Under existing copyright frameworks in both the EU and U.S., an author's style is generally not protected by copyright.¹⁶⁰ This is a direct consequence of the idea/expression dichotomy, a core principle stating that copyright protects the expression of an idea but not the idea, method or style itself. The U.S. Copyright Office has explicitly affirmed that copyright protection for style would be inconsistent with this dichotomy, as excluding styles from protection is crucial for allowing future creators to be inspired and build upon past works.¹⁶¹

The legal line is drawn between creating an inspired work and creating a derivative work. As organisations like Creative Commons have argued, being inspired by an artist's style is not an act of infringement.¹⁶² For example, creating a new painting *in the style of Van Gogh* would be considered an inspired work. However, creating a modified version of his painting *Starry Night* would be a derivative work, as it reproduces copyrightable expressive elements. Infringement occurs only when

¹⁵⁹ Margoni, *TDM and Generative AI* (n 148) 6. The cases of Stability AI and Getty Images have been mentioned.

¹⁶⁰ Nicholas Garcia, 'Generative AI is Disruptive, But More Copyright Isn't the Answer' (Public Knowledge, 11 May 2023) <https://publicknowledge.org/generative-ai-is-disruptive-but-more-copyright-isnt-the-answer/> accessed 19 April 2025.

¹⁶¹ U.S. Copyright Office, *Copyright and Artificial Intelligence, Part 1: Digital Replicas* (July 2024) 54.; James Boyle, *The Public Domain: Enclosing the Commons of the Mind* (Yale University Press 2008) 34. As Boyle notes "Poetry can only be made out of other poems; novels out of other novels. (...)."

¹⁶² Creative Commons, *Response to the UK Consultation on Copyright and Artificial Intelligence* (20 February 2025) 8.

protected elements of expression are reproduced, not when an abstract style is emulated.¹⁶³

Given the inadequacy of traditional copyright, rightsholders are exploring alternative legal avenues to protect artistic style. However, each presents significant limitations.

There is discussion on whether creators can rely on moral rights or personality rights to oppose AI training that mimics their style. It is suggested that an artist's personality is "transferred" to the AI during training.¹⁶⁴ This approach could offer protection against misuse that harms an author's reputation, but it falls outside copyright law and attribution claims.¹⁶⁵ This highlights the tension: an artist's style, central to their identity and reputation¹⁶⁶, is not copyrightable.¹⁶⁷

¹⁶³ Ewa Milczarek, 'The Evolution of Copyright in the Age of Artificial Intelligence: Challenges and Perspectives' in Michał Balcerzak and Julia Kapelańska-Pręgowska (eds), *Artificial Intelligence and International Human Rights Law* (Edward Elgar Publishing 2024) 163, where the distinction between inspired and derivative works in Polish law is discussed: an inspired work uses only the idea or style, while a derivative work incorporates protected elements like structure or expression.

¹⁶⁴ European Commission, *Study on copyright* (n 133) 242.

¹⁶⁵ Particularly in the art market, blockchain technology has been proposed to help protect attribution rights. See Enrico Bonadio, Nicola Lucchi and Giuseppe Mazziotti, 'Will Technology-Aided Creativity Force Us to Rethink Copyright's Fundamentals? Highlights from the Platform Economy and Artificial Intelligence' (2022) 53 *International Review of Intellectual Property and Competition Law* 1174, 1185.

¹⁶⁶ For example, creators' concerns about misuse of their identity have been expressed here: *Artificial Intelligence and Intellectual Property: Part II—Identity in the Age of AI: Hearing Before the Subcomm. on Courts, Intellectual Property, and the Internet of the H. Comm. on the Judiciary*, 118th Cong (2024) 6 <https://www.govinfo.gov/content/pkg/CHRG-118hhrg54845/pdf/CHRG-118hhrg54845.pdf> accessed 25 April 2025.

¹⁶⁷ U.S. Copyright Office, *Digital Replicas* (n 161) 54. The U.S. Copyright Office pointed out the other existing ways of protection against unfair copying of artistic style though.

In U.S. copyright law, the right to attribution is narrowly granted to authors of visual art under Section 106A¹⁶⁸, allowing them to prevent false attribution or harmful changes to their work.¹⁶⁹ This acknowledges the link between an author's work and their personal identity, which is expressed by their *style*. However, these rights are limited by the fair use doctrine under Section 107, which can override them. It means that if a use qualifies as fair use, attribution or integrity rights cannot be invoked, even if style is copied or altered.

In EU copyright law, recurring proposals include introducing a specific remuneration (related) right tied to style imitation or treating the practice as a form of unfair commercial practice under separate regulations.¹⁷⁰ While CDSMD Articles 3 and 4 primarily regulate training data, they are relevant to the style imitation debate as they address how rightsholders can restrict the use of their works as input that enables this capability. Rightsholders are expected to use their opt-out right under Article 4(3) to prevent their works from being used in training that might lead to stylistic imitation.

As a result, current copyright law is ill-equipped to address the challenge of AI-driven style imitation, leaving a significant legal gap. This legal inadequacy places immense pressure on the CDSMD's opt-out mechanism, which currently serves as the primary and arguably insufficient tool for creators seeking to prevent their artistic identities from being ingested and mimicked by AI systems. To understand

¹⁶⁸ Section 106A. Rights of certain authors to attribution and integrity, U.S. Copyright Law, <https://www.copyright.gov/title17/92chap1.html#106a> accessed 24 April 2025.

¹⁶⁹ U.S. Copyright Office, *Authors, Attribution, and Integrity: Examining Moral Rights in the United States* (April 2019) 59.

¹⁷⁰ European Commission, *Study on copyright* (n 133) 241.

the full scope of this issue, it is necessary to return to the source, the data inputs, and critically examine the specific legal instruments in the CDSMD that govern their use.

3.5. The critical examination of the TDM exceptions

Digital technologies have enabled new forms of use; particularly in research, innovation, education and cultural heritage preservation that were not adequately addressed by previous EU copyright frameworks.¹⁷¹ To address these developments, CDSMD introduced specific mandatory exceptions for text and data mining under Article 3 and Article 4. These exceptions aim to mitigate tension between copyright holders and AI developers by clarifying permissible data uses.¹⁷² This section will critically examine the scope, limitations and practical ambiguities of these exceptions to evaluate their fitness for purpose in the era of generative AI.

3.5.1. The two tiers: scope and beneficiaries

The CDSMD establishes a two-tiered system for TDM, with each exception targeting different users and purposes. Article 3 is a mandatory exception provided exclusively for research organisations and cultural heritage institutions conducting TDM for scientific research purposes. It cannot be overridden by contract (Article 7(1)) and does not require compensation for rightsholders. (Recital 17).¹⁷³ Crucially, designed for non-commercial research organisations and cultural heritage

¹⁷¹ Recital 5 of the CDSMD.

¹⁷² Manteghi (n 128) 669.

¹⁷³ Matthew Sag, 'The New Legal Landscape for Text Mining and Machine Learning' (2019) 66 *Journal of the Copyright Society of the U.S.A.* 291, 340.

institutions, it excludes commercial entities, thereby limiting its use for most generative AI developers who are often private companies, small and medium-sized enterprises or startups with commercial purposes.¹⁷⁴ Furthermore, the directive explicitly allows collaboration with private enterprises, enabling them to perform TDM activities on behalf of research organisations using their own technological tools.¹⁷⁵ However, in some national transpositions (e.g., Germany) the scope for public-private collaborations is narrow to ensure opt-outs.¹⁷⁶

Article 4 (general use) is a much broader exception, applying to any type of user for any purpose. However, its utility is critically limited by a powerful opt-out mechanism, which allows rightsholders to expressly reserve their rights and prohibit their works from being mined.

Research organisations are defined under Article 2(1) of the CDSMD as non-profit entities or those tasked by a Member State with a public interest mission, primarily focused on educational activities or scientific research, explicitly excluding commercial research institutes.¹⁷⁷ However, the geographical applicability remains unclear: although not explicitly stated, there is an implied expectation that eligible institutions should be based within the EU.¹⁷⁸

¹⁷⁴ Geiger, *Human Rights-Friendly Copyright* (n 82) 21.; Manteghi (n 128) 674.

¹⁷⁵ Recital 11 of the CDSMD.

¹⁷⁶ § 60d UrhG. See Andres Guadamuz, 'A Scanner Darkly: Copyright Liability and Exceptions in Artificial Intelligence Inputs and Outputs' (2024) 73 *GRUR International* 111, 120.

¹⁷⁷ P Bernt Hugenholtz, 'The New Copyright Directive: Text and Data Mining (Articles 3 and 4)' (Kluwer Copyright Blog, 24 July 2019) <https://copyrightblog.kluweriplaw.com/2019/07/24/the-new-copyright-directive-text-and-data-mining-articles-3-and-4/> accessed 20 April 2025. It is argued by the author that, however, they might potentially fall under Article 4.

¹⁷⁸ Rosati, *Commentary* (n 112) 43.

Alongside research organisations, the Directive also defines cultural heritage institutions broadly under Article 2(3). These institutions include publicly accessible libraries, museums, archives and film or audio heritage entities. The CDSMD's illustrative rather than exhaustive definition allows for flexibility in determining qualifying institutions beyond those explicitly listed.¹⁷⁹ Notably, the requirement of public accessibility is expressly required to libraries and museums, while other cultural heritage institutions do not face this specific condition.¹⁸⁰ Like research organisations, cultural heritage institutions can collaborate with private partners to leverage technical expertise for TDM activities, as affirmed by Recital 11.

It is argued that Articles 3 and 4 of the CDSMD, by permitting TDM under specific conditions, undermine the practical effect of the fundamental idea/expression dichotomy in copyright law.¹⁸¹ While facts and data are not protected, works containing them (e.g., books, articles, datasets) are. As TDM involves copying large volumes of such works to extract unprotected content, it requires making temporary copies. However, even transient copies may fall under the reproduction right unless an exception applies. These exceptions are narrowly defined, both in terms of users and purposes. The result is a legal framework in which accessing unprotected facts often carries legal risk simply because they are embedded in

¹⁷⁹ Rosati, *Commentary* (n 112) 44.

¹⁸⁰ Recital 13 of the CDSMD: “Cultural heritage institutions should be understood as covering publicly accessible libraries and museums (...)”

¹⁸¹ Margoni and Kretschmer, *A Deeper Look* (n 123) 690.

protected expression, which has been criticised for restricting access to material that should be unprotected.¹⁸²

3.5.2. The ambiguity of lawful access

A significant source of legal uncertainty is the prerequisite of “lawful access.” Both Article 3 and Article 4 of the CDMSD require lawful access to the works or other subject matter used for TDM.

According to Article 3(1), Member States must provide for an exception for text and data mining “*of works or other subject matter to which they have lawful access*”. Under Article 4(1), Member States must ensure an exception applies to uses involving “*lawfully accessible works and other subject matter*” for text and data mining purposes. It is important to clarify that lawful access is a prerequisite for TDM, not a means of accessing content.¹⁸³

There is debate on whether research organisations should be required to have lawful access, with some arguing against it for non-profit research.¹⁸⁴ If Article 3 is for non-profit activities such as research and scientific purposes, why is it necessary

¹⁸² Margoni and Kretschmer, *A Deeper Look* (n 123) 690.

¹⁸³ Rossana Ducato and Alain Strowel, *Ensuring Text and Data Mining: Remaining Issues With the EU Copyright Exceptions and Possible Ways Out* (CRIDES Working Paper Series no 1/2021, forthcoming in 43 *European Intellectual Property Review* 2021/5) 18.

¹⁸⁴ Reto Hilty and Heiko Richter, *Position Statement of the Max Planck Institute for Innovation and Competition on the Proposed Modernisation of European Copyright Rules Part B: Exceptions and Limitations (Art 3 – Text and Data Mining)*, Max Planck Institute for Innovation & Competition Research Paper No 17-02 (14 January 2017)

to require lawful access which is likely associated with a contractual agreement based on profit, thereby creating a contradiction?¹⁸⁵

Discussions surround this requirement, which is not explicitly stated in most other InfoSoc Directive exceptions. For example, Article 5 of InfoSoc Directive implies lawful access arising both from the structure and purpose of the exceptions¹⁸⁶ and from the overarching principles of EU copyright law but it is not evident in the text of the provisions.

This term is not clearly defined, leading to a central debate over its interpretation.¹⁸⁷ The means of achieving lawful access, (e.g., through licensing, rightsholder consent, or public domain) are not specified by Articles 3 and 4 of the CDSMD.

The only guidance offered is found in Recital 14 of the CDSMD, which provides a non-exhaustive list of examples suggesting how lawful access can be achieved. These include:

- Open access policies
- Contractual arrangements (e.g., subscriptions)
- Content made freely available online

This list is illustrative rather than prescriptive. The ambiguity is particularly problematic when contrasted with other EU copyright frameworks. While a

¹⁸⁵ Ducato and Strowel, *Ensuring Text and Data Mining* (n 183) 20.

¹⁸⁶ For example, Article 5(2)(b) states that rightsholders should receive fair compensation, which implies a lawful access.

¹⁸⁷ Christophe Geiger and Bernd Justin Jütte, 'Copyright as an Access Right: Concretizing Positive Obligations for Rightsholders to Ensure the Exercise of User Rights' (2024) 73(11) *GRUR International* 1020, 1023.

concept of lawful access is *implied* in other exceptions, such as the private copying exception in Article 5 of the InfoSoc Directive, the CDMSD makes it an *explicit* yet undefined prerequisite for TDM.¹⁸⁸ Notably, the CJEU in *ACI Adam* clarified that the private copying exception under Article 5(2)(b) does not apply to copies made from unlawful sources, establishing that the legitimacy of the source is a necessary precondition for the lawful exercise of the exception.¹⁸⁹ It means that it must not be from a pirated or infringing source. This interpretation is based on the three-step test in Article 5(5) of the InfoSoc Directive, which states that exceptions must not conflict with the normal exploitation of the work or unreasonably prejudice the rightsholder's legitimate interests, conditions incompatible with the use of pirated or infringing material.¹⁹⁰ Following CJEU case law (e.g. *ACI Adam*), some interpretations view lawful access as requiring a lawful source.

The alternative view argue that lawfulness should be assessed based on the user's conduct in accessing the material, not the legal status of the content.¹⁹¹ The practical implications are profound: if a researcher lawfully visits a public website but scrapes content that was uploaded without authorisation, the legality of their TDM activity depends entirely on which interpretation prevails.

¹⁸⁸ Margoni, *TDM and Generative AI* (n 148) 12.

¹⁸⁹ Case C-435/12 *ACI Adam BV and Others v Stichting de ThuisKopie and Stichting Onderhandeligen ThuisKopie vergoeding* EU:C:2014:254

¹⁹⁰ Eleonora Rosati, 'What Does the ACI Adam Decision Mean for the Private Copying Exception?' (*The IPKat*, 14 April 2014) <https://ipkitten.blogspot.com/2014/04/what-does-aci-adam-decision-mean-for.html> accessed 25 April 2025.

¹⁹¹ Margoni, *TDM and Generative AI* (n 148) 12.

The debate between a ‘lawful source’ interpretation and a ‘lawful conduct’ interpretation represents the most significant and consequential fault line in understanding the TDM exceptions. This interpretive divergence creates significant legal uncertainty, forcing developers and researchers to operate under the constant risk that their entire dataset could be deemed unlawful based on the legal status of a single data point’s source, regardless of their own lawful conduct.

3.5.3. Technical and legal hurdles to implementation

Beyond definitional ambiguities, developers and researchers face several practical barriers that impede the effective use of the TDM exceptions.

3.5.3.1. *Right to reproduction and ephemeral copies*

Article 5(1) of the InfoSoc Directive provides an exception for right to reproduction regarding the transient or incidental temporary acts of reproduction. To qualify, a temporary act of reproduction must be an integral and essential part of a technological process, solely for enabling network transmission or lawful use of a work and have no independent economic significance.¹⁹²

The process of TDM requires making temporary copies of works through reproduction and extraction.¹⁹³ It is argued that these copies may not qualify for the temporary copy exception under Article 5(1) of the InfoSoc Directive.¹⁹⁴ This is

¹⁹² Margoni and Kretschmer, *A Deeper Look* (n 123) 691.

¹⁹³ Rosati, *Infringing AI* (n 131) 8.; Margoni, *Artificial Intelligence, Machine Learning* (n 132) 2.

¹⁹⁴ Rossana Ducato and Alain Strowel, ‘Limitations to Text and Data Mining and Consumer Empowerment: Making the Case for a Right to “Machine Legibility”’ (CRIDES Working Paper Series, 31 October 2018) 13.

because the exception has strict cumulative conditions, requiring the copy to be transient, an essential part of a technological process and have no independent economic significance, that are challenging to apply to the systematic copying involved in TDM.¹⁹⁵

The scope of the reproduction right is also discussed regarding its applicability to non-exploitative uses such as TDM.¹⁹⁶ It is argued that when reproduction is made for TDM purposes, the copyrighted work is not used for its expression or enjoyed by an audience; instead, it functions as raw data for information extraction.¹⁹⁷ The core acts permitted by the TDM exceptions (Articles 3 and 4 CDSMD) are reproductions and extractions of lawfully accessible works.¹⁹⁸

3.5.3.2. *Technical protection measures (TPM)*

The introduction of specific text and data mining exceptions by the CDSMD represents a step forward in facilitating data analysis. However, the practical exercise of these exceptions is often impeded by technological protection measures (TPMs), which restrict unauthorised access to protected works. TPMs, defined as technologies that prevent or restrict unauthorised uses¹⁹⁹, reinforce intellectual property rights and contractual obligations, posing obstacles for TDM activities.²⁰⁰

¹⁹⁵ Ducato and Strowel, *Limitations to Text and Data Mining* (n 194) 13.

¹⁹⁶ Hugenholtz, *The New Copyright Directive* (n 177).

¹⁹⁷ Ducato and Strowel, *Limitations to Text and Data Mining* (n 194) 20.

¹⁹⁸ Rosati, *Commentary* (n 112) 167.

¹⁹⁹ Article 6(3) of the InfoSoc Directive.

²⁰⁰ Geiger and Jütte (n 187) 1028.

In practice, these technical barriers frequently combine with contractual restrictions, compounding challenges for researchers.²⁰¹ For example, platforms like Elsevier impose strict contractual terms, such as mandatory use of application programming interfaces, combined with technical limitations including download caps and scraping prohibitions, further limiting the practical exercise of TDM exceptions.²⁰² Publishers may continue using restrictive application programming interfaces, maintaining TPMs as hurdles to research.²⁰³

The legal framework strengthens TPM protection: Article 6 of the InfoSoc Directive requires implementation of Article 11 of the WIPO Copyright Treaty to protect TPMs against circumvention and to prohibit commercial dealings in circumvention tools or services. Extending this protection to TDM, Article 7(2) of the CDSMD confirms the applicability of certain paragraphs from Article 6(4) of the InfoSoc Directive. This reflects legal recognition of TPMs as critical instruments for safeguarding rightsholders' legitimate interests, even TPMs voluntarily implemented by rightsholders.²⁰⁴

Despite this robust protection of TPMs, a notable criticism is the absence of clear mandatory measures to ensure TPMs do not excessively limit lawful exceptions,

²⁰¹ Ducato and Strowel, *Limitations to Text and Data Mining* (n 194) 4.

²⁰² Elsevier, *Text and Data Mining Policy* <https://www.elsevier.com/about/policies-and-standards/text-and-data-mining> accessed 8 September 2025.

²⁰³ LIBER, *Limitations and Exceptions in EU Copyright Law for Libraries, Educational and Research Establishments: A Basic Guide* (2016) 14.

²⁰⁴ Ducato and Strowel, *Ensuring Text and Data Mining* (n 183) 16.

raising concerns about balancing TDM facilitation and intellectual property rights protection.²⁰⁵

3.5.3.3. *Storage of original works*

The CDSMD introduces specific conditions for storing copies made under the TDM exceptions. Copies made for TDM must not be retained longer than necessary to achieve the exception's purposes. Specifically, Article 3 of the CDSMD, which is related to reproductions and extractions by research organisations and cultural heritage institutions for scientific research, requires copies to be stored with an appropriate level of security.²⁰⁶ Rightsholders are also permitted to apply measures ensuring the integrity and security of networks and databases hosting such content.²⁰⁷

For TDM activities under Article 3, retention of copies is explicitly linked to scientific research purposes, including the verification of research results.²⁰⁸ On the other hand, Article 4 of the CDSMD limits retention to what is “necessary for the purposes of text and data mining.” If narrowly interpreted, this might restrict retention solely to the initial training phase, thereby requiring immediate deletion of copyrighted materials post-training.²⁰⁹ However, a broader interpretation argues

²⁰⁵ Ducato and Strowel, *Ensuring Text and Data Mining* (n 183) 21.

²⁰⁶ Article 3(2) of the CDSMD.

²⁰⁷ Article 3(3) of the CDSMD.

²⁰⁸ Caterina Sganga, Magali Contardi, Pelin Turan, Camilla Signoretta, Giorgia Bucaria, Péter Mezei and István Harkai, *Copyright Flexibilities: Mapping and Comparative Assessment of EU and National Sources* (16 January 2023) SSRN 42.

²⁰⁹ Claudio Novelli, Federico Casolari, Philipp Hacker, Giorgio Spedicato and Luciano Floridi, ‘Generative AI in EU Law: Liability, Privacy, Intellectual Property, and Cybersecurity’ (2024) 55 *Computer Law & Security Review* 106066, 10.

that retention should also encompass validation and testing phases, supporting longer retention periods and enhancing research utility.²¹⁰

Moreover, the scope of TDM exceptions explicitly excludes subsequent acts of communication to the public or making available of the TDM results, emphasising that covered activities only include reproduction, extraction and temporary storage necessary for TDM itself.²¹¹

Finally, it is essential to distinguish between temporary storage under the TDM exceptions (Articles 3 and 4) and permanent preservation permitted under a separate exception (Article 6 CDSMD) specifically available to cultural heritage institutions. While cultural heritage institutions may rely on Article 6 to permanently preserve works in their collections, storage under the TDM exceptions serves different purposes, governed by distinct legal bases and conditions.²¹²

²¹⁰ Novelli and others (n 209) 10.

²¹¹ Quintais, *Generative AI* (n 127) 6. It is also argued that although hyperlinks to freely available copyrighted works are allowed, this could constitute an act of communication to the public under Article 3 of the InfoSoc Directive.

²¹² Sganga and others (n 208) 45.

Chapter IV. Legal Approaches to Copyright and AI Governance

This chapter examines the impact of AI regulation on copyright law, focusing mainly on the European Union's AI Act. It highlights the AI Act's new transparency obligations for General-Purpose AI (GPAI) providers, particularly concerning the disclosure of training data and the respect for opt-out mechanisms. The chapter also discusses challenges in defining "sufficient detail" for these summaries and the AI Act's limited scope regarding remuneration and authorship of AI-generated content.

While the analysis is centred on the EU framework, it details the UK's human-centric approach to authorship under the Copyright, Designs and Patents Act 1988 and the US legal framework, which also prioritises human authorship and uses the fair use doctrine for training data to contextualise the EU's approach within a broader legal landscape. It reveals three distinct regulatory philosophies grappling with the same structural tensions, particularly concerning the essential role of human creativity and the legality of using copyrighted data for AI training. This analysis argues that while all three jurisdictions attempt to preserve human-centric copyright norms, their approaches expose the inherent limitations of existing legal frameworks in confronting the transformative challenge posed by artificial intelligence.

4.1. The European Union's regulatory gambit: the AI Act's impact on copyright law

The European Union's AI Act, the world's first comprehensive regulation of artificial intelligence, entered into force on 1 August 2024,²¹³ represents a strategic and ambitious effort to govern this transformative technology.

A human-centric approach to AI is central to the AI Act²¹⁴ and is described as "European approach", rooted in the Charter of Fundamental Rights of the European Union.²¹⁵ In a similar vein, as previously explained, the EU copyright framework is based on the principle of author's rights, which protects original works by human creators, thereby emphasising humanness.²¹⁶

The AI Act's primary purpose is to address systemic risks.²¹⁷ However, while it is not a copyright directive, its provisions create significant new obligations for providers of GPAI models that directly intersect with and impact the enforcement of copyright law.

²¹³ Core provisions apply from 2 August 2026. See Article 113 of the AI Act; Recital 179 of the AI Act.

²¹⁴ Article 1(1) of the AI Act; Recitals 6 and 8 of the AI Act.

²¹⁵ Réka Pusztahelyi and Ibolya Stefán, 'Improving Industry 4.0 to Human-Centric Industry 5.0 in Light of the Protection of Human Rights' (2024) *Proceedings of the 25th International Carpathian Control Conference (ICCC)* 1.

²¹⁶ Christian Hartmann, Jacqueline Allan, P Bernt Hugenholtz, João Pedro Quintais and Daniel Gervais, *Trends and Developments in Artificial Intelligence: Challenges to the Intellectual Property Rights Framework* (European Commission 2020) 69.

²¹⁷ Francesca Palmiotto, 'The AI Act Roller Coaster: The Evolution of Fundamental Rights Protection in the Legislative Process and the Future of the Regulation' (2025) *European Journal of Risk Regulation* 1, 8.

4.1.1. The ambiguity of transparency: an analysis of Article 53(1)(d)

The obligations related to copyright law under the AI Act can be classified into two main categories. The first is the transparency obligations for GPAI providers under Article 53(1)(d). This is because general purpose AI models rely heavily on training data, much of which is not transparently disclosed. As such, the AI Act requires all providers of GPAI models to “*draw up and make publicly available a sufficiently detailed summary about the content used for training of the general-purpose AI model*”.²¹⁸ GPAI models based on free and open-source license are also subject to this obligation of making the content used for training publicly available. When AI systems use copyrighted materials for machine learning purposes and produce outputs similar to copyrighted materials, transparency of the training data becomes crucial for rightsholders to exercise their copyright and related rights.²¹⁹ Notably, intellectual property rights are fundamental rights under the Charter of Fundamental Rights of the European Union (EU Charter).²²⁰ Rightsholders must be able to decide whether their works can be used and only way to make this determination is by being aware of such use by AI systems. The European Commission has published the template for the public summary of training content for general-purpose AI

²¹⁸ Article 53(1)(d) of the AI Act; Recital 107 of the AI Act.

²¹⁹ Kretschmer, Margoni and Oruç (n 135) 21, 24.; In the Explanatory Notice for the Template, it has been mentioned that transparency in the Summary can also help enforce EU data protection rules by bringing together key information such as data sources and collection methods without replacing existing obligations under data protection law. It may also support consumer interests and rights under broader Union law. See European Commission, *Explanatory Notice and Template for the Public Summary of Training Content for General-Purpose AI Models* C(2025) 5235 final, 24 July 2025, para 9 <https://digital-strategy.ec.europa.eu/en/library/explanatory-notice-and-template-public-summary-training-content-general-purpose-ai-models> accessed 6 August 2025

²²⁰ Article 17(2) of the Charter of Fundamental Rights of the European Union, OJ C 326, 26.10.2012.

models for GPAI providers to comply with the transparency obligation stemming from Article 53(1)(d) of the AI Act before their models are placed on the EU market.

This obligation also aims to ensure compliance with the lawful access requirement of text and data mining, as well as the opt-out framework under the Copyright in the Digital Single Market Directive, granting rightsholders better control over the use of their works.²²¹

However, several shortcomings of this transparency obligation were already argued before the publication of the template for the public summary and these concerns remain relevant. The provision's core weakness lies in its definitional ambiguity. Critics have pointed out that the AI Act does not clearly define what constitutes a "sufficiently detailed" summary, leading to considerable uncertainty for both users and developers.²²²

The balance between trade secrets and transparency is the one important point to consider, a concern explicitly acknowledged in Recital 107 of the AI Act. Even in the European Commission's published template for this summary, there is no definition of "sufficient detail"; instead, the template implicitly allows for some confidentiality by permitting general descriptions, which may narrow the scope of disclosure.²²³ At its core, this obligation reflects the tension between ensuring

²²¹ Quintais, *Generative AI* (n 127) 2.

²²² Buick (n 127) 189.

²²³ Nicola Lucchi and Serra Hunter, *Generative AI and Copyright* (EU Parliament Study, Policy Department for Justice, Civil Liberties and Institutional Affairs, Directorate-General for Citizens' Rights, Justice and Institutional Affairs, PE 774.095, July 2025) 86 [https://www.europarl.europa.eu/RegData/etudes/STUD/2025/774095/IUST_STU\(2025\)774095_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2025/774095/IUST_STU(2025)774095_EN.pdf) accessed 6 August 2025.

transparency for rightsholders, who may wish to assert control over the use of their works, and protecting the trade secrets or confidential business information of AI developers. The notion of “sufficient detail” must therefore be interpreted in a way that enables meaningful copyright scrutiny without requiring exhaustive disclosure of proprietary data.

Another well-founded criticism concerns the level of specificity.²²⁴ Critically, the current framework provides no concrete mechanism for rightsholders to verify if their specific works were used or if their opt-outs were respected, as the summaries are designed to list main data collections, not individual works.²²⁵

Moreover, as is often the case with transparency obligations in AI governance, this provision does not provide rightsholders with a concrete right to remuneration for the use of training data. Therefore, the existing flaws of Article 4(3)’s opt-out mechanism is still unchanged.²²⁶ It is only argued that the template may be useful insofar as it helps determine whether the GPAI model provider complied with the lawful access requirement in Article 4 of CDSMD and whether the TDM activities respected opt-outs in place at the time and of data collection, by disclosing the periods during which the content was accessed and used.²²⁷

²²⁴ Quintais, *Generative AI* (n 127) 11.

²²⁵ Buick (n 127) 189.

²²⁶ Buick (n 127) 189.

²²⁷ Quintais, *Generative AI* (n 127) 11.

4.1.2. The challenge of copyright compliance: an analysis of Article 53(1)(c)

The second key obligation under Article 53(1)(c) requires GPAI providers to put in place a policy to respect “Union copyright law.” The main aim of this provision, as understood from the explicit wording of the provision, is to ensure that AI developers identify and respect reservations of rights, thereby enforcing the opt-out mechanism under Article 4(3) of the CDSMD.

The central flaw of this provision is its problematic reference to “Union copyright law.” Copyright rules are not fully harmonised across the European Union, each Member State has distinct national laws.²²⁸ This lack of uniformity renders the obligation to respect a single, cohesive body of “Union copyright law” exceptionally difficult to implement and enforce, creating a significant compliance challenge for GPAI providers operating across the EU market.

4.1.3. Complementary, yet insufficient role of the General-Purpose AI Code of Practice

Complementing the obligations under Article 53, the General-Purpose AI Code of Practice, published by the European Commission, serves as a voluntary instrument to guide industry practices on safety, transparency and copyright compliance for

²²⁸ Alexander Peukert, ‘Copyright in the Artificial Intelligence Act – A Primer’ (2024) 73(6) *GRUR Int*, SSRN 15.

GPAI models.²²⁹ The Code of Practice is considered a set of complementary obligations regarding compliance at both input and output levels, as well as transparency measures, in addition to those in the AI Act.

One of the most problematic aspects of copyright obligations for GPAI providers is the requirement to ensure and respect the exercise of rights reservation/opt out mechanisms as provided in the DSM Directive. The Code of Practice outlines two possible methods for identifying the rights reservation: one through *robots.txt* files (Measure 1.3(1)(a)) and the other through all appropriate machine-readable rights reservation protocols (Measure 1.3(1)(b)).²³⁰ In the end this approach is argued to be more future proof.²³¹

Regarding output-level compliance measures, the Code of Practice shifted from strict output control mechanisms, such as output filters to prevent similarity to copyrighted material and memorisation monitoring, towards a more flexible, rights-respecting approach. This newer approach instead requires technical safeguards to reduce copyright-infringing outputs. Earlier proposals for output filters were criticised for infringing fundamental rights (e.g. over blocking) and being too impractical.²³² As a result, the current obligation is that model providers

²²⁹ European Commission, 'The General-Purpose AI Code of Practice' (Shaping Europe's digital future, 10 July 2025) <https://digital-strategy.ec.europa.eu/en/policies/contents-code-gpai> accessed 7 August 2025.

²³⁰ European Commission, *General-Purpose AI Code of Practice: Copyright Chapter* (10 July 2025)

²³¹ COMMUNIA, 'Our Thoughts on the Final Version of the GPAI Code of Practice' (Blog post by Teresa Nobre, 21 July 2025) <https://communia-association.org/2025/07/21/our-thoughts-on-the-final-version-of-the-gpai-code-of-practice/> accessed 7 August 2025.

²³² COMMUNIA, *Thoughts on the Final Version of the GPAI Code of Practice* (n 231).

must implement “appropriate and proportionate technical safeguards” to prevent infringing outputs (Measure 1.4(1)(a)).²³³

Finally, regarding transparency measures, it is argued that the Code of Practice fails to enhance the current legal framework’s transparency gaps and does not support rightsholders with concrete, enforceable mechanisms.²³⁴

In conclusion, both Article 53(1)(c) and (d) provide a certain level of human oversight through human intervention and control over AI systems. This is closely linked to the transparency obligation, which is a prerequisite for human oversight, enabling monitoring of AI behaviour.²³⁵ However, it is essential to note the structural limits of the AI Act in the copyright context. As a piece of public law designed through a product safety lens, the AI Act’s copyright-related provisions aim only to ensure respect for existing copyright law during AI training.²³⁶ It does not alter the threshold questions of authorship or originality of AI-generated outputs, nor does it establish mechanisms for enforcement or remuneration. These fundamental questions remain within the copyright law²³⁷ and continue to be governed by the EU copyright *acquis* and interpreted by the CJEU.²³⁸

²³³ European Commission, *Copyright Chapter of the GPAI Code* (n 230).

²³⁴ COMMUNIA, *Thoughts on the Final Version of the GPAI Code of Practice* (n 231)

²³⁵ Miriana Calvano and others, ‘Building Symbiotic AI: Reviewing the AI Act for a Human-Centred, Principle-Based Framework’ (2025) arXiv preprint arXiv:2501.08046v2, 8.

²³⁶ Rosati, *Infringing AI* (n 131) 2.

²³⁷ Quintais, *Generative AI* (n 127) 5.

²³⁸ Hartmann and others (n 216) 7.

4.2. Comparative jurisdictional analysis

In contrast to the EU's broad regulatory approach, the United Kingdom and the United States offer distinct models shaped by their unique legal traditions. The UK's framework is anchored in a long-standing statutory provision for "computer-generated works," while the U.S. has developed a dynamic, judiciary-led response grounded in the constitutional requirement of human authorship and the flexible doctrine of fair use.

4.2.1. The UK's human-centric precedent: interpreting the Copyright, Designs and Patents Act 1988

The UK's 'Copyright, Designs and Patents Act 1988 (CDPA)' contains a unique provision that offers a potential framework for AI-generated works. Section 9(3) of the CDPA states that for a computer-generated work, the author is "the person by whom the arrangements necessary for the creation of the work are undertaken."²³⁹ This provision powerfully reinforces the principle of human control; in the context of generative AI, this means the user who inputs instructions or prompts into the AI system is deemed the author. However, some legal scholars argue that Section 9(3) is applicable only to AI-assisted works, where a human maintains creative direction and not to works generated with full autonomy by an AI.²⁴⁰ This argues

²³⁹ Section 9(3) of the CDPA 1988: "In the case of a literary, dramatic, musical or artistic work which is computer-generated, the author shall be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken."

²⁴⁰ See Papadopoulou (n 42) 3.

against giving AI-generated works the quasi-similar legal protection as copyrighted works.

For AI-generated works to qualify for copyright protection under the CDPA, they must meet the same standard of originality applicable under UK law. In practical terms, the originality of AI-generated works is typically assessed based on the human creative contribution such as detailed prompting, dataset curation or editing rather than the autonomous functioning of the AI system. However, the legal contours of this provision remain underdeveloped and there is ongoing uncertainty about the level of originality such works must demonstrate.²⁴¹ In contrast to the EU's standard, which links originality to an author's intellectual creation through free and creative choices, the UK's position post-Brexit offers greater interpretive flexibility but also more ambiguity.²⁴²

Furthermore, the CDPA creates structural disincentives for creators using AI. Computer-generated works are granted a shorter term of protection (50 years from creation) compared to human-authored works (life of the author plus 70 years)²⁴³ and are excluded from moral rights protection, which may discourage creators from disclosing AI involvement.²⁴⁴ It highlights structural tensions in accommodating AI-generated works under traditional copyright frameworks.

²⁴¹ The originality requirement under section 9(3) remains largely untested, having been addressed only once in *Nova Productions Ltd v Mazooma Games Ltd* where the court did not substantively engage with the originality question.

²⁴² Martin Kretschmer, Bartolomeo Meletti and Luis H Porangaba, 'Artificial intelligence and intellectual property: copyright and patents—a response by the CREATE Centre to the UK Intellectual Property Office's open consultation' (2022) 17(3) *JIPLP* 321, 322

²⁴³ Section 12(7) of the CDPA 1988.

²⁴⁴ For further discussions, see Atilla (n 36).

These concerns, however, are not unique to the UK system and point to a wider debate: whether AI-generated works require distinct legal treatment at all.

Reform proposals should be grounded not only in normative ideals but also in clear and proportionate, evidence-based reasoning, especially in a rapidly evolving technological landscape. Critics argue that there is currently insufficient evidence of a market failure demonstrating that the existing copyright framework fails to incentivize the creation of AI-generated works.²⁴⁵ So far, there is little data showing that the current system is inadequate or that Section 9(3) is widely used in practice, therefore, introducing new rights or expanding protection may be unnecessary and premature.²⁴⁶

4.2.2. The U.S.'s fair use doctrine

U.S. copyright law has its own challenges when it comes to applying copyright principles to generative AI technologies, like any other jurisdictions. The legal response in the U.S. is shaped by the U.S. Copyright Law's focus on human authorship, the Copyright Office's policies and case law addressing the intersection of AI and copyright.

Although the requirement of human authorship is not explicitly codified in U.S. copyright law, it is widely understood to be a necessary condition for copyright protection.²⁴⁷ There are several structural elements for the justification of the

²⁴⁵ Kretschmer, Meletti and Porangaba (n 242) 323.

²⁴⁶ Kretschmer, Meletti and Porangaba (n 242) 323.

²⁴⁷ Frosio, *Generative AI in Court* (n 104) 17.

requirement of human authorship within the U.S. Copyright Law.²⁴⁸ Section 101, for instance, defines an anonymous work by reference to the absence of an *identified natural person*, thereby presupposing that a protectable work must have a human being.²⁴⁹ Moreover, the U.S. Copyright Law includes multiple references to the author's surviving children, grandchildren or widow concerning issues related to the author's termination interest.²⁵⁰ The fact that only humans can engage in such relationships demonstrates that the human authorship is evident. Taken together, these references reinforce the interpretation that U.S. copyright protection is inherently tied to human authorship.

The implications of the requirement of human authorship can further be observed in the (optional) registration process,²⁵¹ which has become a focal point for addressing the copyrightability of AI-generated works.²⁵² To illustrate, the principle of human authorship as a prerequisite for copyright protection was affirmed in *Thaler v. Perlmutter*, where the District Court for the District of Columbia accepted the Copyright Office's refusal to register a work created by an AI system.²⁵³ In its ruling, the Court described human authorship as a "*bedrock*

²⁴⁸ U.S. Copyright Office, *Copyright Law of the United States and Related Laws Contained in Title 17 of the United States Code* (Circular 92, December 2022).

²⁴⁹ Section 101 of the U.S. Copyright Law "*An "anonymous work" is a work on the copies or phonorecords of which no natural person is identified as author.*"

²⁵⁰ Section 203 of the U.S. Copyright Law – 'Termination of transfers and licenses granted by the author'

²⁵¹ Section 408(a) of the U.S. Copyright Law explicitly states that "*Such registration is not a condition of copyright protection.*" However, registration has a number of significant advantages and is frequently required in order to receive certain infringement remedies, such as statutory damages or attorney's fees.

²⁵² As Copyright Office states, "*these are no longer hypothetical questions (...)*"

²⁵³ *Thaler v Perlmutter* (D DC, 1:22-cv-01564, 18 August 2023) p. 15.

requirement of copyright” reaffirming that works created without human creative contribution –such as *A Recent Entrance to Paradise*, produced by the AI model Creativity Machine– do not qualify for protection under U.S. law. The U.S. Copyright Office has consistently stated that a work created entirely by artificial intelligence “*without any creative contribution from a human actor*”, is ineligible for copyright protection.²⁵⁴

A notable aspect of *Thaler v. Perlmutter* is the question of whether, in the absence of AI authorship, a human – Thaler in the case – could nonetheless be recognised as the author. The Court rejected this possibility, reasoning that because Thaler himself asserted that the work was created entirely by an autonomous AI system without any human involvement, the work could not be attributed to a human author and therefore did not qualify for copyright protection.²⁵⁵

Still, the U.S. Copyright Office gives the green light for copyright protection if the work includes “sufficient human expressive elements.”²⁵⁶ This was already discussed in *Burrow-Giles Lithographic Co v Sarony*, an important case from 1884, where the Court identified numerous creative contributions made by the photographer, which can be understood as an early analogy for situations involving technology in the creative process. In such cases, copyright protection only extends to the human-authored aspects of the work. For example, AI prompts may qualify for protection if they contain sufficient original expression, a view that has been endorsed in comments submitted to the U.S. Copyright Office’s 2023 AI

²⁵⁴ U.S. Copyright Office, *Copyrightability* (n 83) 14.

²⁵⁵ *Thaler v Perlmutter* (D DC, 1:22-cv-01564, 18 August 2023) p. 14.

²⁵⁶ U.S. Copyright Office, *Copyrightability* (n 83) 9.

inquiry, including several legal scholars and associations.²⁵⁷ However, the Copyright Office has stated that outputs produced by generative AI in response to prompts are not eligible for copyright protection, as they lack sufficient human control.²⁵⁸ The output is ultimately determined by the AI's interpretation rather than by direct human control and the number of times a prompt is revised or resubmitted is considered irrelevant, since copyright protects original expression, not the amount of effort expended. Nevertheless, if a person incorporates their pre-existing copyrighted work into an AI system and obtains an AI-generated interpretation of that work -similar to the creation of a derivative work- or compiles AI-generated material with human-authored content, such as text, the resulting work may be eligible for copyright protection, provided that the human contribution meets the required level of human control.²⁵⁹ It is important to note that, as demonstrated in the *Zarya of the Dawn* case, copyright protection is recognised for the text and compilation, but not for the AI-generated images.²⁶⁰

Another major legal issue raised by generative AI concerns the use of copyrighted materials for training purposes. Rightsholders, including authors, artists and media organisations, have initiated litigation against AI developers, claiming that the unauthorised use of their works constitutes copyright infringement and causes economic harm by undermining licensing markets and intensifying competition.²⁶¹

²⁵⁷ U.S. Copyright Office, *Copyrightability* (n 83) 13.

²⁵⁸ U.S. Copyright Office, *Copyrightability* (n 83) 18-21.

²⁵⁹ U.S. Copyright Office, *Copyrightability* (n 83) 23-24.

²⁶⁰ U.S. Copyright Office, Cancellation Decision Re: *Zarya of the Dawn* (VAu001480196, 21 February 2023) 1.

²⁶¹ Pamela Samuelson, 'Fair Use Defenses in Disruptive Technology Cases' (2024) 71(5) *UCLA Law Review* 1484, 1486-1487.

Notable cases such as *Andersen v. Stability AI*²⁶², *Getty Images v. Stability AI*²⁶³, and *New York Times Co. v. Microsoft*²⁶⁴ reflect concerns about market displacement. For instance, Stability AI has been accused of using millions of copyrighted Getty images without permission to train its model and build a competing service. The Authors Guild argues that AI developers have made authors unwilling participants in their own replacement²⁶⁵, while the *New York Times* argues that AI systems can replicate its journalism with sufficient precision to divert readership and damage their economic interests.²⁶⁶ These cases collectively underscore the legal and economic tensions at the intersection of copyright law and AI development.

It has been argued that such uses do not qualify as fair use, pointing out the commercial nature of the activity, the use of entire works and direct market competition.²⁶⁷ In response, AI developers rely heavily on the doctrine of fair use²⁶⁸, a limitation on copyright law, in defending these claims.²⁶⁹ Fair use permits certain uses of copyrighted works without infringement, even when they implicate exclusive rights.²⁷⁰

²⁶² *Andersen v Stability AI* (ND Cal, No 3:23-cv-00201, filed 13 January 2023).

²⁶³ *Getty Images (US), Inc v Stability AI Ltd* (D Del, No 1:23-cv-00135, filed 3 February 2023).

²⁶⁴ *The New York Times Company v Microsoft Corporation and others* (SDNY, No 1:23-cv-1195, filed 27 December 2023).

²⁶⁵ *Authors Guild v OpenAI Inc and others* (SDNY, No 1:23-cv-08292, filed 19 September 2023) p. 3.

²⁶⁶ Samuelson (n 261) 1562.

²⁶⁷ Coulter (n 138) 138.

²⁶⁸ Codified in Section 107 of the U.S. Copyright Law.

²⁶⁹ Samuelson (n 261) 1557.

²⁷⁰ The four fair use factors under § 107 of the U.S. Copyright Law are: (i) the purpose and character of the use; (ii) the nature of the copyrighted work; (iii) the amount and substantiality of the portion used; and (iv) the effect of the use on the potential market or value of the work.

A landmark district court decision has since addressed for the first time the applicability of fair use in the context of AI training in *Bartz v. Anthropic*.²⁷¹ The court held that training AI on lawfully acquired copyrighted works can constitute fair use if the purpose is sufficiently transformative. It reasoned that using such works to train large language models by mapping statistical relationships to generate new textual outputs constitutes a transformative use.²⁷² The court further found that this form of use did not displace market demand in a manner relevant under copyright law, drawing an analogy to teaching students to write using literary works.²⁷³ However, the AI developer in that case was found liable for the unauthorised downloading of pirated books to create a training dataset, which was not covered by fair use.²⁷⁴

This detailed analysis of the UK and U.S. frameworks sets the stage for a broader synthesis of the common legal themes and foundational conflicts emerging across all three jurisdictions.

²⁷¹ *Bartz v Anthropic PBC* (U.S. District Court for the Northern District of California, No. C 24-05417 WHA, opinion filed 23 June 2025) https://www.govinfo.gov/content/pkg/USCOURTS-cand-3_24-cv-05417/pdf/USCOURTS-cand-3_24-cv-05417-0.pdf accessed 7 August 2025.

²⁷² *Bartz v Anthropic PBC* (n 271) 11.

²⁷³ Dave Hansen, 'Anthropic Wins on Fair Use for Training its LLMs; Loses on Building a "Central Library" of Pirated Books' (Authors Alliance blog, 24 June 2025) <https://www.authorsalliance.org/2025/06/24/anthropic-wins-on-fair-use-for-training-its-llms-loses-on-building-a-central-library-of-pirated-books/> accessed 7 August 2025

²⁷⁴ *Bartz v Anthropic PBC* (n 271) 31.

4.3. Common threads and divergent paths

Despite their different legal traditions, there are a set of shared points and fundamental philosophical alignments regarding the intersection of artificial intelligence and copyright. On the other hand, each jurisdiction's approach reveals the profound difficulty of applying legal frameworks designed for a pre-AI era to a new technological paradigm. This will be discussed in the following discussion.

4.3.1. The universal primacy of the human creator

The necessity of human involvement for copyright protection is a convergence point across all three jurisdictions. This shared principle is manifested through different legal mechanisms but points to the same conclusion. It is visible in the E's "author's rights" doctrine, which protects the intellectual creations of human authors; in the UK's CDPA Section 9(3), which assigns authorship to the human who makes the "necessary arrangements" and in the U.S. judiciary's affirmation of human authorship as a "bedrock requirement" of copyright law in *Thaler v. Perlmutter*.

4.3.2. Lawful access as a unifying principle

Notably, a shared principle in both U.S. and EU copyright law is the requirement of lawful access to training data. The EU provides an explicit text and data mining exception under the CDSMD, which is itself conditioned on lawful access to the copyrighted works. The U.S. relies on the fair use doctrine. The ruling in *Bartz v. Anthropic*, however, clarified that this defence is unavailable when the training data

was unlawfully acquired.²⁷⁵ The court emphasised that such infringing acquisition cannot be deemed “reasonably necessary” for subsequent transformative use. This establishes an alignment between the EU’s statutory prerequisite and the U.S. judiciary’s emergent doctrine. Despite their different approaches, in both legal systems lawful access of training materials functions as a threshold condition for any subsequent claim to a copyright exception.

²⁷⁵ *Bartz v Anthropic PBC* (n 271) 18.

Chapter V. The Constitutional Dilemma of Copyright in the Age of AI

AI technology, which relies on the large-scale use of existing copyrighted works for training, forces a critical re-examination of the social contract that underpins intellectual property: the agreement to grant exclusive rights to authors in exchange for the enrichment of the public domain and the advancement of culture. This chapter argues that although interpreting EU copyright law through the lens of fundamental rights is the correct normative framework, its current jurisprudential application might result in a state of “overconstitutionalisation.”

This imbalance paradoxically favours the entrenched interests of rightsholders at the expense of public access, derivative creativity and technological innovation. This chapter deconstructs this jurisprudential imbalance and proposes statutory remuneration rights as a pragmatic, rights-respecting solution to reconcile the interests of human creators with the advancement of artificial intelligence.

5.1. Situating AI governance within a human rights framework

Artificial intelligence, even in its current narrow forms²⁷⁶, already poses significant risks for fundamental rights.²⁷⁷ These risks can be categorised across several domains, escalating in scope and severity as the technology advances. From a socio-

²⁷⁶ As explained in the Chapter I, narrow AI systems are limited to pre-defined tasks.

²⁷⁷ Liao (n 7) 1.

economic point of view, since they are data-driven and task-specific, they frequently reproduce and reinforce patterns of existing societal bias.²⁷⁸ This dynamic has serious consequences for equality and non-discrimination, as outcomes in hiring, housing, lending or law enforcement may promote social inequities.²⁷⁹

Artificial intelligence also affects the structural preconditions of democratic societies. Algorithmic content moderation and recommendation systems shape what information is accessible, visible or removed, with effects on freedom of expression and access to knowledge.²⁸⁰

If today's narrow AI systems develop to strong or even superintelligent AI, the scale and nature of risks would qualitatively increase due to the increase autonomy of AI. Such autonomy would raise questions about whether human beings could continue to exercise control. This would leave individuals without effective means to understand or challenge outcomes, eroding the foundations of fundamental rights protection. Furthermore, the concentration of power over such technologies could amplify global inequalities,²⁸¹ while an ultimate misalignment between AI

²⁷⁸ For example, the reflection of historical biases in financial decision making: Will Knight, 'The Apple Card Didn't "See" Gender—and That's the Problem' *Wired* (19 November 2019) <https://www.wired.com/story/the-apple-card-didnt-see-genderand-thats-the-problem/> accessed 8 September 2025.

²⁷⁹ For example, because of the incorrect coding of algorithm, some people with disabilities could not access home care. See Colin Lecher, 'What Happens When an Algorithm Cuts Your Health Care' *The Verge* (21 March 2018) <https://www.theverge.com/2018/3/21/17144260/healthcare-medicaid-algorithm-arkansas-cerebral-palsy> accessed 8 September 2025.

²⁸⁰ An example of silencing legitimate activism against freedom of expression: Human Rights Watch, *Meta's Broken Promises: Systemic Censorship of Palestine Content on Instagram and Facebook* (21 December 2023) <https://www.hrw.org/report/2023/12/21/metas-broken-promises/systemic-censorship-palestine-content-instagram-and> accessed 8 September 2025.

²⁸¹ Liao (n 7) 300-301.

objectives and human values, as illustrated by Bostrom's paperclip argument, could pose an existential threat to human flourishing itself.²⁸²

Therefore, human rights framework emerges as a foundational and mandatory approach addressing the complex ethical and legal challenges posed by artificial intelligence.²⁸³ For example, freedom of thought, opinion and expression (Articles 18–19 UDHR) is directly implicated in debates on generative AI: while such systems may expand opportunities for expression, they also raise concerns about disinformation and media pluralism, as illustrated by the use of deepfakes.²⁸⁴

Grounding the growing debate on AI governance in the universal domain of human rights is not merely an ethical preference but a mandatory starting point, underpinned by established ethical reasoning borrowed from bioethics, beneficence, nonmaleficence, autonomy and justice,²⁸⁵ supplemented by the crucial principle of explicability as a condition for accountability.²⁸⁶ By situating AI within this established legal and ethical order, technological development remains aligned

²⁸² Nick Bostrom, 'Ethical Issues in Advanced Artificial Intelligence' in *Machine Ethics and Robot Ethics* (Routledge 2020) (PhilPapers PDF, 2)

²⁸³ Liao (n 7) 15-16.

²⁸⁴ Lidia Dutkiewicz, Noémie Krack, Aleksandra Kuczerawy and Peggy Valcke, 'Artificial Intelligence and Media' in Nathalie A Smuha (ed), *The Cambridge Handbook of the Law, Ethics and Policy of Artificial Intelligence* (Cambridge University Press 2025) 283.; Liao (n 7) 17.

²⁸⁵ Floridi (n 6) 57.

²⁸⁶ Floridi (n 6) 57-58.

with the core principles of human dignity and autonomy,²⁸⁷ transparency,²⁸⁸ accountability²⁸⁹ and non-discrimination²⁹⁰ addressing both the complex legal challenges already posed by AI and anticipating those that will emerge with more advanced systems.

The human rights framework has a dual role: it points out the risks and harms that already exist in today's AI landscape and it provides a normative compass for anticipating the new challenges that more advanced forms of AI could introduce. It represents a starting point for all ethical and legal approaches, integrating foundational international agreements such as the Universal Declaration of Human Rights, the European Convention on Human Rights, and the EU Charter.

Finally, this established framework provides the necessary legal and ethical foundation for navigating the evolution of AI within the European Union's regulatory environment.

²⁸⁷ Article 7 of the Council of Europe Framework Convention on AI, Human Rights, Democracy and the Rule of Law.; Also, the right to human dignity, as set out in Article 1 of the EU Charter of Fundamental Rights, is particularly relevant for classification an AI system as high risk under AI Act. The manipulation, exploitation and social control practices of AI are explicitly stated to contradict human dignity (Recital 48 of the AI Act). Human dignity and personal autonomy are also considered a value to be respected, through human agency and oversight (Recital 27 of the AI Act).

²⁸⁸ Article 8 of the Council of Europe Framework Convention on AI, Human Rights, Democracy and the Rule of Law.; Also, transparency and clear information for deployers, as well as human oversight to enable autonomy and control, are requirements for high-risk AI systems under Articles 13 and 14 of the AI Act, respectively. Article 86 of the AI Act provides the right to an explanation when important decisions are made about the affected person using certain high-risk AI systems.

²⁸⁹ Article 9 of the Council of Europe Framework Convention on AI, Human Rights, Democracy and the Rule of Law.; Also the AI Act has a strong emphasis on technical compliance, risk management and functional oversight.

²⁹⁰ Article 10 of the Council of Europe Framework Convention on AI, Human Rights, Democracy and the Rule of Law.; Also, Recitals 45, 48, 56, 57, 58 of the AI Act.; Also, Article 5 of the AI Act prohibits AI practices with discriminatory and non-equality effects.

5.2. Shifting toward rights-based regulation

The European Union's approach to digital regulation has undergone a significant evolution. The E-Commerce Directive's prohibition of general monitoring obligation, which protected online intermediaries from liability for third-party uploads, reflected the EU's liberal and market-oriented approach to digital regulation in earlier years. However, the rise of artificial intelligence and algorithmic technologies has exposed the limitations of this model. This has necessitated a decisive shift toward a more comprehensive, human-centric, and fundamental rights-based framework.²⁹¹

The Court of Justice of the European Union has played a key role in shaping this digital rule of law. By increasingly applying the EU Charter of Fundamental Rights in disputes between private parties, the Court uses core principles like proportionality to balance competing rights and address the legal challenges posed by digital technologies.²⁹² A series of landmark rulings demonstrate how the judiciary has embedded fundamental rights and proportionality into its jurisprudence including *Schrems I* and *II*, which invalidated international data transfer regimes for violating fundamental rights to privacy and judicial protection (Art 47 of the EU Charter); *Google Spain*, which established a right to be forgotten, delegating complex rights-balancing decisions directly to platforms; and cases

²⁹¹ Giovanni De Gregorio, *Digital Constitutionalism in Europe: Reframing Rights and Powers in the Algorithmic Society* (Cambridge University Press, 2022) 38.

²⁹² Annegret Engel and Xavier Groussot, 'Making the Rule of Law Great Again: The Building of the Digital Rule of Law in the European Union' in Annegret Engel and others (eds), *New Directions in Digitalisation, European Union and its Neighbours in a Globalized World* (Springer 2025) 274.

like *Funke Medien*, *Pelham*, and *Spiegel Online*, which directly addressed the complex balance between copyright protection and freedom of expression.

AI systems operate with high degrees of opacity and adaptability, often beyond the understanding of those affected and even of those who deploy them.²⁹³ Their integration into core decision-making processes undermines transparency, legal certainty and the right to an effective remedy. It requires stronger judicial oversight. The CJEU has shown a growing awareness of this tension. For example, in *Dun & Bradstreet* case, the Court affirmed that commercial interests, such as the protection of trade secrets, cannot be used to override fundamental rights of individuals, reinforcing the primacy of the EU Charter in the algorithmic age.²⁹⁴

This broader constitutionalisation of EU digital law provides the critical context for understanding its application within the field of copyright.

5.3. Analysis of the human rights framework for copyright law

The central tension in the copyright debate stems from its dual identity within the human rights framework. Copyright is not an absolute right but a carefully calibrated social contract, designed to serve two complementary purposes: protecting the moral and material rights of authors while simultaneously ensuring

²⁹³ Antonios Kouroutakis, 'Rule of Law in the AI Era: Addressing Accountability, and the Digital Divide' (2024) 4 *Discover Artificial Intelligence* 115, 2.

²⁹⁴ Case C-203/22 *Dun & Bradstreet* EU:C:2025:117.

the public has access to culture, knowledge and information.²⁹⁵ Navigating this balance is the primary challenge.²⁹⁶

The human rights framework provides legal grounding for both sides of the copyright.²⁹⁷

International and EU law explicitly recognise the protection of intellectual property as a fundamental right. This is enshrined in Article 27(2) of the UDHR, which affirms the right to protection of moral and material interests in one's creations; Article 15(1)(c) of the International Covenant on Economic, Social, and Cultural Rights (ICESCR), which safeguards an author's right to benefit from their work. Moreover, Article 17(2) of the EU Charter recognises the right to the protection of intellectual property.²⁹⁸ This right allows in the first paragraph that individuals to *"own, use, dispose of and bequeath his or her lawfully acquired possessions."*

On the other hand, the same legal instruments balance this protection with other rights. Article 27(1) of the UDHR establishes a universal right to *"freely to participate in the cultural life of the community, to enjoy the arts, and to share in scientific advancement and its benefits."* Within the EU, copyright is not absolute and must be balanced against other fundamental freedoms, including freedom of expression (Article 11 EU Charter), freedom of the arts and sciences (Article 13 EU Charter),

²⁹⁵ Manteghi (n 128) 671.; Geiger and Jütte (n 187) 1022-1023.

²⁹⁶ Geiger, *Human Rights-Friendly Copyright* (n 82).

²⁹⁷ Bern Justin Jütte, 'Copyright and Fundamental Rights in the Digital Single Market' in T-E Synodinou and others (eds), *EU Internet Law in the Digital Single Market* (Springer 2021) 4.

²⁹⁸ Article 17(2) of the Charter of Fundamental Rights of the European Union: *"Intellectual property shall be protected."*

and the right to data protection (Article 8 EU Charter). Consequently, access to knowledge and cultural materials is vital for the exercise of fundamental rights, such as the right to science and culture and freedom of artistic expression.²⁹⁹

Despite this clear dual mandate, some scholars argue that the CJEU's application of fundamental rights has become imbalanced and counter-productive, a phenomenon described as "overconstitutionalisation."³⁰⁰ Accordingly, use of fundamental rights perspective of CJEU in the copyright law creates challenges without solving the copyright problems since these rights are acknowledged in theory but seldom shape outcomes in a substantive way. This critique centres on two key developments.

First, the Court has elevated the "three-step test" from the Article 5(5) of the InfoSoc Directive, which regulates exceptions and limitations to copyright. According to three-step-test, exceptions and limitations must apply only in "certain special cases," "not conflict with a normal exploitation of the work" and "not unreasonably prejudice the legitimate interests of the rightsholder." The CJEU has elevated this test to a "quasi-constitutional status," prevents higher-order fundamental rights, like freedom of expression, from being fully weighed in the balance, effectively subordinating the Charter to the Directive.³⁰¹

²⁹⁹ Christophe Geiger and Vincenzo Iaia, 'The Forgotten Creator: Towards a Statutory Remuneration Right for Machine Learning of Generative AI' (2024) 52 *Computer Law and Security Review* 105925, 7.

³⁰⁰ Martin Senftleben, 'The Unproductive "Overconstitutionalization" of EU Copyright and Trademark Law – Fundamental Rights Rhetoric and Reality in CJEU Jurisprudence' (2024) 55 *IIC* 1471, 1473.

³⁰¹ Senftleben (n 300) 1474.

Second, a recent Advocate General's opinion in the *Pelham II* case illustrates a more profound change. The opinion suggested that a copyright holder's exclusive rights could be grounded not only in property rights but also in their own right to freedom of artistic expression (Article 13 EU Charter of Fundamental Rights).³⁰² In other words, not only users and reusers have freedom of expression rights, so do rightsholders when they decide how their work is used, shared or licensed. It is argued that this jurisprudential interpretation reverses the original purpose of introducing freedom of expression into copyright, which was to recalibrate the balance in favour of users and derivative creators, not against them.³⁰³ Therefore it is criticised for its potential to reinforce an imbalanced framework that privileges rightsholders over users.³⁰⁴

5.3.1. Statutory remuneration as a rights-centric solution for the AI

Statutory remuneration rights offer a pragmatic path forward that supports the anthropocentric foundations of copyright law, its focus on human creativity, while simultaneously fostering technological innovation.³⁰⁵ This approach provides a mechanism to ensure creators are compensated without stifling the development of socially beneficial AI. Notably, the European Court of Human Rights (ECtHR) ruled that failure to provide sufficient reasons to apply statutory exceptions

³⁰² Opinion of Advocate General Emiliou in *C-590/23 CG, YN v Pelham GmbH, SD, UP* (AG opinion, delivered 17 June 2025) EU:C:2025:452

³⁰³ Elena Izyumenko, 'Copyright as a Freedom of (Artistic) Expression Right? The Dangers and Human Rights Law Misconceptions in the AG's Opinion in *Pelham II*' (Kluwer Copyright Blog, 18 July 2025)

³⁰⁴ Senftleben (n 300) 1490.

³⁰⁵ Geiger, *Human Rights-Friendly Copyright* (n 82) 2.

violates its positive obligation to protect intellectual property under Article 1 of Protocol 1.³⁰⁶

Rebalancing rights does not mean sacrificing the legitimate interests of authors. The protection of an author's moral and material interests is, as established, a fundamental right in itself. From this perspective, and in line with Article 17(2) of the EU Charter, authors must be adequately remunerated for the large-scale commercial use of their works in AI training, unless a compelling justification rooted in a competing fundamental right, such as freedom of expression for political or scientific debate, exists for such uncompensated use.

This has led to discussions around the introduction of statutory remuneration rights as a possible solution that would allow for the use of copyrighted works in AI training in exchange for fair compensation to human creators.³⁰⁷ Statutory remuneration rights can be implemented through legislative action either by mandating copyright contract rules or directly establishing remuneration rights.³⁰⁸ It is also argued that even in the absence of explicit statutory provisions, the

³⁰⁶ ECtHR, *Safarov v. Azerbaijan*, App. no. 885/12 (1 September 2022). See Simon Geiregat, 'Copyright Exceptions and Digital Exhaustion Addressed by the European Court of Human Rights (Yes, the One in Strasbourg)' (Kluwer Copyright Blog, 16 November 2023) <https://copyrightblog.kluweriplaw.com/2023/11/16/copyright-exceptions-and-digital-exhaustion-addressed-by-the-european-court-of-human-rights-yes-the-one-in-strasbourg/> accessed 21 September 2025.

³⁰⁷ Christophe Geiger and Vincenzo Iaia, 'Generative AI, Digital Constitutionalism and Copyright: Towards a Statutory Remuneration Right grounded in Fundamental Rights – Part 2' (Kluwer Copyright Blog, 19 October 2023) <https://copyrightblog.kluweriplaw.com/2023/10/19/generative-ai-digital-constitutionalism-and-copyright-towards-a-statutory-remuneration-right-grounded-in-fundamental-rights-part-2/> accessed 13 April 2025.

³⁰⁸ Christophe Geiger, 'Building an Ethical Framework for Intellectual Property in the EU: Time to Revise the Charter of Fundamental Rights' in Gustavo Ghidini and Valeria Falce (eds), *Reforming Intellectual Property Law* (Edward Elgar 2022) 77, 13.

judiciary could use fundamental rights principles as an interpretation tool to redress unfair remuneration situations for creators.³⁰⁹ This is a case-by-case mechanism that offers flexibility but less predictability than a clear statutory mandate.

However, any complete solution must also account for a parallel and equally important legal framework: data protection.

5.3.2. Intersectional challenges: copyright-data protection nexus in AI training

The analysis of AI and copyright is incomplete without considering the crucial role of data protection law. When copyrighted works also contain personal data, as is frequently the case with text and images scraped from the internet, a second, parallel fundamental rights framework is triggered under the General Data Protection Regulation (GDPR).³¹⁰

The text and data mining exceptions outlined in Articles 3 and 4 of the Copyright in the Digital Single Market Directive directly intersect with the GDPR. While these provisions permit the reproduction and extraction of lawfully accessed works for analysis, any personal data contained within those works remains subject to the GDPR.³¹¹ This means that even when operating under a copyright exception, AI developers must still adhere to core GDPR principles, including lawfulness,

³⁰⁹ Geiger and Iaia, *Towards a Statutory Remuneration Right* (n 307).

³¹⁰ European Data Protection Supervisor, *Generative AI and the EUDPR: First EDPS Orientations for Ensuring Data Protection Compliance When Using Generative AI Systems* (June 2024) 11.

³¹¹ Quintais, *Generative AI* (n 127) 2.

fairness and transparency.³¹² Data minimisation is also relevant to AI training as data controllers have an obligation to ensure that data processing must be adequate, relevant and limited to what is necessary for the specified purposes.³¹³

These tensions between copyright exceptions and data protection obligations reflect a deeper constitutional framework, with the EU Charter serving as a common interpretive guide.³¹⁴ Just as copyright is balanced against other freedoms, the GDPR is interpreted in light of the fundamental rights to privacy (Article 7 EU Charter) and data protection (Article 8 EU Charter).³¹⁵ This shared constitutional foundation underscores the need for a coherent approach. At a deeper level, the concept of “separability” challenges the adequacy of the GDPR’s formal distinction between personal and non-personal data, arguing that data use should be assessed by its impact on human dignity and autonomy, not merely by its technical classification.³¹⁶

One potential technical solution to mitigate both copyright and privacy risks is the use of synthetic data.³¹⁷ By training AI models on artificially generated data that mimics the real-world data, developers can reduce their reliance on copyrighted

³¹² De Gregorio (n 291) 241.

³¹³ EDPS, *Generative AI and the EUDPR* (n 310) 14.

³¹⁴ De Gregorio (n 291) 233.

³¹⁵ Manteghi (n 128) 673.; Edoardo Celeste, ‘Digital Constitutionalism, EU Digital Sovereignty Ambitions and the Role of the European Declaration on Digital Rights’ in Annegret Engel, Xavier Groussot and Gunnar Thor Petursson (eds), *New Directions in Digitalisation: Perspectives from EU Competition Law and the Charter of Fundamental Rights* (Springer 2025) 44.

³¹⁶ Georgia Jenkins, ‘Building Autonomy Over “Artistic Data” to Safeguard Authorship and Creativity Online’ (31 January 2025) SSRN 6.

³¹⁷ Manteghi (n 128) 684.

works and personal information.³¹⁸ However, this approach is not a panacea. Significant challenges are the assessing the reliability of outputs derived from synthetic training data, limiting its immediate applicability for all use cases.³¹⁹

³¹⁸ Yingzhou Lu and others, 'Machine Learning for Synthetic Data Generation: A Review' (2021) 14(8) *Journal of Latex Class Files* 1, 1.

³¹⁹ Buick (n 127) 186.; Manteghi (n 128) 684.

Chapter VI: Generative AI, Open Access and Access to Knowledge

This chapter addresses the overview of the challenges facing open access and digital commons in the age of generative AI, particularly concerning data and intellectual property. It explores how big data has emerged as a common good, leading to concerns about data monopolies, privacy and the spread of disinformation.

Furthermore, as AI technologies increasingly rely on massive datasets to learn and create, they challenge established legal frameworks and force a re-evaluation of how digital resources are governed. The analysis explores the concept of a “digital commons,” the legal barriers that can erect an “anticommons” against innovation, and the critical role of the public domain in an era where data is both a public good and a valuable private asset.

6.1. Open access and open-source AI

Open access to common goods refers to the concept of managing resources as “commons”, assets that are openly accessible to all members of a community, without discrimination based on identity or intended use.³²⁰ Traditional examples such as air, water, and communal land highlight how common goods serve collective needs without ownership monopolies. In the digital age, platforms like

³²⁰ Brett M Frischmann, ‘An Economic Theory of Infrastructure and Commons Management’ (2005) 89 Minnesota Law Review 917, 921.

Wikipedia have extended this logic to knowledge itself, allowing users worldwide to contribute to and benefit from a collectively managed informational common.

However, the rise of big data has fundamentally altered the dynamics of openness.³²¹ Data, increasingly digitised and centralised, has emerged as a new and highly valuable commons, yet one that is deeply contested. The digital environment has transformed data into both an economic asset and a foundation for technological innovation, particularly in the field of AI.

The advent of generative AI has further intensified these discussions about the concept of open access to common goods, as AI technologies often utilise massive datasets to fuel their creativity. On one hand, many software algorithms integral to AI operations have been made publicly available, promoting a culture of openness.³²² On the other hand, such use and aggregation of open resources for AI training raise questions on moral rights and the inherent conflicts in sustainable management of digital commons.

³²¹ Openness brings significant challenges such as data monopolies, privacy concerns, and the spread of disinformation. For instance, companies like Google and OpenAI have access to vast amounts of data, giving them a competitive edge and raising concerns about data monopolies. Privacy concerns are highlighted by incidents such as the unauthorised use of personal photos to train facial recognition AI, leading to debates over digital rights. Additionally, the spread of AI-generated deepfakes illustrates the potential for disinformation. Another example to emerging challenges between openness and privacy is that the contentious debate around using openly licensed facial images for training AI in facial recognition technologies³²¹ highlights a critical paradox. See. Alek Tarkowski and Paul Keller, 'Paradox of Open Redux' (Open Future, 23 January 2023) <https://openfuture.eu/blog/paradox-of-open-redux> accessed 21 September 2025.

³²² For instance, OpenAI's GPT models, which are trained on diverse datasets sourced from the internet, highlight the complexities and debates around data usage, ownership and privacy.

The concept of “data sharing for the public good” suggests that big data, even when privately owned, should serve the public interest, advocating for data to be managed as a common pool resource.³²³ Rather than treating data purely as a commodity or exclusively as an object of fundamental rights protection, this model shifts public debate towards sustainability, equity, and collective benefit. Managing data as a common requires regulatory frameworks that ensure sustainable use and fair access, aligning with broader human rights principles that protect individual creators and communities from exploitation.

Moreover, this new narrative reshapes discussions of openness within the digital environment. Some argue that data should be treated as a traditional commons like air, water and land, especially given its critical role in technological and scientific progress.³²⁴ Others argues that data should be managed as a common pool resource, where access is governed by regulations that ensure sustainable use and equitable access for all.³²⁵

Into this complex landscape, AI Act has also a few mentions of ‘open source.’ It does not provide a blanket exemption for open-source AI. Instead, it constructs a

³²³ Alek Tarkowski and others, ‘Public Data Commons’ (Open Future, 24 May 2022) <https://openfuture.eu/publication/public-data-commons> accessed 21 September 2025.

³²⁴ For example, in 2019 in Germany, the Social Democratic Party advocated a ‘data for all’ law that claims a ‘data commons’ approach and stop data monopolies through data-sharing obligation for market- dominant companies. See. Andrea Nahles, ‘Digital progress through a data-for-all law’ (Social Democratic Party 2019) <https://www.spd.de/aktuelles/daten-fuer-alle-gesetz/> accessed 21 September 2025.

³²⁵ Katharine Miller, ‘Radical Proposal: Data Cooperatives Could Give Us More Power Over Our Data’ (Stanford University Human-Centered AI, 20 October 2021) <https://hai.stanford.edu/news/radical-proposal-data-cooperatives-could-give-us-more-power-over-our-data> accessed 21 September 2025.

risk-based legal architecture that distinguishes between different types of systems and their intended uses.

The foundational rule, established in Article 2(12) of the AI Act, is that AI systems released under free and open-source licenses are presumptively excluded from the Act's scope. However, this broad exemption is immediately followed by critical exceptions, if a free and open-source licenses are:

- Placed on the market or put into service as a high-risk AI system.
- Classified as a prohibited AI under Article 5.
- Subject to the specific transparency obligations detailed in Article 50.

Furthermore, according to Article 25(4) and Recital 89 of the AI Act, third-party suppliers of free and open-source components, other than general-purpose AI models, that are integrated into a high-risk system are exempt from the obligation to provide the information, technical access and assistance normally required of component suppliers.

6.2. Copyright barriers to innovation and access to knowledge

The evolution of the digital environment affects the principles of open access and digital commons. While regulations such as copyright law and data protection frameworks aim to safeguard creators' rights and individual privacy, they can unintentionally restrict the free flow of information and innovation.³²⁶

The tragedy of the anticommons arises when a scarce resource is fragmented among multiple owners, each possessing the right to exclude others, ultimately leading to its underuse.³²⁷ In copyright law, such a problem can easily occur because a single protected work may involve more than one rightsholder due to the complementary nature of the copyrighted work, and this requires obtaining permission, for example through licences, to use without anyone preventing its reuse.³²⁸

When it comes to generative AI and digital commons, bundling different materials, such as assembling datasets for training AI models, often requires navigating overlapping rights.³²⁹ High transaction costs, strategic behaviour among licensors

³²⁶ Roger Scruton, *How to Think Seriously About the Planet: The Case for an Environmental Conservatism* (Oxford University Press 2012) 169. Scruton points out the dangers of top-down regulations, which can centralise decision-making and potentially violate basic rights by controlling which digital goods are accessible.

³²⁷ Michael A Heller, 'The Tragedy of the Anticommons: Property in the Transition from Marx to Markets' (1998) 111(3) *Harvard Law Review* 621, 668.

³²⁸ Depoorter, (n 34) 6.

³²⁹ WIPO, *Generative AI: Navigating Intellectual Property* (World Intellectual Property Organization 2024) 2.

and the overvaluation of individual contributions can prevent socially beneficial projects from materialising, as illustrated by difficulties faced by AI developers seeking diverse training corpora from copyrighted archives.³³⁰ As a result, innovation may be hindered not by overuse, but by the inability to efficiently aggregate the necessary rights.

Managing this tension requires developing new licensing models, collective rights management systems or regulatory interventions that facilitate access while preserving fundamental protections. Initiatives such as extended collective licensing (ECL) frameworks developed in the 1960s in Nordic countries offer one model for addressing fragmented copyright ownership by allowing large-scale licensing without negotiating with every individual rightsholder.³³¹ The model's effectiveness depends on the existence of strong and representative collective management organisations,³³² however, replicating this model outside the Nordic context is not straightforward. Nevertheless, the Nordic extended collective licensing offers an important example of how structured collective solutions could help overcome rights fragmentation challenges in developing AI training datasets while balancing innovation and rightsholders' interests.

³³⁰ European Parliament resolution of 20 October 2020 on intellectual property rights for the development of artificial intelligence technologies (2020/2015(INI)) [2020] OJ C404/119, K https://www.europarl.europa.eu/doceo/document/TA-9-2020-0277_EN.html accessed 13 April 2025.

³³¹ Oscar Lisshagen, *Extended Collective Licensing: the Nordic Model In-or-Out of Commerce?* (Master's thesis, Stockholm University 2017) 7.

³³² Johan Axhamn and Lucie Guibault, 'Solving Europeana's Mass-Digitization Issues through Extended Collective Licensing?' (2011) 6 *Nordic Intellectual Property Law Review* 509, SSRN 513-516.

The DSM Directive provides an important example of the challenges involved in replicating extended collective licensing models beyond the Nordic context. Articles 8 to 11 establish mechanisms for licensing out-of-commerce works by cultural heritage institutions but critically depend on the existence of sufficiently representative collective management organisations, detailed publicity requirements and sector-specific stakeholder consultation. As further acknowledged in Recital 37 of CDSMD, the diversity of works and modes of distribution necessitates flexible licensing mechanisms and broad consultation to ensure the practical application of these provisions. However, the lack of harmonisation, for instance regarding the definition of “customary channels of commerce” and the scope of the “reasonable effort” required to determine out-of-commerce status, risks leading to fragmentation across the EU.³³³ These structural requirements illustrate that without strong, cohesive and representative frameworks, ECL-type solutions risk becoming administratively complex and limited in scope, rather than serving as an effective tool for overcoming rights fragmentation.³³⁴ In particular, uncertainties surrounding the classification and licensing of out-of-commerce works may deter cultural institutions from undertaking digitisation projects or from making digitised works available as open data resources.³³⁵

³³³ Christophe Geiger, Giancarlo Frosio and Oleksandr Bulayenko, *Facilitating Wider Access to Europe’s Cultural Heritage in the Digital Environment: Opinion of the CEIPI on the European Commission’s Copyright Reform Proposal, with a Focus on Access to Out-of-Commerce Works* (CEIPI Research Paper No 2018-11, 2018) SSRN 8.

³³⁴ Geiger, Frosio and Bulayenko (n 333) 13–14.

³³⁵ Yaniv Benhamou, Justine Ferland and Marc-André Renold, *Digitization of GLAM Collections: Policy Paper* (2021) SSRN 22-23.

The discussions regarding openness in the context of generative AI revolve around balancing two competing imperatives: protecting creators' rights and fostering innovation. Generative AI systems rely heavily on large, diverse datasets to produce new outputs. However, much of the material available for training is already protected by copyright. Overly restrictive copyright laws risk limiting access to these datasets, thereby hindering innovation and the development of new AI-generated content.

Despite promoting open access, voluntary licensing frameworks such as Creative Commons often impose structural limitations.³³⁶ Some licence types, such as “Non-Commercial” Creative Commons licences, exclude uses intended for commercial purposes, thereby creating barriers for those seeking to utilise the content in for-profit ventures.³³⁷ This restriction can be particularly problematic for generative AI projects that depend on large datasets to develop commercially viable outputs.

Parallel challenges arise from data protection laws. Recent empirical research examining the impact of the GDPR on competition in the global data markets indicates that the market concentration in web technology sectors has increased following the introduction of the GDPR.³³⁸ The GDPR, while protecting individual privacy, has also favoured larger corporations with the resources to comply, thereby increasing market concentration and reducing competition. Similar effects can be seen in the field of generative AI, where stringent copyright and data

³³⁶ European Commission, *Study on copyright* (n 133) 107.

³³⁷ Boyle (n 161) 181–184.

³³⁸ Michail Batikas, Stefan Bechtold, Tobias Kretschmer and Christian Peukert, ‘European Privacy Law and Global Markets for Data’ (CEPR Discussion Paper No DP14475, March 2020) 20.

regulations can disproportionately create barriers to entry, favouring the dominance of already powerful players and narrowing opportunities for new entrants.

These regulatory effects echo a broader systemic risk: the digital tragedy of the commons. It is argued that the risks of short-term thinking and a lack of consideration for the consequences of one's actions destruct nature³³⁹ and this also applies to the management of digital commons.³⁴⁰ The openness movement argues that the internet should be free and open, without restrictions or limitations. However, reliance on private gatekeepers³⁴¹ such as online search engines and online platforms often perpetuates the "tragedy of the commons", where short-term, individualistic thinking prevails.³⁴² In the context of generative AI, this can be seen in the use of datasets without proper consideration of privacy or copyright authorisation leading to ethical and legal challenges. Furthermore, large tech companies hoarding vast amounts of data limit accessibility for smaller entities and researchers.³⁴³ This monopolisation can hinder diversity and innovation in AI-

³³⁹ Patrick J Deneen, 'Wendell Berry and the Alternative Tradition in American Political Thought' in Jason Peters (ed), *Wendell Berry: Life and Work* (University Press of Kentucky 2007) 307.

³⁴⁰ Erling Berge and Frank van Laerhoven, 'Governing the Commons for Two Decades: A Complex Story' (2011) 5 *International Journal of the Commons* 160, 161. The fundamental challenge of digital commons lies in the regulation of individual decisions in a situation where the results are influenced by the decisions of all other users.

³⁴¹ Jan Zygmuntowski 'Gatekeepers of Open' (*Open Future*, 19 January 2023) <https://openfuture.eu/blog/gatekeepers-of-open> accessed 21 September 2025.

³⁴² Berge and Laerhoven (n 340) 165.

³⁴³ Derek Slater, 'The Evolving Shape of "The Copyright Wars"' (*Open Future*, 2022) <https://openfuture.eu/paradox-of-open-responses/the-evolving-shape-of-the-copyright-wars> accessed 21 September 2025. This article underscores this point by discussing how media companies leverage the law to secure their positions, often at the cost of limiting access to information and resources for smaller entities and innovators. In the context of generative AI, such limitations can

generated works, as fewer perspectives and datasets are available for training AI models.

As a result, the digital age, propelled by advancements in AI, demands a forward-thinking approach to copyright and data rights. For this reason, advocating for more accessible digital commons and creating new digital public spaces could mitigate the monopolistic tendencies that currently hamper the free flow of information and innovation in generative AI. By building infrastructures that prioritise openness and community-driven governance, it is possible to foster a more inclusive environment where diverse datasets and inputs are available for AI training, avoiding both the overexploitation (commons tragedy) and underuse (anticommons tragedy) of digital commons.

lead to a homogenization of AI outputs, as only a few large tech companies can afford to comply with these regulations and hoard data.

6.3. AI's use of public domain works

The advancement of AI and its interaction with copyright law converge on the theme of balancing copyright holders' rights with protecting broader public interest under fundamental rights frameworks. Human rights, including freedom of expression³⁴⁴, access to culture³⁴⁵ and the right to education³⁴⁶ are normative reference points in balancing copyright enforcement with open public access.

In particular, the European Court of Human Rights has consistently stressed that copyright protection must not unjustifiably restrict freedom of expression and the free flow of information in the digital environment. In *Ashby Donald and Others v. France*, for instance, the ECtHR underlined the need to balance copyright enforcement with freedom of expression (Article 10 ECHR), particularly when restricting online dissemination of creative content.³⁴⁷ Similarly, in the *Pirate Bay* case (*Neij and Sunde Kolmisoppi v. Sweden*), the Court recognized legitimate limitations on freedom of expression for copyright enforcement, reaffirming that intellectual property enforcement can legitimately restrict certain expressive

³⁴⁴ Article 10 of the European Convention on Human Rights, Article 19 (freedom of expression and opinion) of the International Covenant on Civil and Political Rights; Article 11 of the EU Charter of Fundamental Rights.

³⁴⁵ Article 27(1) (right to participate in cultural life) of the Universal Declaration of Human Rights; Article 15(1)(a) (right to participate in cultural life) of the Article 15(1)(b) (right to enjoy benefits of scientific progress and its applications), Covenant on Economic, Social and Cultural Rights; Article 13 ("Arts and scientific research shall be free of constraint.") of the EU Charter of Fundamental Rights.

³⁴⁶ Article 26 (right to education) of the Universal Declaration of Human Rights, UNGA Res 217 A (III), 1948.; Article 13 (right to education) of the Covenant on Economic, Social and Cultural Rights, 993 UNTS 3, adopted 1966, entered into force 1976.; Article 14 of the EU Charter of Fundamental Rights.

³⁴⁷ ECtHR, *Ashby Donald and Others v. France*, App. no. 36769/08 (10 January 2013)

activities.³⁴⁸ Together, these rulings clarify that, while copyright may legitimately limit certain expressive activities, such restrictions must be carefully assessed in light of fundamental human rights.

CJEU similarly emphasises the interpretative weight of fundamental rights within copyright law. In *Funke Medien NRW GmbH v. Bundesrepublik Deutschland*, the CJEU underscored that exceptions to copyright must be interpreted explicitly through fundamental rights considerations, especially freedom of expression, to ensure that copyright enforcement does not disproportionately impede access to information.³⁴⁹ Likewise, the *Pelham GmbH v. Hütter* (“Sampling case”) decision emphasized the importance of protecting creative and cultural freedoms within copyright frameworks, recognizing artistic expression as integral to fundamental rights.³⁵⁰ These decisions reveal that copyright limitations and exceptions serve not only economic but also societal and cultural purposes, especially in the digital age of reuse.

Additionally, educational and cultural access concerns are stated in the CJEU’s decision in the *Renckhoff* (“Córdoba case”), where the court clarified the scope of educational exceptions to ensure equitable access to knowledge and culture by emphasizing the need to balance copyright enforcement and educational use.³⁵¹

The legal principles established by these cases have direct and significant implications for generative AI technologies, which depend on extensive access to

³⁴⁸ ECtHR, *Neij and Sunde Kolmisoppi v. Sweden*, App. no. 40397/12 (19 February 2013)

³⁴⁹ C-469/17 *Funke Medien NRW GmbH v Bundesrepublik Deutschland* EU:C:2019:623

³⁵⁰ C-476/17 *Pelham GmbH v. Hütter* EU:C:2019:624

³⁵¹ CJEU, *Renckhoff* (Córdoba), C-161/17 (7 August 2018).

data, including public domain materials. Making the public domain accessible and reusable is important for generating new knowledge and encouraging creativity.³⁵²

Within this landscape, Article 14 of the CDSMD is important to address. By explicitly safeguarding the public domain status of digitised cultural works, Article 14 aligns closely with the EU's human-centric approach to AI development, reinforcing the rights to freedom of expression, cultural participation and educational access.³⁵³ Article 14 states that the copyright status of visual art works that are in the public domain keep their public domain status even when digitised, prohibiting new copyright protection arising solely from digitisation unless the reproduction is the author's own intellectual creation.³⁵⁴

On the other hand, AI models, particularly generative AI, rely on publicly accessible data for their training and digitised public domain works, as referenced in Article 14, may constitute some of these datasets.³⁵⁵ Therefore, the accessibility,

³⁵² Initiatives such as funding OpenGLAM (Galleries, Libraries, Archives, and Museums), the launch of Europeana, and the Europeana Public Domain Charter reflect this stance. See Andrea Wallace and Ellen Euler, 'Revisiting Access to Cultural Heritage in the Public Domain: EU and International Developments' (2020) 51 *IIC* 823, 824.

³⁵³ The AI Act aims to ensure that AI is human-centred and that AI systems placed on the EU market are safe and respect existing laws on fundamental rights and values. See 'Regulatory Framework Proposal on Artificial Intelligence' (European Commission, Digital Strategy) <https://digital-strategy.ec.europa.eu/en/policies/regulatory-framework-ai> accessed 13 April 2025.

³⁵⁴ See Chapter II for a detailed discussion of the criteria for author's own intellectual creation under EU law.

³⁵⁵ 'HAICu – Using AI to Access, Connect and Analyse Heritage Collections' (Europeana Pro, 21 February 2024) <https://pro.europeana.eu/post/haicu-using-ai-to-access-connect-and-analyse-heritage-collections>; 'AI and Machine Learning with British Library Collections' (British Library Digital Scholarship Blog, 23 December 2024) <https://blogs.bl.uk/digital-scholarship/2024/12/ai-and-machine-learning-etc-with-british-library-collections.html> accessed 13 April 2025.; Gabor Mihály Tóth, Richard Albrecht and Cedric Pruski, 'Explainable AI, LLM, and Digitized Archival Cultural Heritage: A Case Study of the Grand Ducal Archive of the Medici' (2025) *AI and Society*.

transparency, and ethical use of public domain materials for AI training must remain human-centred, consistent with the values articulated in the EU's AI strategy.³⁵⁶

Two legal and ethical issues are associated with that matter: Firstly, it is important to examine how cultural heritage institutions address their obligations under Article 14 concerning AI use of faithful reproductions of public domain works.³⁵⁷ These institutions play a pivotal role in safeguarding public access to shared cultural heritage, yet they may impose restrictive licensing conditions on digitised works that could impede AI access. For example, the Neues Museum in Berlin imposed a Creative Commons Attribution-NonCommercial-ShareAlike license on its digitised 3D scan of the 3,000-year-old Nefertiti bust, effectively restricting commercial or derivative uses of a clearly public-domain artifact.³⁵⁸ Similarly, the National Portrait Gallery in London has asserted new copyright claims over high-resolution digitised reproductions of its public-domain artworks, as demonstrated by a dispute involving Wikimedia Commons.³⁵⁹ Additionally, several EU Member

³⁵⁶ 'European Approach to Artificial Intelligence' (European Commission, Digital Strategy) <https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence> accessed 13 April 2025.

³⁵⁷ Andrea Wallace, 'Article 14 and the Public Domain: The State of Play Across Europe' (Europeana Pro, 5 April 2022) <https://pro.europeana.eu/post/article-14-and-the-public-domain-the-state-of-play-across-europe> accessed 13 April 2025.

³⁵⁸ Catherine Stihler, 'Reproductions of Public Domain Works Should Remain in the Public Domain' (Creative Commons Blog, 20 November 2019) <https://creativecommons.org/2019/11/20/reproductions-of-public-domain-works/> accessed 13 April 2025.

³⁵⁹ 'National Portrait Gallery and Wikimedia Foundation Copyright Dispute' (Wikipedia, 13 April 2025) https://en.wikipedia.org/wiki/National_Portrait_Gallery_and_Wikimedia_Foundation_copy_right_dispute accessed 13 April 2025.

States have enacted national legislation providing additional layers of protection for reproductions of public domain works, requiring authorisation or payment for their use.³⁶⁰ These practices have been criticised for reintroducing exclusive rights over public domain materials, creating legal uncertainty that hampers access, reuse and innovation, ultimately undermining access to cultural heritage in conflict with Article 14 of the CDSM Directive.³⁶¹ It is argued that the impact of Article 14 CDSMD is undermined not only by national cultural heritage laws that restrict the use of public domain works, thereby limiting their availability for AI training, but also by the potential for AI systems themselves to re-privatise these works by restricting access to outputs derived from them, effectively resulting in a double barrier to public access.³⁶²

Secondly, the use of public domain works in AI training raises the question of whether AI training is reproduction and whether AI-generated outputs derived from public domain works should remain in the public domain. Article 14 of the CDSMD prohibits the monopolisation of the public domain, however, it does not address the applicability of this principle to AI training and AI-generated outputs.

³⁶⁰ These restrictions, imposed by Bulgaria, France, Greece, Italy, Portugal and Slovenia, are criticised for conflicting with EU law. See Communia Association, *Policy Paper #20 on the Right to Use Public Domain Heritage* (2023) <https://communia-association.org/policy-paper/policy-paper-20-on-the-right-to-use-public-domain-heritage/> accessed 13 April 2025.

³⁶¹ 'The Europeana Public Domain Charter' (Europeana Pro, 2010) <https://pro.europeana.eu/post/the-europeana-public-domain-charter> accessed 13 April 2025.

³⁶² Giulia Dore and Pelin Turan, 'When Copyright Meets Digital Cultural Heritage: Picturing an EU Right to Culture in Freedom of Panorama and Reproduction of Public Domain Art' (2024) 55 *IIC* 37, 57.

Thus, there needs to be an interpretation on the term “an act of reproduction of that work.”

As previously discussed in Chapter III, the AI training process involve the reproduction of works, including the creation of temporary copies, which are essential for the functioning of text and data mining. Furthermore, it is argued that the term “reproduction” in Article 14 refers to any act of copying whether direct or indirect, temporary or permanent since the concept is already broadly defined in the InfoSoc Directive; however, such acts will not be protected unless they meet the originality threshold.³⁶³ An exact copy of public domain material does not satisfy the requirement of originality.³⁶⁴ In this regard, exact reproductions of public domain material, including those generated through automated AI processes, do not meet the standard of originality and therefore fall outside the scope of copyright protection.

While Article 14 of the CDSMD specifically addresses the non-copyrightability of non-original reproductions of public domain works of visual art, the underlying principle of ‘author’s own intellectual creation’ applies to copyright in general.³⁶⁵ Therefore, for a trained AI model to be considered original and thus protected by copyright, there must be evidence of free and creative choices in the development process that go beyond mere automated analysis and result in an output that reflects author’s personal intellectual creation. In most cases, however, the

³⁶³ Rosati, *Commentary* (n 112) 243.

³⁶⁴ João Pedro Quintais, ‘The New Copyright in the Digital Single Market Directive: A Critical Look’ (2020) *European Intellectual Property Review* 2020(1) 14.

³⁶⁵ Rosati, *Commentary* (n 112) 245.

automated and statistical nature of machine learning processes makes this threshold difficult to reach. Introducing a sui generis right for AI-generated outputs, as investigated in Chapter II, presents a potential solution to address the limitations of the anthropocentric perspective inherent in EU copyright law. Nonetheless, the sui generis database right has faced criticism for its potential to restrict public domain materials to private interests, which may inevitably restrict access to the public domain.³⁶⁶

Moreover, granting copyright protection to AI-generated outputs derived from public domain works, particularly in commercial contexts, may contradict the original intention of Article 14. Further interpretative clarity is also required regarding the extent and scope of the '*the act of original reproduction that is the author's own intellectual creation*' criterion in the context of digitisation or reproduction processes.

³⁶⁶ See Monica Lupaşcu, 'Databases and the Sui-Generis Right – Protection Outside the Originality: The Disregard of the Public Domain' in *Challenges of the Knowledge Society: Intellectual Property Law* (2018).

Conclusion

This thesis has investigated the profound jurisprudential challenge posed by generative AI to the human-centric foundations of copyright law. It has argued that the resolution to this challenge lies not in abandoning these foundational principles, but in reinforcing them. The research systematically deconstructed the legal status of AI-generated outputs, the framework for AI training inputs, ultimately charting a path forward that reconciles technological innovation with the fundamental rights of human creators.

This thesis has argued that while copyright law must continue to adapt to new technologies, its foundational purpose, to incentivise and protect human creativity, remains central. Granting authorship to non-human entities would be inconsistent with all the copyright theories that underpin the entire copyright system. These frameworks were designed to reward the investment of human intellect, preserve the integrity of a creator's personality and recognise the value of human labour. Therefore, the most coherent path forward is to legally and conceptually define AI as a sophisticated tool that augments, rather than replaces, the human creator. By maintaining the primacy of the human author, the person who makes the arrangements, provides the creative choices and guides the process, copyright law can successfully handle the challenges posed by artificial intelligence. In doing so, copyright law will not only navigate the challenges of automation but also reaffirm the humanist principles that give it enduring meaning and purpose: celebrating and protecting the unique, irreplaceable capacity for human creation.

The findings of this thesis have significant implications for policymakers, creators and the AI industry.

- **For EU Policymakers:** The research reveals a pressing need for legislative reform to address the critical ambiguities within the CDSMD and the AI Act. The current framework, particularly the TDM exceptions, creates legal uncertainty that risks stifling innovation and undermining authors' rights. It is recommended that policymakers formally consider the implementation of a statutory remuneration framework. Such a system would create a predictable, fair and efficient licensing environment, ensuring sustainable access to high-quality data for AI development while compensating rightsholders.
- **For Creators and Rightsholders:** This thesis validates the central and indispensable role of human creators in copyright law. However, it also demonstrates that relying on existing mechanisms such as the individual opt-out is an insufficient strategy for protecting their interests in the age of AI. It is recommended that rightsholders and their representative bodies shift their advocacy efforts away from individual enforcement actions and towards the establishment of collective licensing and remuneration models. This collective approach offers a more powerful and sustainable means of securing fair compensation for the value their works contribute to the AI economy.
- **For the AI Industry:** The findings imply that continued reliance on the ambiguous legal ground of the TDM exceptions presents a significant and growing legal and financial risk for AI developers. To ensure long-term,

sustainable and lawful access to the high-quality data necessary for innovation, the industry should move beyond a confrontational stance. It is recommended that AI developers proactively engage with policymakers and creator organisations to help shape fair, transparent and workable licensing standards and data governance protocols.

This thesis, like any scholarly work, is subject to certain limitations. The pace of technological change means that any legal analysis of AI is necessarily a snapshot in a rapidly evolving landscape. These limitations, however, show several avenues for future research that can build upon the foundations established, including **i)** empirical analysis of the economic impact of various statutory remuneration models on both the pace of AI innovation and the income streams of human creators, **ii)** in-depth comparative legal study of non-EU jurisdictions that are developing alternative regulatory paradigms for AI and copyright and **iii)** exploration of the technical and legal feasibility of implementing advanced, machine-readable rights reservation protocols.

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